



DEVAL L. PATRICK, GOVERNOR
TIMOTHY P. MURRAY, LT. GOVERNOR
JEFFREY B. MULLAN, SECRETARY & CEO
LUIA PAIEWONSKY, ADMINISTRATOR



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Ms. Thelma Murphy
EPA-Region 1
Office of Ecosystem Protection
5 Post Office Square, Suite 100
Mail Code: OEP06-4
Boston, MA 02109-3912

Subject: Draft NPDES General Permit for Discharges from MS4s in North Coastal Massachusetts

Dear Ms. Murphy,

The Massachusetts Department of Transportation Highway Division (MassDOT) is committed to improving water quality and minimizing the impacts of storm water runoff. MassDOT must achieve this commitment within limited budgets by implementing the most cost effective means of improving water quality. The current draft North Coastal MS4 permit has a number of components that do not comport with this principle when applied to MassDOT. Furthermore, some the permit requirements are not feasible for MassDOT. In many cases, these challenges are related to the fact that MassDOT operates a substantially different MS4 than traditional MS4s. This letter outlines MassDOT's concerns with the draft permit and provides suggested improvements.

Comments

1) EPA Should Develop a Separate Storm Water Permit for Transportation Agencies

MassDOT operates a storm water system that spans a much larger and more diverse area than traditional MS4s. Statewide, the MassDOT storm water system has more than 17,000 urban outfalls spread across almost 2,400 miles of road. These roads span multiple watersheds, are frequently discontinuous, and are separated by long distances. The expanse of the system makes compliance with many of the draft permit requirements prohibitively expensive and, in some cases, infeasible. In addition to the larger size, there are a number of system features that are substantially different than traditional MS4s. These differences include:

- The MassDOT storm water system is unlikely to have significant numbers of illicit connections. Therefore, illicit discharge detection and elimination efforts are unlikely to produce improvements in water quality that justify the very high costs of implementing these investigative measures system wide (see below for further discussion).
- MassDOT owns relatively narrow corridors and operates within a small portion of any given watershed. Consequently, MassDOT almost always is a very minor contributor of runoff to specific water bodies. This minimal contribution warrants a flexible and incremental program of installing BMPs.
- Due to its linear nature, the MassDOT storm water system contains a large number of outfalls that drain relatively small catchment areas. In fact, many MassDOT outfalls drain only a single catch basin. Therefore, any activities conducted on individual outfalls, such as structural BMPs, monitoring, Illicit Discharge Detection and Elimination (IDDE) efforts, and/or outfall mapping,

Massachusetts Department of Transportation, Highway Division • www.mass.gov/massdot

TEN PARK PLAZA • BOSTON, MA 02116-3969 • PHONE: 617.973.7000 • FAX: 617.973.8031 • TDD: 617.973.7306

are more costly to implement for DOTs than other MS4s. In addition, the relative benefit of these activities is smaller.

- MassDOT operates roadways and highways that carry relatively high traffic volumes. As a result, activities that require access to storm water features including monitoring, maintenance, and inspection can result in significant disruptions in traffic flow. In addition, the traffic levels can cause significant safety concerns for staff performing these activities. These activities are more time consuming, expensive, disruptive, and carry more risk for maintenance workers.
- The area of impervious surface associated with most transportation projects is fixed. Safety considerations dictate the lane configuration, width and available space for BMPs, thereby limiting the ability to change and/or reduce the impervious surface portion of the project.
- Funding storm water projects is more challenging for MassDOT. Municipalities have the potential to develop storm water utilities to provide funds for storm water improvement projects. MassDOT has no such authority.

In combination, these factors make MassDOT's storm water system distinct from those operated by traditional MS4s.

EPA is proposing to cover storm water discharges across the state with two or more watershed-specific MS4 NPDES permits. As a result, there is potential that MassDOT could be required to develop and submit compliance documents on different timelines that would create a substantial and unnecessary administrative burden for MassDOT. To address these differences, EPA should develop a separate transportation-specific state wide general permit. Alternatively, MassDOT should be regulated under a single individual permit.

2) The Dry Weather Monitoring and Illicit Discharge Requirements are not Appropriate for MassDOT

Implementation of the dry weather monitoring requirement would be very expensive and would lead to minimal water quality benefits. We estimate that IDDE efforts consistent with the 2003 MS4 permit executed across the state would cost approximately \$5-7 million. The draft permit contains a number of elements that would substantially increase this cost. Based on the results of previous IDDE efforts performed by MassDOT, this effort is unlikely to lead to substantial improvements in water quality.

Highways are intrinsically unlikely to have illicit drainage connections due to their typical set back and separation from commercial, industrial, and residential areas. This is confirmed in the NRC report "Urban Storm water Management in the United States"¹ and MassDOT efforts. MassDOT has performed illicit discharge detection on many miles of urban roadways within the Lower Charles River including Wellesley, Dedham, Newton, Waltham, Weston, Watertown, Cambridge, Boston, Arlington, Belmont, Brookline, Lexington, Lincoln, Somerville. Sample results of dry weather flows identified during this inventory indicated that the quality of these flows was similar to groundwater and were likely caused by infiltration, and therefore not due to an illicit discharge. Therefore, despite this significant undertaking, MassDOT identified no illicit discharges.

Over the years, the majority of illicit discharges that have been identified by MassDOT were found by maintenance and construction crews. Hence, continuing to review mile after mile of drainage systems that are unlikely to have illicit discharges is an inefficient use of taxpayer funds. We instead recommend an increased focus on further training and education of MassDOT staff and contractors and direct action to remove any identified discharges as an efficient means of detection and elimination.

¹ National Research Council. 2008. Urban Storm water Management in the United States. Available at: http://www.epa.gov/npdes/pubs/nrc_storm_waterreport.pdf

The many screening factors for ranking catchment areas as part of the illicit discharge work will be difficult for MassDOT to develop and are not available in GIS (e.g. age of sewer systems, sewer conversion areas, density of aging septic systems, density of generating sites). MassDOT supports the concept of prioritizing areas for IDDE efforts. However, the prioritization approach should be flexible and incorporate field experience, observations from maintenance crews, and land uses.

Particularly troublesome is the requirement in the draft permit to evaluate the potential for intermittent dry weather flows in junction manholes by damming the inlets and then re-inspecting. This effort would require confined space entry, specially trained personnel and equipment, and traffic control measures with the potential to cause significant traffic impacts in many locations. As a result, the cost per manhole inspected in this manner would be prohibitive. It is not clear why this manner of reviewing inlets is justified instead of just examining outfalls to identify dry weather discharges as required in the 2003 permit. MassDOT wants to negotiate a cost-effective, safe approach to identifying illicit discharges, which includes prioritizing and targeting areas for IDDE efforts.

Another concern is the requirement to test for e.coli or enterococcus. Testing for e.coli or enterococcus cannot be performed in the field and instead must be brought to a lab for analysis. Bacteria samples have restrictive holding times (6 hours) which significantly limit the field work performed each day in order to get the samples back to the lab or require additional personnel on the field crews to bring samples to the lab mid-day. Testing for e.coli or enterococcus should only be required where initial desktop screening has indicated a likelihood of sewer breaks or interconnections.

3) The Wet-Weather Monitoring Requirements Would be Very Costly and Not Result in Meaningful Information

During the public hearing on this permit, EPA indicated that the intent of the proposed monitoring requirements is to identify illicit discharges. It is not clear that this approach is an effective way of detecting illicit discharges. The guidance documents for detected illicit discharges that we are aware of do not include recommendations for conducting wet weather samplings as a means of detecting illicit discharges. Furthermore, we are not aware of studies demonstrating that wet weather monitoring is effective. Instead, available evidence suggests that wet weather monitoring may not be effective at detecting illicit discharges. The high volumes of flow that occur during wet weather can mask the presence of illicit discharges². Without clear documentation that the proposed monitoring is necessary and effective, the extremely high costs associated with the requirements are not justified.

The draft permit contains extensive wet weather monitoring requirements that would be extremely costly for MassDOT to implement. It is not clear these monitoring requirements would be effective at identifying illicit discharge connections as intended. Conducting wet weather monitoring at all outfalls and interconnections with other MS4s would cost millions of dollars. MassDOT estimates that the costs of conducting wet weather sampling, including analytical costs, labor, and traffic control costs, would be approximately \$325 per outfall; with the total costs for sampling all 17,000 outfalls across the state exceeding \$5.5 million.

While the permit allowance for a "permittee specific monitoring plan" to reduce the number of locations requiring monitoring, it would require sampling in each receiving water. MassDOT's extensive storm water system discharges into a large number of receiving waters and often each receiving water has only a few outfalls due to the linear nature of the highway. As a result, the use of this type of monitoring plan would not significantly reduce the monitoring costs. In addition, it would be difficult to use the results of in stream monitoring to identify impacts associated with MassDOT's system as there are a number of other factors that would contribute to local water quality, including discharges from other storm water systems.

² Center for Watershed Protection. 2004. Illicit Discharge Detection and Elimination. A Guidance Manual for Program Development and Technical Assessment. Available at: http://www.cwp.org/Resource_Library/Center_Docs/IDDE/IDDE_Manual_06_release.pdf

In summary, the wet weather monitoring requirements would not provide results that justify the very high costs. As a result, the wet weather monitoring requirements should be removed from the permit. If EPA includes a monitoring requirement, the purpose of the monitoring should be clearly stated and the requirements should be designed to achieve meaningful results in a cost-effective manner. Performing such wet weather monitoring state wide would not be practicable or cost effective. Therefore, the permit should allow prioritizing IDDE efforts in areas that have a higher likelihood of having illicit discharges. In addition, the permit should allow permittees the opportunity to demonstrate that their system, or portions of it, do not have a significant potential for illicit discharges and therefore would not require IDDE effort. These goals would be best achieved by allowing permittees significant discretion and flexibility to design a storm water monitoring program that accounts for the specific characteristics of their system.

4) The Requirement to List the Number of Outfalls that Contribute to Each Water Body in the NOI Should be Removed

The draft permit requirement to list the number of outfalls that contribute to each water body would be infeasible for MassDOT to meet within 90 days required by the draft general permit. The MassDOT storm water system discharges to a large number of receiving water bodies. We are not aware of watershed delineations to each individual water body which was included in the MA DEP 303d list. The permit requires that the permittee document which of the receiving waters are listed as impaired on the 303d list. Without individual watershed mapping to each section of stream or water body available in GIS, this task will require significant effort and time and be duplicated by each permittee. Therefore, it would not be feasible to determine the number of outfalls that drain to each individual impaired water body within 90 days.

Furthermore, this effort would be costly and provide no water quality benefit. As drainage infrastructure mapping is completed as part of the permit, MassDOT will identify the individual receiving water and watershed associated with the drainage system. This would be the appropriate time to update a list of outfalls to receiving waters.

5) The Requirements for MassDOT to Comply with the Total Maximum Daily Loads (TMDLs) in the North Coastal Watershed are Unclear.

It is unclear what is necessary for MassDOT to demonstrate compliance with TMDLs under the draft permit. In particular, it is not clear what waste load allocation applies to MassDOT or how to assess compliance with a specific waste load allocation (WLA). Appendix G contains the requirements and WLA that apply to the municipalities in the North Coastal Watershed but it does not include MassDOT.

If a WLA were defined for MassDOT, it is not clear how to assess compliance with the WLA. Compliance could be determined based on:

- Demonstrating that the BMPs specified in the Northern Coastal permit and the TMDL requirements that are applicable to MassDOT have been implemented,
- achieving a percent reduction in pollutant loading, or
- achieving an absolute pollutant load.

If compliance is based on achieving a percent reduction in pollutant loading or achieving an absolute pollutant load, the permit must clearly specify the required target values for MassDOT and how compliance with those target values is achieved. In particular, it must define how reductions achieved outside the permit area are credited towards the overall reduction. If compliance is based on a percent reduction in pollutant loading, the basis against which reductions are measured must be defined. The permit should allow for water quality testing of runoff from the permittee facilities to demonstrate that the pollutant loading estimates used during the TMDL model development were not reflective of the actual loading; and this data should count towards the required pollutant reduction.

MassDOT recommends assessment based on the implementation of TMDL recommendations (bullet 1) rather than a quantitative assessment of pollutant loading. This would avoid expensive pollutant loading modeling. This approach should allow permittees to take credit for BMPs that achieve reductions in the pollutant of concern, including those that have been in place historically. Otherwise permittees that have voluntarily implemented BMPs previously will be penalized by being required to demonstrate additional reductions.

The section of the permit that discusses the Phosphorus Control Plan implies that the compliance with the WLA will be determined based on percent reductions in pollutant loading as measured from 2000. This is troublesome because it would not allow credit for BMPs that existed prior to this date. This would, in effect, penalize permittees that have proactively installed or implemented BMPs before this date by requiring additional reductions in phosphorus loading.

6) The Permit Should not Require Implementing Structural BMPs as Stand Alone Projects

The permit requires the implementation of BMPs to achieve the WLA and ensure that discharges do not cause or contribute to water quality impairments. The flexibility this allows permittees is important to MassDOT because retrofitting storm water systems with structural BMPs as standalone projects is not a cost-effective means of controlling storm water. Instead, BMPs should be installed during reconstruction and repair projects, which occur on an ongoing basis within MassDOT. Combining reconstruction and BMP installation activities substantially reduces costs for mobilization, excavation, and traffic control. During reconstruction there are frequently fewer constraints on BMP installation because there is a larger area disturbed. Finally, combining the construction efforts associated with BMP implementation and construction may minimize impacts to water quality associated with construction runoff, which is known to be a significant contributor of sediment loading.

Therefore, MassDOT believes that EPA should confirm that the implementation of structural BMPs can occur on a schedule that allows them to be implemented during construction and repair projects and not as standalone projects.

7) Schedule and Requirements of Phosphorus Control Plan Infeasible for MassDOT

Developing and implementing the Phosphorus Control Plan (PCP) across the entire Charles River Watershed would be a huge undertaking for MassDOT. Some of the associated requirements are infeasible for MassDOT to comply with due to the large number of outfalls and road miles operated by MassDOT. This is because MassDOT operates approximately 180 miles of roadways with more than 1,000 outfalls in the Charles River Watershed alone. In comparison, most municipalities have a few hundred outfalls. This scale makes implementing the following PCP provisions burdensome and in some cases infeasible.

The requirement to implement the plan within 10 years is problematic. This provision could be interpreted to require the installation of all BMPs outlined in the PCP within 10 years. As discussed above, MassDOT implements structural BMPs during part of larger reconstruction projects. Implementing them as standalone projects is infeasible and has a number of disadvantages. Doing this across the Charles River watershed would be infeasible for MassDOT.

8) The Permit has a Number of Mapping Requirements that are Unwarranted and Would be Infeasible for MassDOT.

The permit has extensive requirements for mapping storm water systems. These requirements would be very expensive to implement and would not provide definitive water quality benefits. In addition, some of the requirements would be infeasible for MassDOT. The following mapping requirements are of particular concern:

- The permit requirement to map the entire MS4, including all catch basins, interconnections with other MS4s and treatment structures within the first 2 years of the permit would be impossible to

implement across the MassDOT system within the Northern Coastal Watershed. In addition, it would cost an estimated \$5-7 million if implemented across the state. MassDOT believes this expensive effort is unnecessary and should be removed. If this permit condition is retained, MassDOT will require a longer timeline to complete the mapping. MassDOT had committed to mapping 25% of TMDL watersheds each year and felt this was a reasonable commitment that focused on water bodies with documented water quality impacts.

- The permit requirement to delineate catchment areas would be very costly to implement for MassDOT. Many of the outfalls that MassDOT operates drain very small catchment areas, often from a single catch basin. As a result, MassDOT would need to delineate thousands of catchment areas statewide. The value of this expensive effort would be limited and the costs very high. We feel that documenting the ultimate receiving water section of stream or waterbody would be sufficient and meet the receiving water requirement in the permit.
- The permit requires mapping of additional features, including rim and invert elevations, and a number of sanitary sewers features in the Charles River Watershed. MassDOT does not operate sanitary sewers and therefore should not be required to meet these expensive requirements.

In summary, the mapping requirements would be very expensive to implement and the utility of the results limited. Instead of requiring comprehensive mapping of the storm water system, EPA should allow permittees the flexibility to efficiently conduct the mapping required to meet the permit's water quality goals. This could include conducting mapping when new BMPs are designed or installed and when reconstruction occurs. This would be much less costly and have similar utility. Additional mapping could focus on TMDL watersheds where storm water has been identified as a source of the impairment and mapping to aid in identifying BMP solutions.

9) Schedule and Need for Storm Water Pollution Prevention Plans:

Developing SWPPPs for all MassDOT maintenance facilities would be an enormous undertaking. This would be a severe challenge to complete within 2 years, as required by the draft permit. During the last permit term, EPA determined that SWPPPs were not necessary. It is not clear why this determination has changed. MassDOT believes this requirement should be removed, or at a minimum the compliance timeline extended.

10) Street Sweeping and Catch Basin Cleaning Inspections and Tracking are Infeasible and Unnecessary

The requirement to develop a program to repair and rehabilitate MS4 infrastructure is another paperwork task that may be appropriate for a town but is unrealistic for MassDOT. District staff are responsible for maintenance budgets, which include repair and rehabilitation of drainage infrastructure not part of individual construction projects.

MassDOT subcontracts catch basin cleaning to private contractors. In order to document the depth of accumulated sediments at each catch basin, a MassDOT employee would have to ride with each catch basin cleaning crew. The length of time spent at each basin would increase significantly thereby slowing down the cleaning to allow the employee to perform and document the measurement before cleaning the catch basin. This would result in a significant increase in costs. MassDOT plans its catch basin cleaning contracts based on historic knowledge of roadways and annual inspections.

Similarly, documentation of street sweeping would be onerous. MassDOT also subcontracts sweeping to private contractors. Compliance with this requirement would necessitate additional MassDOT staff to document the streets swept each day and the amount of material collected into a database.

Furthermore, EPA should remove the requirement to conduct street sweeping of roads and parking lots with directly connected impervious areas (DCIA) in watersheds with final TMDLs twice per year. MassDOT sweeps its streets once per year. MassDOT does not have the budget available to sweep

streets twice. The appropriate frequency for street sweeping and other maintenance measures is dependent on local conditions, which are identified and monitored by district personnel. Requiring an arbitrary sweeping frequency will result in more sweeping than necessary in some locations.

Additional Comments

The following section contains additional comments or requests clarification of permit requirements.

- *Essential Fish Habitat (EFH) Requirements:* We request that EPA request an EFH review on a statewide basis similar to the 2003 permit.
- *Storm water Management in New Development and Redevelopment:* Due to the expense and redundancy of re-surveying many miles of highway, MassDOT employs construction plans to serve as as-built plans. 100% "Plans, Specifications, and Estimate" plans can be provided electronically to EPA upon request.
- *Directly Connected Impervious Area:* The requirement to estimate changes in impervious area (IA) and directly connected impervious area (DCIA) is not appropriate for MassDOT. The area of impervious surface for the MassDOT system is fixed by lane number and lane width requirements; therefore MassDOT cannot substantially reduce the amount of impervious surface. Developing this estimate each year would be a significant GIS undertaking. There would be no benefit from estimating this value on an annual basis and it would be expensive to implement. Therefore, it is recommended that MassDOT be exempted from this requirement.
- *Inventory and Priority Rank Infrastructure for BMP Retrofits:* The permit requirement to inventory and rank infrastructure and properties for BMP retrofits would be expensive, have no utility for MassDOT and could not be achieved within 2 years. MassDOT implements BMPs during reconstruction and repair projects. During these repair projects the potential for installing BMPs is reviewed. Therefore, a separate effort to assess the potential for BMPs on a system wide basis is unnecessary and would not change the schedule for BMP implementation.
- *Direct Discharges vs. All Discharges:* Since discharges which travel overland before discharging will not have the same impact as the direct discharges, monitoring and BMP analysis should focus on outfalls that discharge directly to receiving waters

Thank you for the opportunity to provide comment on the Draft North Coastal MS4 Permit. If you have any questions regarding these comments, please feel free to contact Henry Barbaro, MassDOT's Wetlands Unit Supervisor, at (617) 973-7419.

Sincerely,



Kevin M. Walsh
Director
Environmental Services