Translating TMDLs into MS4 Permits: EPA's Perspective

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Outline

- Why Is This So Challenging?
- Legal Framework for MS4 Permitting
- MS4 Permit Compendium
- MS4 Remand Rule
- Permit Examples
- Summary Points

Why Is This So Challenging?

- **MS4 realities**
  - Sources of pollutant impairments are often diffuse and spread over large areas, with a large number of outfalls – also difficult to determine specific causative effects or the level of control needed to address a specific use impairment
    - Many impairments caused by factors relating to the physical effects of urbanizing watersheds (e.g., the erosive effects of higher volume flows from heavily developed areas) – the tools to regulate these effects are still being developed
  - Lack of large-scale monitoring efforts, combined with difficulty of using monitoring to characterize MS4 loadings
  - Difficulties of designing stormwater BMPs to produce a specific concentration for a pollutant of concern – related difficulties in estimating stormwater effluent quality after treatment by BMPs
  - Need for long-term attainment schedules – especially for impairments caused by developed areas that require retrofits

Legal Framework

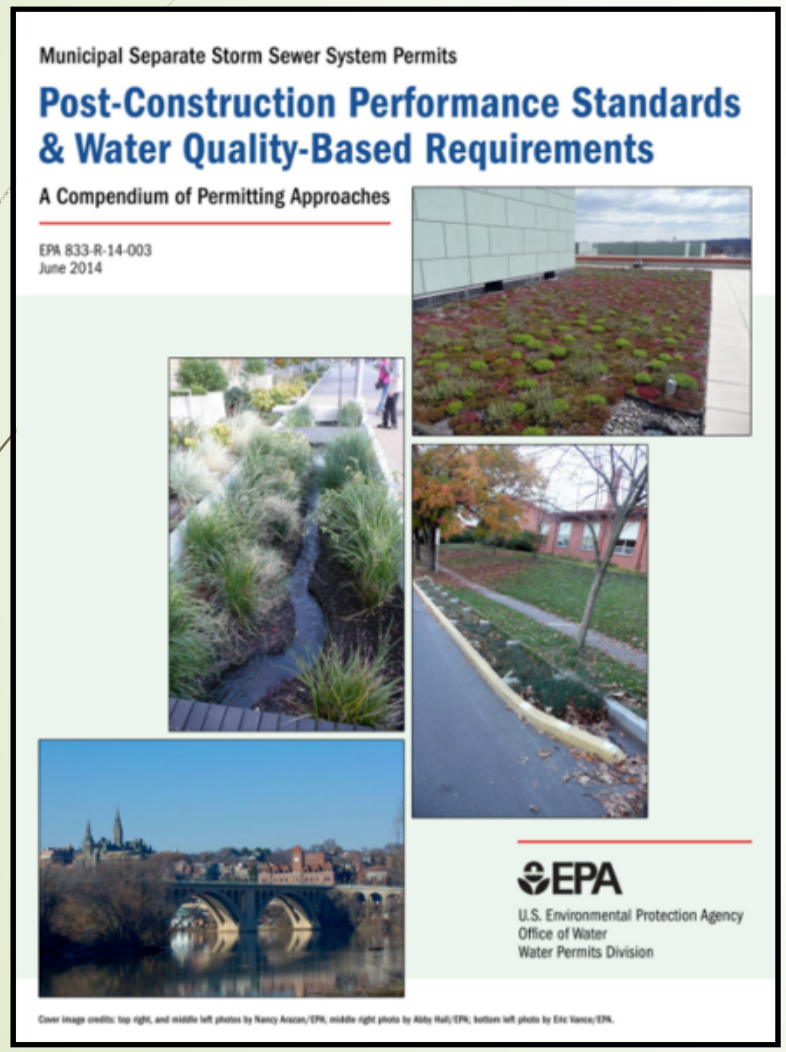
- MS4s are treated differently from all other point sources under the CWA
  - MS4s are subject to the "MEP" standard
    - Permit controls must "reduce the discharge of pollutants to the maximum extent practicable, including management practices, control techniques and system, design and engineering methods, and such other provisions as the Administrator or the State determines appropriate for the control of such pollutants." (CWA, Section 402(p)(3)(B)(iii)
    - For Phase II MS4s, permit requirements must be established "to reduce the discharge of pollutants to the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the water quality requirements of the CWA"
  - The "MEP" standard does not relieve the NPDES authority of the responsibility to address applicable TMDLs

Legal Framework

- Where the state has established a TMDL, NPDES regulations require permits to contain effluent limits and conditions consistent with the assumptions and requirements of the WLAs in the TMDL (122.44(d)(1)(vii)(B))
  - Phase II regulations require permits to include "any more stringent effluent limits … including permit requirements that modify, or are in addition to, the minimum control measures based on an approved TMDL or equivalent analysis."
- Where the TMDL includes WLAs for stormwater sources, the permit should include effective, measurable WQBELs to achieve the WLA – these requirements can take the form of:
  - Numeric effluent limitations, or
  - BMP-type limits with clear, specific, and measurable elements

  (2014 EPA Memorandum)
- EPA has advocated an "iterative approach" that emphasizes adaptive management of stormwater controls to meet water quality goals for MS4s
  - The objective of NPDES permits is to ensure reasonable further progress towards attainment of WQS utilizing an iterative BMP process

MS4 Permit Compendium



Highlighted Approaches

- Numeric expressions of the WQBEL
  - MS4 permit includes a specific, quantifiable performance requirement that must be achieved within a set timeframe

- Non-numeric expressions of the WQBEL
  - MS4 permit establishes individualized, watershed-based requirements for each affected MS4 to implement specific BMPs within specified timeframes that are consistent with the assumptions and requirements of the TMDL, or
  - MS4 proposes a TMDL implementation plan that is public noticed and approved by the NPDES authority

MS4 Remand Rule

- In 2002, Ninth Circuit concluded that the Phase II MS4 framework for administering general permits violated the CWA
  - Failure to ensure MS4 stormwater programs were adequate to meet the "MEP" standard
  - Failure to provide the public with an opportunity to comment and to request a hearing (if necessary) on the MS4's permit requirements
- Proposed rule echoes the 2014 Stormwater-TMDL Memo
  - Emphasizes need for MS4 permits to establish "clear, specific, and measurable" effluent limits, including requirements where applicable to address approved TMDLs
  - Proposed rule presents several options for state permitting authorities to meet this requirement under general permits
- Final rule must be signed by November 17, 2016

Option 1 ("Traditional General Permit Approach")

- Description:
  - Each small MS4 permit (whether individual or general) must include all requirements necessary to meet the standard of "reducing pollutant discharges from the MS4 to the maximum extent practicable, to protect water quality, and to satisfy the appropriate water quality requirements of the CWA"
  - The permittee is still required to submit an NOI and to develop a stormwater management program (SWMP), but …
    - neither the NOI nor the SWMP can function as an individual permit application since the final general permit has already established the effluent limits that apply to all MS4 dischargers
    - Similarly, the permittee has no ability to establish its own permit requirements or to modify the permit's requirements through the NOI or SWMP

Option 2 ("Procedural Option")

- Description:
  - Retain the existing general permit framework that requires MS4s to submit NOIs that include specific BMPs that the MS4 proposes will reduce discharges to the MEP
  - Establish a second permitting step to incorporate specific details of the MS4's SWMP as enforceable requirements of the general permit
    - Each NOI would be subject to review and approval by the permitting authority – purpose of the review would be to ensure that each MS4's SWMP will meet the regulatory standard
    - During permitting authority review, changes to the NOI can be required in order to ensure the adequacy of the MS4's program, or the MS4 can apply for an individual permit
    - Following initial approval by the permitting authority, each NOI would be subject to public comment and the opportunity to request a public hearing
    - Following public notice/hearing step, additional requirements added to the permit for the specific MS4
  - MN and TX currently use this approach

Option 3 ("State Choice")

- Description:
  - Each permit would be required to establish requirements that reduce the discharges to the MEP, protect water quality, and satisfy the water quality requirements of the CWA – the permitting authority could achieve this exclusively through the permit (Option 1), by adopting a procedural mechanism to approve of individual MS4 programs (Option 2), or by using a hybrid of the two
    - This option would enable the permitting authority to choose which option is best suited for them
  - Hybrid approach
    - State could develop one permit using the Option 1 approach, and establish a second permit that relies on the Option 2 approach
    - A permit could establish some minimum requirements that meet the regulatory standard (Option 1), but then choose to rely on the MS4 to propose some MEP-type requirements, which would then be subject to review/approval and public comment (Option 2)

Washington, DC MS4 Permit (2011)

- "Clear, specific, and measurable" requirements established within the permit
  - "The DC Retrofit Program shall implement retrofits for stormwater discharges from a minimum of 18,000,000 square feet of impervious surfaces during the permit term. A minimum of 1,500,000 square feet of this objective must be in transportation rights-of-way."
  - "The permittee shall achieve a minimum net annual tree planting rate of 4,150 plantings annually within the District MS4 area, with the objective of a District-wide urban tree canopy coverage of 40% by 2035."
  - "The permittee shall attain removal of 103,188 pounds of trash annually, as determined in the Anacostia River Watershed Trash TMDL, as a specific single-year measure by the fifth year of this permit term. Reductions must be made through a combination of the following approaches:
    1. Direct removal from waterbodies, e.g., stream clean-ups, skimmers
    2. Direct removal from the MS4, e.g., catch basin clean-out, trash racks
    3. Direct removal prior to entry to the MS4, e.g., street sweeping
    4. Prevention through additional disposal alternatives, e.g., public trash/recycling collection
    5. Prevention through waste reduction practices, regulations and/or incentives, e.g., bag fees"

Washington, DC MS4 Permit (2011)

- "Clear, specific, and measurable" requirements established after permit issuance through review and approval process
  - Permit required DC to develop and submit for review and approval by EPA a Consolidated TMDL Implementation Plan addressing 15 TMDLs within 30 months of permit issuance
  - DC proposed its plan on May 15, 2015 and provided a 90-day public comment period – submitted to EPA for approval
    - Required review and analysis of 344 WLAs (sediment, nutrients, bacteria, BOD, metals, and toxics)
    - Included a "gap" analysis to show what pollutant reductions are required from current discharge conditions
    - Determined that 113 WLAs will be met through use of a 1.2 inch retention depth – only by increasing the depth to 2 inches will all WLAs be met (note: DC requires major land disturbing activities comply with 1.2 inch retention requirement)
  - Specific milestones and required actions to be established in 2016 reissued permit

Massachusetts MS4 General Permit (2016)

- "Clear, specific, and measurable" requirements established within the permit
  - Permit calculates specific Phosphorus loading reductions for 33 individual MS4s discharging to the Charles River watershed
    - MS4s have up to 20 years to meet the required loading reductions (to be met in 3 phases)
    - Compliance is demonstrated through the use of a BMP accounting and tracking tool developed by Reg. 1 EPA
    - No sampling required

Massachusetts MS4 General Permit (2016) – Numeric Reduction Requirements

Community	Community - Table F1			Regulated Area - Table F2		
	Baseline (lb/yr)	Reduction (lb/yr)	Reduction (%)	Baseline (lb/yr)	Reduction (lb/yr)	Reduction (%)
Bellingham	2,112	759	36	1,790	670	37
Franklin	5,219	1,916	37	5,146	1,905	37
Medway	2,351	743	32	2,293	723	32
Natick	2,531	946	37	2,276	886	39
Somerville	1,870	300	16	448	95	21

Massachusetts MS4 General Permit (2016) – Implementation Schedule

5 years after permit effective date	5-10 years after permit effective date	10-15 years after permit effective date	15-20 years after permit effective date
Create Phase 1 Plan	Implement Phase 1 Plan		
	Create Phase 2 Plan	Implement Phase 2 Plan	
		Create Phase 3 Plan	Implement Phase 3 Plan

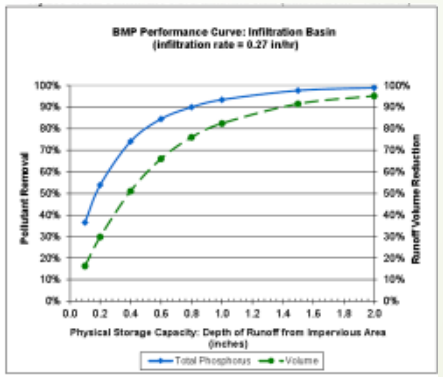
Massachusetts MS4 General Permit (2016) – BMP Accounting Tool

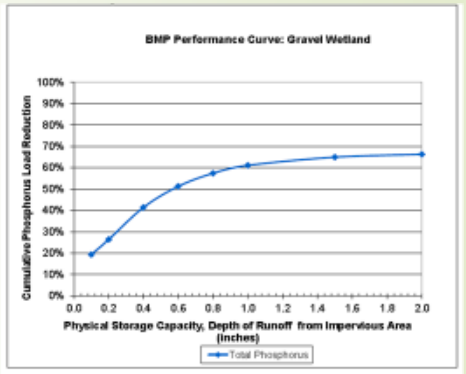
Land area pollutant loading:

- Based on land use, soil type, impervious area
- Annual phosphorus load export rates (PLERs) from permit built into tool

BMP pollutant reductions:

- EPA/TetraTech work on BMP curves for structural BMPs in permit and built into tool





- Literature values for non-structural BMPs from permit built into tool

Western Washington MS4 General Permit (2013)

- "Clear, specific, and measurable" requirements established within the permit
  - Permit assigns individual MS4s additional BMP-based requirements to address specific pollutants of concern
    - Compliance with the assigned BMPs constitutes compliance with the applicable WLA for that permit term
    - BMPs supplement the baseline minimum control measures in the permit
    - Focus on pollutants of concern associated with MS4 discharges (e.g., fecal coliform bacteria, dissolved oxygen, pH, heavy metals, phosphorus)

Western Washington MS4 General Permit (2013)

Name of TMDL	Snohomish River Tributaries
EPA Approved Document(s) for TMDL	*Water Quality Assessment of Tributaries to the Snohomish River and Nonpoint Source Pollution TMDL*, September 1997, Ecology Publication No. 97-334. www.ecy.wa.gov/biblio/97334.html *Snohomish River Tributaries Fecal Coliform Total Maximum Daily Load Submittal Report*, June 2001, Ecology publication No. 00-10-087. www.ecy.wa.gov/biblio/0010087.html *Lower Snohomish River Tributaries Fecal Coliform Bacterial Total Maximum Daily Load: Detailed Implementation Plan*, June 2003, Ecology Publication No. 03-10-031. www.ecy.wa.gov//biblio/0310031.html
Location of Original 303(d) Listings	WA-07-1012, WA-07-015, WA-07-1052, WA-07-1163WA-07-1163, WA-07-1030 and WA-07-040
Area Where TMDL Requirements Apply	Requirements apply in all areas regulated under the Permittees' municipal stormwater permit and draining to the WASWIS segment number, and all upstream tributaries within the jurisdiction of the Permittee and within the geographic area covered by this permit contributing to waterbodies: Allen Creek, YT94RF: Quilceda Creek, TH58TS: French Creek, XZ24XU: Woods Creek, FZ74HO: Pilchuck River, NF79WA: Marshland Watershed, XW79FQ.
Parameter	Fecal Coliform
EPA Approval Date	August 9, 2001
MS4 Permittee	Phase I Permit: Snohomish County Phase II Permit: Granite Falls, Lake Stevens, Monroe, Snohomish, Marysville, Arlington, Everett

Required MS4 Actions

- Business Inspections: Inspect commercial animal handling areas and composting facilities to ensure implementation of source control BMPs for bacteria. Facilities with bacteria source control problems must be inspected once every 3 years.
- Operation & maintenance: Install and maintain animal waste collection and/or education stations at municipal parks and other permittee owned and operated lands
- Illicit Discharge Detection & Elmination: Screen for bacteria sources in subbasins which discharge to surface waters in the TMDL area
- Targeted Source Identification: Review the fecal coliform data collected under the 2007 Permit in order identify a minimum of one high priority area (such as a tributary or a stream segment) that will be the focus of source identification and elimination efforts during this permit cycle. Stormwater quality sampling for bacteria sources is required as part of this focused source identification and elimination effort

Summary Points

- A variety of approaches exist to translate numeric WLAs into clear, specific, and measurable MS4 permit conditions
  - Requirements related to WLA attainment don't have to be numeric, but they must be consistent with their assumptions and requirements of the TMDL
- These approaches show ways to address the Ninth Circuit remand by either:
  - Including requirements in the permit that provide the MS4 with the specific actions required during the permit term to make reasonable further progress towards WLA attainment, or
  - Requiring the MS4 to flesh out the details of TMDL implementation for review and approval by the permitting authority, with regular progress updates provided through the annual report
- Long-term schedules (15, 20, 30 years) can be incorporated into NPDES permits – leaves open the opportunity for Integrated Management approaches