

# OPERATION AND MAINTENANCE OF PCSM BMPS

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## Summary of MS4 requirements for Minimum Control Measure 5 (MCM5)



**Penn Township, York County**

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## What is the MS4 Program?

On January 1, 2021, Penn Township received MS4 NPDES Permit No. PAG133731 for coverage as a small municipality. MS4 and NPDES are acronyms meaning Municipal Separate Storm Sewer System and National Pollution Discharge Elimination System. Municipal Separate Storm Sewer System indicates that the municipality maintains two separate conveyance systems: one for stormwater conveyance with direct outfall to local waterways and one for conveyance of sewage to a wastewater treatment plant. The stormwater sewer system includes roadside gutters and inlets; manhole drop structures for maintenance; underground conveyance piping; and all private and public owned stormwater catchment basins or treatment cells and associated infrastructure.

The MS4 NPDES program is established by the provisions of the Clean Water Act, 33 U.S. Section 1251 et seq. (“the Act”) and Pennsylvania’s Clean Streams Law, as amended, 35 P.S. Section 691.1 et seq. This program is designed to control stormwater pollution loads entering the regulated waterways of the Commonwealth and the U.S. Army Corps of Engineers Waters of the U.S. (WOTUS) from municipalities. The MS4 NPDES program was created by the EPA but is managed by PA DEP and local municipal departments.

A municipality qualifies for the MS4 PAG13 Small MS4 permit coverage when the municipality:

- Has direct discharge to sensitive waters;
- High population density;
- High growth or growth potential;
- Contiguity to an Urban Area (UA) as designated based on the latest decennial Census data;
- Significant contributor of pollutants to waters of the U.S.; and
- Ineffective or nonexistent protection of water quality concerns by other programs.

## What is MCM5?

The MS4 program includes six focus areas called “Minimum Control Measures” (MCMs) for reducing pollution loads in regulated waterways. The aim of Minimum Control Measure 5 is to ensure the adequate Operation & Maintenance of all Post-Construction Stormwater Management (PCSM) Best Management Practices (BMPs) that have been installed at development or redevelopment projects since 2003, the first year of MS4 permit coverage in Pennsylvania. PCSM BMPs include pervious pavement, infiltration basins, subsurface infiltration beds, infiltration trenches, rain garden/bioretention cells, dry well/seepage pits, constructed filter, vegetated swales, vegetative filter strips and infiltration berms with retentive grading. Proper operation and maintenance of these facilities is necessary to prevent the discharge of pollutants into the local waterway. SWM BMPs typically receive incoming stormwater flows from impervious surfaces such as roads and rooftops which include pollutants such as vehicle fluids and exhaust residues, heavy metals, nutrients and sediments. These pollutant loads cause negative impacts to water quality and aquatic fauna and flora.



Article V Sections 501 and 502 of the Stormwater Management Ordinance of 2011 (Penn Township Ordinance No. 728) established the responsibility for developers and landowners to conduct proper Operation and Maintenance (O&M) inspections as outlined in the Operation and Maintenance Agreement (OMA) and PCSM Plan recorded with the Township. Article V Section 802.C states that the SWM BMPs shall be inspected by the landowner, or the landowner’s designee, according to the following list of minimum frequencies:

1. Annually for the first five (5) years.
2. Once every three (3) years thereafter.
3. During or immediately after the cessation of a ten (10) year or greater storm (refer to Table 1 on Page 4 for time interval versus precipitation amount for determination of the 10-year storm).

Failure to comply with the provisions established under Article V may cause the Township to implement actions outlined in Article VIII - Enforcement and Penalties.

# Table 1 - Storm Interval Point Precipitation Frequency Estimates

NOAA Atlas 14, Volume 2, Version 3  
 Location name: Township of Penn, Pennsylvania,  
 USA\*  
 Latitude: 39.7938°, Longitude: -76.9696°  
 Elevation: 626.46 ft\*\*  
\* source: ESRI Maps  
 \*\* source: USGS

**POINT PRECIPITATION FREQUENCY ESTIMATES**

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NOAA, National Weather Service, Silver Spring, Maryland

[PF\\_tabular](#) | [PF\\_graphical](#) | [Maps\\_&\\_aerials](#)

**PF tabular**

<b>PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches)<sup>1</sup></b>										
Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.325 (0.293-0.362)	0.388 (0.349-0.432)	0.458 (0.412-0.510)	0.510 (0.457-0.567)	0.577 (0.513-0.639)	0.625 (0.554-0.692)	0.673 (0.594-0.745)	0.723 (0.635-0.800)	0.783 (0.683-0.866)	0.831 (0.720-0.918)
10-min	0.518 (0.466-0.577)	0.618 (0.555-0.688)	0.731 (0.656-0.814)	0.813 (0.728-0.903)	0.915 (0.814-1.01)	0.991 (0.878-1.10)	1.06 (0.940-1.18)	1.14 (1.00-1.26)	1.23 (1.07-1.36)	1.30 (1.13-1.44)
15-min	0.646 (0.582-0.720)	0.776 (0.697-0.864)	0.923 (0.829-1.03)	1.03 (0.919-1.14)	1.16 (1.03-1.28)	1.25 (1.11-1.39)	1.35 (1.19-1.49)	1.43 (1.26-1.59)	1.55 (1.35-1.71)	1.63 (1.41-1.80)
30-min	0.882 (0.794-0.983)	1.07 (0.959-1.19)	1.31 (1.17-1.46)	1.48 (1.33-1.65)	1.71 (1.52-1.89)	1.88 (1.67-2.08)	2.05 (1.81-2.27)	2.22 (1.95-2.45)	2.44 (2.13-2.70)	2.62 (2.27-2.89)
60-min	1.10 (0.989-1.22)	1.34 (1.20-1.49)	1.67 (1.50-1.86)	1.93 (1.73-2.14)	2.27 (2.02-2.51)	2.54 (2.25-2.81)	2.82 (2.49-3.12)	3.10 (2.73-3.43)	3.50 (3.05-3.87)	3.81 (3.30-4.21)
2-hr	1.28 (1.15-1.43)	1.56 (1.40-1.74)	1.97 (1.76-2.20)	2.30 (2.05-2.56)	2.78 (2.46-3.08)	3.18 (2.80-3.52)	3.62 (3.17-4.00)	4.09 (3.55-4.51)	4.79 (4.11-5.28)	5.37 (4.57-5.92)
3-hr	1.39 (1.24-1.56)	1.68 (1.50-1.89)	2.13 (1.90-2.39)	2.48 (2.21-2.78)	2.99 (2.65-3.34)	3.43 (3.01-3.82)	3.89 (3.40-4.33)	4.39 (3.81-4.88)	5.14 (4.41-5.71)	5.76 (4.89-6.40)
6-hr	1.69 (1.51-1.92)	2.03 (1.82-2.31)	2.56 (2.28-2.91)	3.00 (2.67-3.40)	3.66 (3.22-4.12)	4.22 (3.69-4.74)	4.84 (4.20-5.43)	5.52 (4.75-6.18)	6.54 (5.55-7.32)	7.41 (6.22-8.28)
12-hr	2.04 (1.80-2.37)	2.45 (2.16-2.84)	3.10 (2.73-3.58)	3.66 (3.21-4.22)	4.51 (3.92-5.17)	5.26 (4.54-6.01)	6.10 (5.21-6.95)	7.05 (5.96-8.01)	8.50 (7.07-9.63)	9.76 (8.00-11.0)
24-hr	2.38 (2.19-2.61)	2.87 (2.65-3.15)	3.66 (3.37-4.00)	4.35 (3.99-4.74)	5.42 (4.92-5.88)	6.37 (5.75-6.90)	7.46 (6.66-8.04)	8.70 (7.68-9.36)	10.6 (9.23-11.4)	12.3 (10.6-13.2)
2-day	2.76 (2.54-3.05)	3.33 (3.07-3.68)	4.24 (3.89-4.68)	5.02 (4.59-5.53)	6.21 (5.63-6.80)	7.25 (6.53-7.93)	8.42 (7.53-9.21)	9.74 (8.62-10.6)	11.8 (10.2-12.8)	13.5 (11.6-14.8)
3-day	2.93 (2.70-3.22)	3.53 (3.25-3.89)	4.48 (4.12-4.93)	5.30 (4.85-5.82)	6.54 (5.95-7.16)	7.63 (6.89-8.34)	8.86 (7.94-9.67)	10.2 (9.09-11.2)	12.4 (10.8-13.5)	14.2 (12.3-15.5)
4-day	3.09 (2.85-3.40)	3.73 (3.44-4.10)	4.72 (4.34-5.18)	5.58 (5.11-6.12)	6.88 (6.26-7.52)	8.02 (7.25-8.75)	9.30 (8.35-10.1)	10.8 (9.55-11.7)	13.0 (11.4-14.1)	14.9 (12.9-16.2)
7-day	3.62 (3.35-3.96)	4.34 (4.02-4.76)	5.44 (5.02-5.96)	6.39 (5.87-6.98)	7.81 (7.14-8.53)	9.06 (8.22-9.87)	10.4 (9.42-11.4)	12.0 (10.7-13.1)	14.4 (12.6-15.6)	16.4 (14.3-17.8)
10-day	4.16 (3.86-4.53)	4.98 (4.63-5.43)	6.17 (5.72-6.71)	7.17 (6.63-7.79)	8.64 (7.94-9.37)	9.89 (9.05-10.7)	11.3 (10.2-12.2)	12.8 (11.5-13.8)	15.0 (13.3-16.2)	16.9 (14.9-18.3)
20-day	5.65 (5.32-6.03)	6.70 (6.31-7.16)	8.04 (7.56-8.59)	9.14 (8.57-9.76)	10.7 (10.0-11.4)	12.0 (11.2-12.8)	13.3 (12.4-14.2)	14.8 (13.6-15.7)	16.8 (15.4-17.9)	18.5 (16.7-19.7)
30-day	6.99 (6.62-7.43)	8.25 (7.81-8.76)	9.74 (9.20-10.3)	10.9 (10.3-11.6)	12.6 (11.9-13.4)	14.0 (13.1-14.9)	15.4 (14.4-16.4)	16.9 (15.7-18.0)	19.0 (17.5-20.2)	20.7 (18.9-22.0)
45-day	8.80 (8.37-9.27)	10.3 (9.83-10.9)	12.0 (11.4-12.6)	13.3 (12.6-14.0)	15.0 (14.3-15.9)	16.4 (15.5-17.3)	17.8 (16.8-18.7)	19.2 (18.0-20.2)	21.0 (19.6-22.2)	22.4 (20.9-23.7)
60-day	10.5 (10.0-11.0)	12.3 (11.8-12.9)	14.2 (13.5-14.8)	15.6 (14.8-16.3)	17.4 (16.6-18.3)	18.9 (17.9-19.8)	20.3 (19.2-21.3)	21.7 (20.4-22.8)	23.5 (22.1-24.8)	24.9 (23.3-26.3)

<sup>1</sup> Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS). Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values. Please refer to NOAA Atlas 14 document for more information.

## LANDOWNER OR PROPERTY OWNER INSPECTIONS OF PCSM BMPS ON PROPERTY

A landowner or property owner which has a regulated stormwater management facility on their property is required to inspect the facility as outlined in the approved PCSM Plan recorded with the Township. The PCSM Plan information includes BMP identification, inspection frequency and maintenance requirements/procedures. Inspection forms are to be completed and returned to the Penn Township Municipal Center located at 20 Wayne Avenue, Hanover, PA 17331 or via email to [pennadmin@comcast.net](mailto:pennadmin@comcast.net). Please make sure to use the appropriate PCSM Inspection Form for the BMP to be inspected. Inspection forms are available from the Penn Township website at:

<http://www.penntwp.com/Applications-Forms.html>

**A complete inspection report includes the following required information:**

- **BMP Property Owner information.**
- **BMP Property address.**
- **Inspection date, time and weather conditions.**
- **Pictures of the PCSM BMP from all four directions looking across the BMP, at the outfall structure to the BMP and up the outfall channel to the BMP.**
- **Inspection notes of any erosion features, condition change or concerns with corresponding pictures.**
- **A list of any corrective actions taken including photo documentation.**
- **Inspector signature and printed name.**

Upon receipt and review of the completed inspection report, the Township will provide a notice of receipt of the report which will list, if necessary, any additional actions required for permit compliance. Inspection reports will be recorded with Penn Township as proof of compliance to the Operation & Maintenance Agreement and approved PCSM Plan.

Penn Township appreciates your assistance in fulfilling this obligation and protecting our local waterways. If you should have any questions about this document, please call Penn Township at 717-632-7366.