Urban Stormwater Workgroup

Proposed Principles for Urban BMP Verification and Process for Developing BMP-specific Verification Protocols

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1 Verification Needs Differ for Urban BMPS

- The need for verification differs among each type of BMP, but they can be generally classified into four broad categories:
  - Traditional engineered stormwater BMPs that were historically installed through a local stormwater plan review process
  - New runoff reduction BMPs that will be implemented to meet new state stormwater performance standards in the future and also go thru the local stormwater review process
  - Non-structural or operational BMPs that are typically applied by a municipal agency
  - Stormwater retrofits and restoration practices designed and installed by localities to treat existing impervious cover.

#2 *Key Role of Maintenance in BMP Performance*

Regular inspections and maintenance of BMPs are critical to ensure their pollutant removal performance is maintained and extended over time, as well as maintain other local design objectives (e.g., flood control, public safety, stream protection and landscape amenity).

Therefore, the core verification principle is to ensure that BMPs are installed and maintained properly over their design life to qualify for their pollutant removal rates

#3 *Utilize Existing MS4 Framework*

The existing MS4 inspection and maintenance framework for hundreds of communities in the Bay watershed should be the foundation of any BMP reporting and verification system for the Bay TMDL.

Ongoing BMP reporting and maintenance inspections requirements in MS4 permits may need to be adjusted slightly to verify BMP performance, but the modifications should be limited to reduce the administrative burden for local and state agencies.

#4 *Removal Rate Tied to Visual Inspections*

The basic concept is that urban BMPs will have a defined time-frame in which the pollutant removal rate applies, which can be renewed or extended based on a visual inspection that confirms that the BMP still exists, is adequately maintained and is operating as designed.

It is recommended that these rapid investigations be piggy-backed as part of routine stormwater BMP inspections required under their MS4 NPDES permits.

Template for an inspection form to quickly assess urban BMP performance in the field using simple visual indicators developed by CWP (Appendix A)

5 *Sub-Sampling of Local BMP Inventory.*

The intent of the visual indicator approach is to isolate the design and maintenance problems that are impairing BMP performance in the field and take corrective actions (not only for the individual BMP being inspected, but also to improve the design and maintenance regimes of future BMPs).

Localities may elect to reduce the scope of their visual inspections by sub-sampling a representative fraction of BMPs in their local BMP inventory (or target older BMPs whose performance may have diminished over time).

The sub-sampling data can then be used to extrapolate the proportion of BMPs in their local inventory that are performing or not performing.

6 *State BMP Tracking & Reporting*

Each state has a unique system to report and track BMPs submitted by their MS4 permitees, and some states are still developing and refining their BMP reporting systems.

Consequently, it may not be possible or even desirable to implement a Bay-wide BMP reporting format.

However, to get credit in the context of CBWM progress runs, states will need to report BMP implementation data using CBP-approved rates or methods, reporting units and geographic location (consistent with NEIN standards), and periodically update data based on the local field verification of BMPs.

7 *Initial Verification of BMP Installation*

Localities will need to verify that urban BMPs are installed properly, meets or exceeds the design standards for its CBP BMP classification, and is functioning hydrologically as designed prior to submitting the BMP for credit in the state tracking database.

This initial verification is provided either by the BMP designer or the local inspector as a condition of project acceptance, as part of the normal local stormwater BMP plan review process.

The MS4 community would simply indicate in its annual report whether or not it has BMP review and inspection procedures in place and adequate staff to implement them.

8 *Local BMP Recordkeeping*

Localities should maintain a more extensive engineering project file for each urban BMP project installed (i.e., construction drawings, digital photos, inspection records, and maintenance agreement, etc).

As built surveys may also needed for some classes of urban BMPs in some communities.

The project file should be maintained for the lifetime for which the BMP removal credit will be claimed.

Localities are encouraged to develop a GIS-based BMP tracking system in order to schedule routine inspections and maintenance activities over time.

 # 9 *Recommended Cycle for Field Verification of Urban BMPs*

Local inspectors should perform field verification at least once every other inspection cycle mandated under their MS4 permit

The typical inspection cycle in MS4 permits ranges from 3 to 5 years.

It is recommended that these rapid investigations of visual indicators would integrated as part of routine stormwater BMP inspections required under their MS4 NPDES permits

10 *Suggested Process for BMP Downgrades*

If the field inspection indicates that a BMP is not performing to its original design, the locality would have up to one year to take corrective maintenance or rehabilitation actions to bring it back into compliance.

If the facility is not fixed after one year, the pollutant reduction rate for the BMP would be eliminated, and the locality would report this to the state in its annual MS4 report.

If corrective maintenance actions were verified for the BMP at a later date, the locality could take credit for it then.

11 Special Procedures for Urban BMPs Installed in Non-MS4s

Several states such as PA and WV are expected to have considerable development occurring in non-MS4s communities, which tend to be very small in size and fairly new to stormwater BMP review.

It is acknowledged that these non-MS4s currently may not have the regulatory authority to meet the BMP verification principles.

A subset of the Work Group in 2012 will assess alternative/interim verification options for non-MS4s. .

12 *Special Procedures for Urban BMPs Used for Offsets, Mitigation and Trading.*

Some urban BMPs are built to offset, compensate or otherwise mitigate for impacts caused by development elsewhere in the watershed.

Examples include stream restoration mitigation and stormwater retrofit offsets when full compliance with stormwater performance standards is not possible at a new development site.

In other cases, urban BMPs may be built for purposes of trading nutrient credits within a community or a state. Special procedures need to be developed in both cases to prevent double counting of BMPs.

States and localities may elect to require more frequent BMP field inspection for these types of projects to assure they are meeting their intended nutrient reduction objectives. T

The Work Group will coordinate with the Trading and Offsets Work Group to develop special verification procedures for this category of BMPs.

 # 13 *State Oversight of Local BMP Reporting*

Bay states, under either their MS4 permit or state-wide stormwater delegation authority, would require the localities to conduct quality control on the BMPs they have submitted for credit at the end of each permit cycle (or every five years).

Bay states may elect to audit a subset of local BMP project files, analyze local maintenance inspection records, or conduct joint field BMP inspections to verify performance.

The state oversight process needs to be transparent and publicly accessible so that NGOs, watershed groups and other stakeholders can be confident that BMP implementation is real.

14 *EPA Review of State Verification Oversight*.

- EPA Region 3, under its existing NPDES MS4 permit oversight role, would periodically review the implementation of state BMP verification protocols to ensure they are being effectively implemented.

Proposed USWG Process for Developing Urban BMP verification Protocols

Class 1 Traditional Stormwater BMPs	
This class includes traditional engineered stormwater BMPs that are typically installed through a local and/or state stormwater plan review process, and subsequently inspected by local stormwater authority, and reported in MS4 annual reports. These BMPs have a defined pollutant removal rate that has been established through an expert panel process and are CBP approved	
BMP Type	
Wet Ponds	Filtering Practices
Constructed Wetlands	Bioretention
Dry Detention Ponds	Permeable Pavement
Dry Extended Detention Ponds	Grass Channels
Infiltration	Bio-swales
Key issues in developing a verification protocol*: Some BMP types in this class may have different design life, longevity or failure rate. This class also includes the oldest BMPs, so there is a higher probability that some suffer from design/maintenance problems that impair their performance.*	

To be done by USWG Verification Committee

Proposed USWG Process for Developing Urban BMP verification Protocols

Class 2 New Runoff Reduction Practices
This class includes LID, ESD and runoff reduction BMPs that will be implemented to meet new state stormwater performance standards in the future. Multiple practices and credits are typically applied to new development and redevelopment sites. The practices are typically installed through a local and/or state stormwater plan review process, and subsequently inspected by local stormwater authority, and reported in MS4 annual reports.
BMP Type
Treated Acres to the New State Specific Stormwater Performance Standard
Treated Acres to the New State-Specific Redevelopment Performance Standard
Key issues in developing a verification protocol: Non-complying projects, Non-Ms4 areas, development of visual indicators.

To be done by Performance Standards Panel

Proposed USWG Process for Developing Urban BMP verification Protocols

Class 3 Non-Structural or Operational BMPs	
This class includes less structural or operational urban BMPs that are typically "installed" by a municipal agency whose effort wax and wane from year to year due to local budget considerations. Many communities are struggling with how to report them, and not often included in MS4 reports	
BMP Type	*Panel ?*
Urban Fertilizer Management	Yes
Street Sweeping	**Yes, but did not address verification**
Tree Planting	Yes
Illicit Discharge Elimination	Yes
Key issues in developing a verification protocol: A lot	

Street Sweeping by Committee, Panels for the Rest

Proposed USWG Process for Developing Urban BMP verification Protocols

Class 4 BMPs to Treat Existing Development	
This class of practices are applied often applied to treat existing development and are typically designed and built through by a municipal agency	
BMP Type	*Panel ?*
Stormwater Retrofit	Yes
Stream Restoration	Yes
Reforestation	No

Reforestation by Forestry Workgroup
Panels for the Rest

Proposed Charge of USWG Verification Committee

- Develop verification protocol for Class 1 BMPs and Street Sweeping

- Recommend alternative protocols for non-MS4 areas

- Examine issues of BMPSs built for offsets, mitigation and trading

- Recommend efforts to stream line reporting and verification to reduce local fiscal impact, while retaining reasonable assurance that the BMPs are performing effectively

- Ensure compatibility with NEIEN, state tracking systems, and CBWM

- Coordinate CBP Verification Expert Panel on Urban Secot Issues

Other Comments ?