Proposed Principles and Protocols for Urban BMP Verification

Norm Goulet
Chair, Urban Stormwater Workgroup

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.

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,

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

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.

BMP Verification as Adaptive Management

The ultimate purpose of verification is to maintain or expand the pollutant removal performance of existing and future local stormwater infrastructure assets.

Analyze their historical inventory of private and public stormwater BMPs to identify which individual BMPs present the best opportunities for additional nutrient reduction through retrofits or restoration of existing BMPs.

The field data enables local and state partners to improve the next generation of BMPs in an adaptive management process., by isolating real world site conditions, design features and maintenance tasks that influence BMP performance,.

And then incorporating them into improved design specifications, review and inspection procedures and maintenance requirements.

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.

Sub-Sampling of Local BMP Inventory.

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.

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.

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.

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

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 within a pre-defined time frame, 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.

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

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