

Wisconsin Pollutant Discharge Elimination System Permit for Municipal Separate Storm Sewer System, Permit No. WI-S061565-04: Fact Sheet – April 2021

Purpose

There are currently 7 municipally-owned or -operated municipal separate storm sewer systems (MS4s) in Wisconsin covered under Wisconsin Pollutant Discharge Elimination System (WPDES) Permit No. WI-061565-03. This permit is also referred to as the North Shore Permit. The WPDES permit expired on June 11, 2018. The Wisconsin Department of Natural Resources (Department) is proposing to reissue WPDES Permit No. WI-061565-04 to continue the coverage of storm water discharges from these 7 MS4s. The proposed permit requires an MS4 permittee to develop, implement, and maintain storm water management programs to reduce the discharge of pollutants from the MS4 to waters of the state. The 7 North Shore Permittees affected by this proposed permit are listed below.

Village of Bayside
Village of Brown Deer
Village of Fox Point
City of Glendale

Village of River Hills
Village of Shorewood
Village of Whitefish Bay

This fact sheet summarizes the Department's process and rationale for developing and issuing the North Shore Watershed Group MS4 permit.

The Department's Authority to Issue WPDES Permits

This permit is issued under the statutory authority granted to the Wisconsin Department of Natural Resources pursuant s. 283.33, Wis. Stats. (Storm water discharge permits) and implements applicable federal and state law relating to municipal separate storm sewer systems. The specific federal requirements for MS4 permits are found in U.S. Code § 1342 (p)(3)(b) and 40 CFR 122.26. The specific state requirements for MS4 permits are found in s. NR 216 Subchapter I, Wis. Adm. Code.

The Department originally issued WPDES Permit No. WI-061565-03 on June 12, 2013.

The Department's Regulation of Storm Water from the MS4

In Wisconsin, WPDES permits are issued by the Department with federal oversight from the USEPA. The Department is responsible for the issuance, reissuance, modification, and enforcement of all WPDES permits issued for discharges into the waters of the state, except discharges occurring in Indian Country which are regulated directly by the USEPA. No person may legally discharge to waters of the state without a WPDES permit issued under this authority.

In 1987, Congress amended the CWA, authorizing a national program of comprehensive storm water pollution control for MS4s, certain industries, and construction sites. In 1993, Ch. 147, Wis. Stats., (now Ch. 283, Wis. Stats.) was amended to include storm water as a "point source" discharge and to require that the Department promulgate administrative rules for permitting the discharge of storm water. As a result, the Department created Ch. NR 216, Wis. Adm. Code, for permitting storm water discharges from certain municipalities that own or operate MS4s, storm water discharges associated with industrial activity, and storm water discharges associated with land disturbing construction activity.

General Approach to Permit Development

In November 2016, the USEPA promulgated the MS4 General Permit Remand Rule (40 CFR Part 122). The USEPA amended its regulations governing how small MS4s obtain coverage under NPDES general permits. In addition to establishing two alternative approaches to obtaining permit coverage, the rule clarifies that the permitting authority must establish the necessary “clear, specific, and measurable goals” for the MS4 to “reduce the discharge of pollutants from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the Clean Water Act.” Referred to as the “MS4 permit standard,” both approaches ensure that the public participation requirements of the CWA are met. The Department is applying the Comprehensive Approach to issue this group permit. Under the Comprehensive Approach, all requirements are contained within the permit. For more information on the MS4 General Permit Remand Rule, use a standard Internet search engine and type in “EPA remand rule.”

Permit conditions were developed to meet the MS4 permit standard; reduce pollutants to the maximum extent practicable, protect local water quality, and meet Clean Water Act Standards. This permit requires continued implementation of the six minimum control measure programs, development of a storm water management plan to achieve the reduction goals outlined in the Milwaukee River TMDL, and completion of special requirements specific to each MS4 which provide improvements in water quality. Permittees satisfy the MS4 permit standard through successful implementation of the storm water management programs and compliance with the WPDES permit.

This permit incorporates EPA’s clarification on permit requirements, specifically to address 40 CFR 122.34 (a), that “Terms and conditions (...) must be expressed in clear, specific, and measurable terms.” To accomplish this, the permit terms that included caveat terms such as “if feasible” or “as necessary” are revised to provide more clarity on when a specific action is required.

Additionally, in December 2015, the USEPA promulgated the NPDES Electronic Reporting Rule (40 CFR Parts 9, 122, 123, 124, 127, 403, 501, and 503). This regulation requires the electronic reporting and sharing of NPDES program information. The USEPA identifies specific NPDES information, or data elements, that NPDES permitting authorities, such as the Department, are to electronically collect, manage, and share to the USEPA. The Department’s electronic reporting system was built to collect these data elements. Permittees can locate the eReporting system here:
<https://dnr.wi.gov/topic/stormwater/municipal/eReporting.html>.

The Department considered annual reports, storm water management plan documents, and the request for information provided by each permittee when developing the permit conditions. Multiple meetings were held with the North Shore Permittees and partners to discuss permit conditions. Additionally, individual meetings were held with each permittee to discuss individual requirements. The following document provides an explanation for major permit requirements and summarizes changes from the previous permit.

Applicability

This permit applies to the 7 MS4s listed on the cover page of the permit. No new MS4s are covered by the reissued permit.

Overview and Significant Changes from the Previous Version of the Permit

The proposed permit includes the conditions required by s. NR 216.07, Wis. Adm. Code, which consists of the following six categories, or minimum control measures:

- Public Education and Outreach
- Public Involvement and Participation
- Illicit Discharge Detection and Elimination
- Construction Site Pollutant Control
- Post-Construction Storm Water Management
- Pollution Prevention

This proposed permit follows federal and state requirements and provides flexibility for a municipality to develop, implement, maintain, and evaluate its MS4 programs to help determine appropriate methods for meeting permit requirements. This proposed permit allows a permittee to comply with the permit requirements either individually or in collective arrangement with other municipalities. Each permittee is responsible for meeting all the applicable requirements for its own MS4. However, permittees may find that collectively pooling their resources will be more efficient and cost-effective to comply with certain requirements.

This proposed permit requires a permittee to maintain its programs developed and implemented under the previous version of the North Shore Permit, comply with measurable goals, and to summarize its efforts at meeting the permit requirements in an annual report. In addition, this proposed permit continues to require compliance with the developed urban area performance standard of s. NR 151.13, Wis. Adm. Code. A summary of the most significant changes from the previous version of the North Shore Permit is provided below.

Permit Structure

The Permit is broken down into seven sections. Section I outlines the applicability and general storm water permit requirements. Sections II and III include the storm water program requirements, Total Maximum Daily Load (TMDL) requirements, and individual requirements. Section IV contains a schedule of when specific permit requirements must be completed. Section V and VI are standard conditions and definitions respectively. Lastly, Section VII contains the reduction goals for Total Suspended Solids (TSS) and Total Phosphorus (TP) from the Milwaukee River TMDL.

II. Storm Water Management Plan

This permit requires development of written storm water management program (SWMP) documents describing how the permittee will comply with the permit's requirements for each of the six minimum control measures, consistent with 40 CFR 122.34 (b). This is not a new requirement, but a clarification because the previous permit did not require written program documents. As explained in the EPA Rule Remand, "the written SWMP provides [the Department] something concrete to review to understand how the MS4 will comply with permit requirements and implement its storm water management program."¹ This also provides an opportunity for the Department to assess compliance with the permit requirements. The permittees are expected to develop written documents if they do not already exist and submit them to the Department. Existing and new SWMP documents describing the permittees approach to each minimum control measure must be submitted to the Department by June 1, 2023.

II. A and B. Public Education and Outreach

¹ 81 Federal Register 89339, December 9, 2016.

The previous permit required the North Shore Permittees as a group to increase awareness of how the combined actions of human behavior influence storm water pollution and its effects on the environment. The permittees were to identify target audiences, establish measurable goals, and develop a mechanism for evaluating effectiveness. The specific education topics included items such as illicit discharge impacts, habitat degradation, yard waste management, proper BMP design and installation, and BMPs for snow and ice removal. The North Shore Permittees, and other MS4s in the region, have combined resources to support Southeastern Wisconsin Watersheds Trust's Respect Our Waters campaign to provide broad education and outreach to the watershed. The reissued permit will build upon this foundation and broad education program and provide for more targeted education and outreach.

During permit development the permittees expressed interest continuing the group Education and Outreach program. Therefore, the requirements to address the nine broad education topics will remain a group condition and the permittees will need to track and report the education topics, target audiences, targeted pollutants, and delivery mechanism on the annual report. Should a permittee choose not to participate in the group effort, that permittee will be expected to provide education on all topics during the permit term as specified in Table 1 of Section II. A. 3.

This permit requires focused, localized education by each MS4 permittee. The goal of the individual education program is to identify storm water education needs of the community and provide targeted education based on the identified needs. The permit specifies 18 months (by November 30, 2022) for each permittee to identify and prioritize the specific storm water quality issues or pollutants of concern in the community. The permittees have flexibility to use a survey or other methods to learn what their MS4 education needs are.

The last education and outreach requirement is for each MS4 to complete targeted education. The MS4 should use the results of the evaluation and prioritization to select a topic for targeted education within their MS4. The permittees will have an additional 24 months (by November 30, 2024) to develop and provide the education material. The permittees will need to identify metrics which will be used to measure the effectiveness of their targeted education. For example, if leaf collection and disposal methods are identified by residents as an education need, the permittee could assess quantity of leaf litter in roadways before and after education is provided. After completion of the targeted education, the permittees will have to submit a summary of the results with the next permit application along with plans for targeted education in the next permit term.

II. C. Public Involvement and Participation

The previous permit required permittees to notify the public of activities required by the permit and to encourage input from the public regarding these activities. The new permit contains a similar requirement but identifies more specific activities for public input. The permittees must allow for public comment and consider comments on annual reports, storm water management plan revisions, adoption of storm water related ordinances, and development of benchmarks for TMDL pollutant reduction. Lastly, to satisfy the eReporting Rule, the permittee needs to track and report the delivery mechanism and target participants for each activity.

II. D. Illicit Discharge Detection and Elimination (IDDE)

North Shore Permittees have been implementing Illicit Discharge Detection and Elimination (IDDE) programs since first obtaining MS4 permits. The reissued permit will build upon the existing programs

and provide more clarity in specific response actions and add greater emphasis to the elimination part of the IDDE.

Both the existing and reissued permit require MS4s to have an ordinance or regulatory provision which prohibits non-storm water discharges into the MS4 system or waters of the state. The ordinance coupled with inspection and enforcement authority are necessary for the MS4 to prevent illicit discharges or improper disposal. As these are existing requirements, the Department expects MS4s to already be enforcing the ordinance or regulatory mechanism.

Section II. D. 4 of the new permit requires development of an enforcement response plan that documents how the MS4 will enforce its illicit discharge ordinance. The enforcement response plan is intended to provide clarity and consistency in enforcement actions the MS4 will complete once an illicit discharge is identified. The enforcement response to all identified illicit discharges may not be the same, consider illegal dumping verses cross connections, so the permittee may identify specific actions for all illicit discharges or identify actions for certain types of discharges. The enforcement response plan must also identify the person responsible for responding to illicit discharge reports.

Field screening remains an effective way to identify illicit discharges or which storm water pipes may have illicit connections. Similar to the previous permit, the permittee needs to identify pollutant parameter action levels used during outfall screening. Based upon the sampling result for a specific pollutant, the permittee may need to take additional action. For example, the concentration of ammonia detected at the outfall may require the permittee to collect a sample for lab analysis and complete a sewer shed investigation to find the source. Other times only follow up monitoring is needed. The permittee has the flexibility to determine the action levels and corresponding response steps provided the pollutants and specified parameter action levels are identified in the written IDDE field screening procedures or similar document. The Department has developed guidance to assist with developing parameter action levels, and permittees are encouraged to adapt their IDDE programs based upon the results of screening and characteristics of the sewer sheds. The IDDE field screening procedures or similar document shall also explain when a certified lab sample needs to be collected, as these are more accurate and hold greater weight during enforcement.

Prioritization of outfalls to screen is an effective practice to identify illicit discharges and eliminate the pollutant loads. Similar to the previous permit, this permit calls for identifying priority outfalls. Permittees may consider factors such as pipe age, condition, material, number of overlapping sanitary service, or other factors when developing their prioritization scheme. An example prioritization scheme is the Human Illicit Discharge Potential (HIDP) analysis developed by the Menomonee permittees. The HIDP analysis is used to identify outfalls having a high likelihood of illicit discharge based upon multiple variables. The analysis looks at all MS4 outfalls, not just major outfalls. The North Shore Permittees can use a similar prioritization or develop their own methods. Once the prioritization analysis is complete, the permittee should select 1/5 of the major outfalls and priority outfalls to screen each year. Any major outfall showing evidence of illicit discharges or exceeding a parameter action level, needs to be monitored at least once per year.

Outfall screening consists of visual observation, field analysis, documentation, and potentially lab analysis. Each permittee is required to develop its own screening procedures. The procedures should include the information the permittee collects, a description of the decision making process for further investigation and follow up, and documentation of results. Typically, if flowing water is observed at the outfall, a field analysis should be conducted to determine the source of the flow and the appropriate

parameter action levels followed. If general observations and screening indicate the presence of illicit discharge, and the source cannot be readily identified, the permittee should collect a water sample for lab analysis. The water sample should then be analyzed for parameters to aid in determining the source of illicit discharge. Documentation of field screening activities shall be kept for at least 5 years. A summary of the results must be submitted with the annual report. This can be a spreadsheet summarizing the sample results for each outfall. The proposed permit includes a provision for alternative field analysis procedures that can be implemented upon approval by the department.

The final requirement of the IDDE program is investigation and elimination procedures for responding to known or suspected illicit discharges. Where enforcement response procedures outline how the ordinance is enforced once an illicit contributor is identified, the investigation and elimination procedures outline the actions the permittee will take to respond when illicit discharges are suspected or identified through screening, notification, complaints, or other sources. Each permittee should have procedures for immediately investigating portions of the MS4 suspected to contain illicit discharge based upon field screening, complaints, visual observation or other relevant information. These procedures shall identify the person responsible, the response time, investigation techniques to employ, and equipment necessary. Each permittee must also have a plan for responding to spills which discharge into or out of the storm sewer, including prevention and containment.

The permit changes the response time for eliminating illicit discharges or connections. The previous permit required the removal of the discharge or connection within 3 days to the maximum extent practicable and required follow up screening if the source was indeterminant but did not specify a timeframe for resolution outside of the 3-day period. To add more clarity to this section, the language is updated to as soon as practicable. The permittee must take appropriate actions to eliminate the illicit discharge within 30 days. For public sources, this can mean begin taking steps to stop the illicit discharge. For private sources, this can mean beginning to use the enforcement response procedures (written notice, NON, etc.). Within the 30-day time period, an initial assessment of feasibility to remove the discharge should be made. If the illicit discharge cannot be removed in 30 days, the permittee must contact the Department. If after initial assessment, the permittee determines it will take longer than 30 days to remove the illicit connection, the permittee must submit an illicit discharge elimination plan within 45 days which identifies the actions and timeframe the permittee will follow to remove the illicit discharge. For example, if a force main is leaking into a storm sewer under a major roadway, significant resources and time may be needed to plan and complete the repair. The permittee will be expected to follow the submitted elimination plan and remove the illicit connection as soon as practicable.

The IDDE investigation and elimination procedures should also include specific notification procedures. Permittees must immediately notify the Department in the case of a spill or release of hazardous substance. The permittees are also required to contact the Department within 24 hours of identifying an illicit discharge. Advance notification of dye testing is also required because dyes are often confused with illicit dumping. Finally, the permittee should contact adjacent MS4s if it identifies an illicit discharge which flows from or into the adjacent permittee's storm sewer.

Each permittee must also maintain a system for documenting illicit discharge activities including complaints, referrals, and investigation activities. Records shall be kept for at least 5 years.

This permit also requires training for those staff responsible for implementing the illicit discharge program at least once during the permit term. This can include police and fire staff if they are

responsible for responding after hours. They may not need to be trained in investigation and clean up, but should understand what an illicit discharge is, and who to report findings to.

II. E. Construction Site Pollutant Control

This permit continues the requirement to implement a construction site pollutant control program to reduce the discharge of sediment from construction sites. The requirements are similar to the last permit and the changes are intended to add clarity to the permit. The permittees are expected to have a construction site ordinance in place which requires construction plans which meet the performance standards in s. NR 151, Wis. Adm Code, allows for inspection and enforcement to ensure compliance with performance standards, and requires site operators to properly manage waste materials on construction sites.

The requirement for the MS4 to notify landowners of other potentially required permits has been removed. This requirement has been removed because it is the landowner's responsibility to obtain all applicable permits, and the municipality does not always know what are the latest DNR wetland and waterway permitting requirements that could apply to a site.

New requirements in this permit include written plan review procedures, specific construction site inspection frequencies, and written enforcement procedures. The permittees also need to include in the construction program documents how they will respond to information submitted from the public, including complaints.

The permittee's plan review procedures should identify the steps construction site operators will follow to obtain a construction permit and the procedures the plan review staff (MS4 permittee) will follow to review and issue construction site permits. The procedures should also describe how the permittee will consider water quality impacts through its plan review process as required in s. NR 216.07 (4) (b). Wis. Adm. Code. The considerations can be in the form of a checklist or specific BMPs for certain site conditions but must describe a consistent process or evaluation that is applied to all sites within the permittee's jurisdiction. For example, the permittee may require certain BMPs on high slope or large sites or additional barriers if the site is adjacent to wetlands or other waterbodies. The permittees may also require identification of portable toilets on construction sites and require them to be on impervious surfaces and in locations of low traffic to limit bacteria runoff.

Each Permittee is required to develop a construction site inspection procedures which consider multiple factors affecting the potential water quality impact. These factors include, site size, slope, soil type, nature of construction, proximity to receiving water, receiving water quality (exceptional, outstanding, impaired, etc.) and previous site operator compliance issues. The EPA Permit Improvement Guidance² gives recommended inspection frequencies based upon certain site factors. The sites with higher chance of impacting the receiving water should receive the most inspection attention. Until the permittee develops their own inspection frequencies, the inspection frequencies in Table 2 must be followed. Permittees are also required to keep record of all inspections and follow up for 5 years.

The final new requirement of the construction program is for permittees to develop an enforcement response plan or similar document. The enforcement response plan should describe how and when the permittee will use the enforcement provisions in their local ordinance to ensure the discharge of

² MS4 Permit Improvement Guide. April 2010. https://www3.epa.gov/npdes/pubs/ms4permit_improvement_guide.pdf

sediment and pollutants is controlled accordingly. For example, a permittee may elect to issue a stop work order after an initial inspection and follow up inspection 7 days later, to a site which has not installed erosion and sediment control practices but has begun mass site grading.

II. F. Post-Construction Storm Water Management

The post-construction program is intended to control the quality of storm water discharges from the MS4 after construction is complete. The discharges should be controlled for the life of the site or until redevelopment takes place. This permit continues the requirement for permittees to have an ordinance or regulatory mechanism that applies to sites of specific size and requires post-construction standards equal to or more restrictive than Ch. NR 151, Wis. Adm. Code, and Department technical standards. The ordinance shall also require permit a storm water management plan for the site, permit application and associated fees, long term maintenance for post-construction BMPs, and provide the MS4 with inspection and enforcement authority.

Similar to the construction site program, the permit requires written procedures the permittee will employ for reviewing plans for sites which require post-construction BMPs. The procedures should describe the permittee's review process and items the permittee reviews to consider water quality impacts.³ These may include wellhead protection barriers near drinking water sources or additional controls for developments in TMDL areas. The procedures should also describe how permittees review requests for regional storm water controls if proposed by the site developer.⁴

New to this permit is the requirement for the permittees to develop and maintain a system for tracking all post-construction BMPs. Tracking post-construction BMPs is critical for documenting TMDL progress as well as ensuring BMPs are functioning as designed and meeting the performance standards. The tracking system must include an inventory of all BMPs the permittee uses for credit towards pollutant reduction goals. In order for the MS4 to take credit for a private BMP, there must be a maintenance agreement in place or the MS4 needs to have authority to maintain or require maintenance of the private BMPs. The tracking system should also include the procedures the permittee will follow to ensure long-term maintenance is completed to maintain BMP function. A long-term inspection of each BMP is also required at least once per permit term, and the permittee needs to maintain a system for tracking these inspections. The final piece of the post-construction tracking system is a description of when and how the permittees will use their enforcement authority in the post-construction ordinance to address compliance issue. For example, if the permittees ordinance provides authority to make repairs and bill the property owner, the enforcement response procedures should describe when this authority will be used and steps the permittee will undergo to complete the repairs.

The last new requirement of the post-construction program is for permittees to remove barriers to green infrastructure (GI) from their ordinances. Removal of these GI barriers is essential for adoption of innovative storm water management techniques and provides developers and landowners with more alternatives to meet the post-construction performance standards. The permittees should review zoning, site development, storm water management, public works (parking, streets, etc.), landscaping and other ordinances to identify barriers to GI practices and update the ordinances by May 31, 2023. An ordinance audit tool titled "Tackling Barriers to Green Infrastructure: An Audit of Municipal Codes and Ordinances" was developed by Wisconsin Sea Grant in partnership with 1000 Friends of

³ As required by s. NR 216.07 (5) (b), Wis. Adm. Code.

⁴ As required by s. NR 216.07 (5) (c), Wis. Adm. Code.

Wisconsin, Orion Planning and Design, and Milwaukee Metropolitan Sewerage District.⁵ The permittees are encouraged to use this tool or similar methods when reviewing their ordinances to identify GI Barriers. Clean Wisconsin, on behalf of MMSD, completed a review of each municipality's ordinances within its service area and developed recommendation based upon the methodology above. Lastly, if permittees are made aware of barriers in their codes and ordinances after May 31, 2023, they are required to modify the ordinance within 18 Months.

II. G. Pollution Prevention

The pollution prevention activities consist of multiple programs and training which are employed to reduce municipal sources of pollution. These include winter road management, nutrient management, street sweeping and catch basin cleaning, management of leaves and grass clipping, good housekeeping at municipal properties, and employee training. Each of the programs is described in more detail below.

The maintenance requirements for municipality-owned or -operated BMPs has also been moved to the post-construction section because this requirement fits within the BMP maintenance and tracking requirements for Section II. F. 3.

Winter Road Management

This permit continues the requirement for municipalities to not apply road salt or deicers in quantities larger than required to maintain public safety. To reduce overapplication of salt and deicers, this permit requires permittees to develop and implement a salt application strategy, salt reduction strategy, or similar document which describes the conditions, equipment and strategy which will be followed during deicing events. The Wisconsin Department of Transportation (WisDOT) Highway Maintenance Manual -Chapter 6, contains guidelines on winter maintenance including application of road salt and other deicers. This document can be used to assist with development of the permittees salt reduction strategy.⁶ The permit also requires training on the permittee's salt reduction strategy for municipal staff involved in deicing operations every other year.

The permit requires annual calibration for salt application machinery. The permittee's winter road management program should describe how calibration is completed for each piece of equipment. Factory calibration is not considered acceptable for annual calibration as new machinery has been shown to significantly over apply salt based on factor settings.⁷ Calibration is also key for properly using the quantity of deicers used for reporting on the annual report.

Nutrient Management:

Nutrient management plans are required for fertilizer application on all municipally controlled properties (parks, athletic fields, golf courses, lawns, etc.) with five acres of pervious area. This includes soil samples for each individual property. For additional information, please refer to DNR Technical Standard 1100, Interim Turf Nutrient Management and additional guidance found here: https://dnr.wi.gov/topic/stormwater/standards/turf_nutrient.html.

⁵ Wisconsin Sea Grant Institute, "Tackling Tackling Barriers to Green Infrastructure: An Audit of Municipal Codes and Ordinances." DATE. <https://www.seagrant.wisc.edu/our-work/focus-areas/coastal-communities/green-infrastructure/>

⁶ Wisconsin Department of Transportation (WisDOT) Highway maintenance manual -Chapter 6. <https://wisconsindot.gov/Pages/doing-bus/local-gov/hwy-mnt/mntc-manual/chapter06.aspx> The WisDOT highway salt storage requirements are contained in ch. Trans 277, Wis. Adm. Code.

⁷ Based on discussions with Mary Jo Lange, Director of Public Works for the City of Cudahy. Testing of a new truck in 2018 was over applying salt by 92%.

Street Sweeping and Catch Basin Cleaning:

Street sweeping and catch basin cleaning activities are an effective way to remove large sediment particles that would otherwise be washed away during precipitation events. This permit requires the permittees to track the number of lane miles swept, number of catch basins cleaned, and the weight in tons of material collected annually. If permittees use street sweeping or catch basin cleaning as part of their efforts to meet a performance standard or TMDL reduction goal, the sweeping and cleaning frequencies must be consistent with those identified in the pollutant loading analysis.

Collected material is considered solid waste and must be disposed of in an appropriate manner. If the permittee dewateres the material prior to disposal, BMPs should be employed to prevent contamination with storm water runoff to surface or ground water. All material should be disposed of in a landfill unless the permittee has an approved beneficial reuse exemption from the DNR Solid Waste Program. Currently, none of the North Shore permittees have an approved beneficial reuse for street sweeping and catch basin material.

Management of Leaves and Grass Clippings

Collection of leaves is an effective measure for reducing nutrient input from urban storm water runoff. While many BMPs are designed to settle out solid materials, leaf matter leaches dissolved phosphorus, which is not captured by traditional settling devices. Collection of leaves before precipitation is essential for reducing dissolved phosphorus contributions from the MS4.

This permit requires permittees to provide a description of their leaf collection program including the methodology and equipment used for collection, the frequency and timing of collection, and instructions for residents and landowners on where to locate leaves for collection. Consistent with the previous permit, the permittee must identify where leaves are disposed of and track the quantity of leaves collected on an annual basis.

A new requirement for the leaf collection program during this permit term is for the permittee to identify BMPs it will employ to the leaf management program to reduce nutrient loading. The permittees should evaluate their current leaf collection strategies and look for opportunities to improve collection practices with the goal of reducing the amount of time leaves are on streets. The overall leaf management strategy should consider the source of leaves, transport (curb and gutter vs. swale), and fate (infiltration practice vs. pond vs. direct discharge). Recent leaf management research shows the phosphorus loading is tied to the quantity of leaves on the streets and the frequency of removing leaves from the street is more important than the method of removing the leaves.⁸ Permittees are encouraged to pilot new leaf management techniques as part of the iterative process and identify collection practices best fitting the needs of their residents, street characteristics, and resources while reducing nutrients in runoff.

Storm Water Pollution Prevention Planning

This permit continues the requirement for municipal garages, storage areas, and other public works related facilities to have storm water pollution prevention plans (SWPPP) for each site under the permittee's control. These sites would normally be covered by an industrial storm water permit, but to minimize the duplication of permits, the requirements for these sites are contained in the MS4 permit.

⁸ Phil Gaebler. "Phosphorus Reduction Through Leaf Collection." March 5, 2019. Fox-Wolf Watershed Alliance Conference, Green Bay, Wisconsin.

The requirements for each SWPPP are outlined in s. NR 216.27 (3), Wis. Adm. Code, excluding the pollutant monitoring requirements. These include a map of the site, potential sources of pollution, description of housekeeping activities, and description of BMPs to reduce the runoff of pollutants from the site.

If the permittee operates at a site without a SWPPP, one must be developed within 8 months of permit issuance, or by December 31, 2021. New SWPPPs must be submitted to the Department for review.

Quarterly visual inspections should be conducted at each site, and inspections documented. Additionally, an annual inspection should be completed for each site. Any deficiencies found during the inspections should be corrected and the SWPPP updated. Updated SWPPPs should be submitted with the annual report any time revisions are made.

Internal Education Training

Like the previous permit, the permittees are also required to provide training to municipal staff involved in pollution prevention activities. One training event must be held during the permit term to cover each pollution prevention topic, except Winter Road Management which education must occur every other year.

II. H. Storm Water Quality Management

The storm water quality management conditions are continued from the previous permit, except for the requirement to develop a plan to achieve a 20 percent TSS reduction from the pre-2004 urbanized area. This requirement was removed because the permittees in the region have collectively achieved a 23.6% reduction and the Milwaukee River TMDL sets much higher reduction goals for TSS.

The permittees are expected to maintain all BMPs used to achieve their existing control level in accordance with s. 281.16 (2) am (3), Wis. Stats. Maintenance and continued operation of BMPs is necessary to prevent backsliding.

II. K. Annual Report

Section II. K. 8 was added to implement the USEPA eReporting Rule requirements and requires that the permittee submit its annual reports and other permit compliance documents electronically through the Department's electronic reporting system.

II. L. Reapplication for Permit Coverage

The permit application requirements are expanded from the previous permit term and specify additional information the permittee must submit prior to permit expiration. Prior to development of this permit, the Department requested each permittee complete a Request for Information that identified the proposed actions the permittee will complete during the next permit term. This step is being incorporated into the permit to provide the Department with enough information for drafting the next permit prior to permit expiration.

The application will require submission of measurable goals for each minimum control measure and TMDL pollutant load reduction benchmarks. The permittee must also include an explanation on how the proposed actions and benchmarks reduce pollutants to the MEP and provide assurance that the

TMDL reduction goals will be achieved in the future. The Department will consider the application package and any other relevant information to develop the next North Shore Permit⁹.

III. Special Conditions

The Special Conditions section is new to this permit and includes requirements to address the Milwaukee River TMDL as well as municipality specific requirements. These new special conditions are required because additional BMPs and controls beyond those currently employed are needed to attain water quality standards.¹⁰ The requirements under Section III. A. to address the TMDL WLAs apply to each MS4, while the individual benchmarks in Section III. B. are specific to the municipality.

When developing the special conditions section, the Department's goal was to provide the permittees the required time to develop plans for addressing the WLAs, but also accomplishing an improvement in water quality which can be realized within this permit term. The Milwaukee River TMDL was approved in March 2018, so permittees have had some time to begin planning, but at the time of permit development, not all of the North Shore Permittees have completed a storm water management plan (SWMP) focused on achieving the WLAs. This permit requires completion of a SWMP by May 31, 2024, allowing 36 months to complete a plan of action. This time frame is slightly long than the other MS4 permits in Wisconsin, but the additional time is balanced by the individual actions to improve water quality.

III. A. 1 TMDL Pollutant Load Reduction Evaluation for TSS and TP

The first step in the TMDL planning process is identifying which reaches the MS4 discharges to and the associated reduction goal. Section A. 1. requires updates to the MS4 map identifying the specific TMDL reach boundaries, structural BMPs and associated drainage areas, and excluded areas. For any excluded areas, the MS4 should specify why the area will not be included in the load reduction evaluation.

Once the individual TMDL subwatersheds and drainage areas are identified, the permittee is required to estimate the pollutant loading from each watershed with and without controls. The difference between the with controls and without controls pollutant loading is the load reduction. The calculated load reductions can then be compared to the reach goal to determine how much additional control is needed for each reach.

Most permittees in Wisconsin utilize WinSLAMM software to develop load reduction estimates, but the permittees are not required to use this program. The permittee may use other computer programs or methods provided the analysis methods are similar or equivalent and approved by the Department. The Department envisions equivalent methodology could be a well-designed monitoring strategy collecting outfall/pipe flow and concentration which can be used for data-based decisions and analysis. In either case, the permittee should develop its modeling or analysis to be easily updated based upon changes to the individual watershed. Rather than updating the whole analysis, it will be more cost effective to update one model or subset of models. This will be a useful approach for evaluating progress in future permit terms.

⁹ Consistent with ss. NR 216.01 and .07, Wis. Adm. Code.

¹⁰ Sawyers, A.D. and Best-Wong, A. November 26, 2014. Revisions to the November 22, 2002 Memorandum "Establishing Total Maximum Daily Load (TMDL) Wasteload Allocations (WLAs) for Storm Water Sources and NPDES Permit Requirements Based on Those WLAs." USEPA office of Watershed Management

Lastly for each BMP, the permittee needs to compile a tabular summary documenting the pollutant removal efficiency of the BMP, area treated, and a maintenance agreement for any privately-owned BMP. Any privately-owned BMP without a maintenance agreement should not be included in the pollutant load reduction evaluation.

The Table below lists the permittees' TMDL reachsheds and their current known TSS and TP reductions. The blank cells indicate where information is not available at the time of permit development.

Permittee	Reachshed	TP Reduction	TSS Reduction	Source
Bayside, Village	MI-30		27.5%	2015 MS4 Annual Report
Brown Deer, Village	MI-27	56.0%	60.0%	December 2020 Storm Water Management Plan
	MI-28	41.0%	42.0%	
	MI-29	72.0%	70.0%	
	MI-31	87.0%	89.0%	
Fox Point, Village	MI-27	78.8%	82.6%	December 2017 Storm Water Management Plan
	MI-30	80.1%	83.2%	
Glendale, City	MI-27		21.8%	2016 MS4 Annual Report
	MI-30		21.8%	
	MI-31		21.8%	
	MI-32		21.8%	
River Hills, Village	MI-27	50%	57.6%	August 2020 Stormwater Management Plan
	MI-29	40%	52.3%	
	MI-30	61.5%	53%	
Shorewood, Village	MI-32	15%	22.1%	December 2020 Storm Water Management Plan
Whitefish Bay, Village	MI-27	10.5%	14.2%	December 2017 TMDL Stormwater Quality Management Plan
	MI-32	12.3%	16.7%	

III. A. 2. WLA Attainment Analysis

The WLA Attainment Analysis requires the permittee to evaluate how the WLA will be achieved. This analysis shall include identifying the type and number of BMPs necessary to achieve the reduction goals, financial costs of such BMPs, and other resources needed. The assessment is due November 30, 2025, 6 months after completion of the Pollutant Load Reduction Evaluation.

Permittees are highly encouraged to evaluate multiple alternatives and resources when completing the WLA Attainment Analysis. Within the greater Milwaukee Region, many water quality planning documents already exist or are under development. These include water body specific restoration

plans, Nine Key Element Plans¹¹, or the Regional Green Infrastructure Plan¹². The permittees can take the recommendations from these efforts and incorporate them into future development or revitalization plans or use similar methodology for identification of project location and prioritization.

Other options to consider include Water Quality Trading or municipal partnership. These alternatives allow more flexibility in the the location of where practices can be implemented for the permittees to show a reduction in pollutant loads. Another option (it's done, right?) is the Water Quality Improvement Plan, which is developing framework for completion of larger water quality improvement efforts.

One alternative the permittees must evaluate and consider is updates to their development and redevelopment standards. The permittees will need to look at historical development rates and projected future development and estimate the pollutant load reductions if the minimum TSS and TP removal requirement are increased. The permittee shall evaluate setting the load reduction requirement at the TMDL reach goal and at a level which provides the additional level of control needed which the municipality cannot supply via public projects. The permittee may enact an ordinance that is municipal-wide, targets individual TMDL reachsheds, or designated areas within the permitted MS4, balancing required TMDL reductions, parcel size, and the impact of other treatment options. Increasing redevelopment reductions is one tool in moving toward TMDL compliance.

III. A. 3. Establishment of WLA Benchmarks for TSS and TP

Where the TMDL pollutant reduction evaluation shows TMDL WLAs not met for TSS or TP, the permittee must develop pollutant load reduction benchmarks for those parameters and submit them with the permit application package. The benchmarks should reflect structural controls implemented as part of the permittee's storm water management program as well as any additional reductions expected to result from BMPs proposed to be completed during the next permit term. Nonstructural controls can be included where effectiveness information is available.

The Department expects the TMDL benchmarks to be permit cycle (5-year basis) targets used to assess progress towards meeting the final WLA goal. The permittee should continue to iteratively manage its storm water programs to reduce pollutants and identify the TMDL benchmarks accordingly. As discussed previously, the permittees are encouraged to review and incorporate recommendations from other regional plans as the Department will consider these in review of measurable goals and benchmarks as allowed by NR 216.07, Wis. Adm. Code.¹³

III. A. 4. Fecal Coliform Reduction Efforts

The third TMDL pollutant with WLAs from the Milwaukee River TMDL is fecal coliform. While the TMDL allocations in the Milwaukee River Basin TMDL are expressed only in terms of fecal coliform, both fecal coliform and E. coli have been listed as sources of recreational use impairments that the TMDL was completed to address.

¹¹ The Nine Key Element Plan for the Kinnickinnic and Menomonee Rivers are expected to be completed in 2020.

¹² Milwaukee Metropolitan Sewerage District Regional Green Infrastructure Plan. June 2013.

<https://www.mmsd.com/what-we-do/green-infrastructure/resources/regional-green-infrastructure-plan>

¹³ S. NR 216.07, Wis. Adm. Code. Permit Requirements. The Department shall issue permits using the information provided by the applicant and other pertinent information when developing permit conditions.

Unlike TSS and TP, fecal coliform WLAs are based on a load reduction curve rather than a mass reduction. For permittees, this means that depending upon the moisture conditions, the allowable loading of fecal coliforms changes. Currently, fecal coliform loads greatly exceed the water quality standard under all flow conditions, so efforts are needed across the board.

The first new requirement in this permit to address fecal coliform is for the permittees to develop a parameter action level to use during illicit discharge screening by June 1, 2022. This parameter action level shall set a level for bacteria indicator in the sample, that if exceeded, requires specific follow up action or investigation. The permittee has the flexibility to select which bacteria indicator it wishes to use and the associated action benchmark. It is expected the permittee will adjust its action benchmark as more data on dry flow conditions are collected.

While the TMDL WLAs are specified in fecal coliform, which is used as an indicator of enteric pathogens,¹⁴ the specific indicator selected for illicit discharge is not as important as the action level. This is because the goal of this requirement is to identify illicit cross connections or discharges rather than monitor the level of instream fecal coliform. It is expected that an illicit connection will result in a strong positive result for the selected indicator. The permittee shall provide explanation for why it chooses a specific indicator and include how the tests will be completed.

Permittees are also required to complete a Fecal Coliform Source Inventory by May 31, 2024. For this effort, the permittees will need to identify and locate on a map, other potential sources of fecal coliform entering the MS4. The permit provides a list of potential sources, but this list is not considered inclusive of all sources within the permitted MS4 area.

Once the fecal coliform source inventory is complete, the permittee will need to prioritize the sources and identify BMPs to be employed to remove the sources in a Source Elimination Plan. The Plan shall explain the rationale for the prioritization system and provide a cost estimate of the BMPs that will be employed. Lastly, the permittee must develop a schedule for addressing the sources which includes specific actions or benchmarks the permittee will complete during the next permit term. This Source Elimination plan is due with the permit application on November 30, 2025.

Southeastern Wisconsin Watersheds Trust developed a Bacteria White Paper¹⁵ which outlines an example approach to addressing bacterial pollution in storm water. Permittees are encouraged to review this paper as they develop their strategy to address Fecal Coliform.

III. B. Individual Benchmarks

The individual benchmarks specify the permittee specific actions which will be completed during the next permit term. These requirements were proposed by the individual MS4s. Where the individually specified goal is a requirement elsewhere in the permit, it is not repeated in this section. These benchmarks should be completed by the end of the permit term unless otherwise specified.

The benchmarks were submitted to the Department in February 2021. Any efforts towards achieving these benchmarks from submission to permit issuance will be counted towards meeting that benchmark. In other words, if the permittees goal to treat 50,000 additional gallons of storm water

¹⁴ Final Report: Total Maximum Daily Loads for Total Phosphorus, Total Suspended Solids, and Fecal Coliform Milwaukee River Basin, Wisconsin. Approved by USEPA on March 9, 2018.

¹⁵ The Bacteria White Paper can be found at this link: <https://www.swwtwater.org/bacteria-white-paper>.

during the next permit term was submitted in February 2021, and the permittee added treatment to 5,000 gallons before permit issuance, the permittee is only expected to add 45,000 gallons of additional treatment by the end of the permit term. The table below specifies the permittee, and the date the individual goals were established.

Permittee	Date Goals Received
Village of Bayside	February 9, 2021 (revised February 23, 2021)
Village of Brown Deer	March 9, 2021
Village of Fox Point	February 11, 2021
City of Glendale	February 11, 2021
Village of River Hills	February 11, 2021
Village of Shorewood	February 5, 2021
Village of Whitefish Bay	February 11, 2021 (revised February 22, 2021; March 9, 2021)

IV. Implementation Schedule

The implementation schedule for new and updated permit requirements which apply to all permittees is listed in Table 3 of the proposed permit. Table 4 lists the individual implementation schedule dates. Tables 3 and 4 do not list all the requirements of the permit.

Additional Information

The proposed WPDES permit, fact sheet, and other MS4 related information are available from the Department’s website as indicated below. Web links to pertinent state statutes and administrative codes are also provided.

DNR WPDES Permits on Public Notice website:

<http://dnr.wi.gov/topic/Wastewater/PublicNotices.html>

DNR Storm Water Runoff Permits website:

<http://dnr.wi.gov/topic/stormwater/>

DNR Municipal Storm Water Permits website:

<http://dnr.wi.gov/topic/stormwater/municipal/>

DNR Storm Water Technical Standards, Models and BMPs website:

<http://dnr.wi.gov/topic/stormwater/standards/>

Chapter 283, Wis. Stats.:

<https://docs.legis.wisconsin.gov/statutes/statutes/283.pdf>

Chapter NR 151, Wis. Adm. Code:

https://docs.legis.wisconsin.gov/code/admin_code/nr/100/151.pdf

Chapter NR 216, Wis. Adm. Code:

https://docs.legis.wisconsin.gov/code/admin_code/nr/200/216.pdf

Public Notice, Comment Period, and Public Informational Hearing

WPDES permits on public notice can be found on the Department's WPDES permits on public notice website: <https://dnr.wi.gov/topic/wastewater/publicnotices.html>. The public notice for the proposed WPDES permit was issued on April 22, 2021, and the comment period will run until 4:30 p.m. on May 21, 2021. All comments or suggestions received during the comment period will be considered along with other information on file in making a final decision regarding the proposed WPDES permit.

Please direct comments by e-mail to Jacob.Zimmerman@wisconsin.gov or in writing to Jacob Zimmerman at 141 NW Barstow St. Room 108, Waukesha, WI, 53188. The deadline for submittal of public comments is by **4:30 p.m. on May 21, 2021**.

Response to Comments

The Department will issue a response to comments when the final North Shore Permit is issued, and both documents will be available to the public on the Department's municipal storm water website: <https://dnr.wi.gov/topic/stormwater/municipal/>. The response will specify which provision, if any, of the draft WPDES permit that were changed and a reason for the change. It will briefly describe and respond to all significant comments made on the draft permit raised during the public comment period or at the public informational hearing.

Permit Drafter

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