Forestry BMP Verification Guidance – Proposed Updates

Forestry Workgroup, 12/6/17

Summary of updates to Agricultural Forestry BMPs

- Added Narrow Forest Buffer definition
- Added language on need to track width
- Added language on double buffers
- Added language on Forest Conservation BMP
- In general, toned down rhetoric
  - e.g., “recommend” and “suggest”
- Specifics removed in some instances
  - ~~If using a sampling regime to determine rate of BMP implementation, use a confidence level of 80% (+/-5%).~~

Width Language Added “Tracking”

- Data submitted to the National Environmental Information Exchange Network (NEIEN)/Chesapeake Bay (CB) model will be used to report annual progress. These data include acres of practice, but do not include width of practice. The water quality benefits ceded riparian buffers in the scientific record, as documented in the Expert Panel report, credits this practice so long as they are relatively wide (~100 feet). Therefore, the NEIEN data will need supplemental data to suggest new buffers are sufficiently wide.

Forest Conservation BMP Acknowledged

NEW “Verification guidance for one practice, “Forest Conservation,” was not developed because it’s use in Phase 6 is under review. This practice was historically credited for reducing the amount of land developed and the reforestation mandated by the Maryland Forest Conservation Act.”

Extra Credit for Buffers on Both Sides

NEW "A jurisdiction wanting to take advantage of the additional 4% nitrogen reduction when a buffer is on both sides of a stream, needs to document this in NEIEN. There is a "normal" or "one-sided" buffer that does not have trees on the opposite side of the stream. And there is the "double" or "two-sided" buffer that has trees on the opposite side. Only one of these double buffers needs to be newly established to get the additional credit, and only the newly-established acres are counted."

Summary of updates to Urban Forestry BMPs

- Replaced 2 old BMP definitions (urban tree planting/urban forest buffers) with 3 new BMP descriptions from our Forestry WIP Guide
  - Urban Tree Canopy Expansion
  - Urban Forest Planting
  - Urban Forest Buffers
- Combined guidance for the three BMPs under the 5 verification

BMP Descriptions – ADDED:
(same as Forestry WIP guide)

Urban Tree Canopy Expansion BMP Description -

The Urban Tree Canopy Expansion BMP covers tree plantings on developed land (turf grass or impervious) that result in an increase in tree canopy but are not intended to result in forest-like conditions. Urban tree canopy expansion includes the many dispersed tree planting activities that occur across the developed landscape over turf (e.g. parks, schools, yards) or impervious areas (e.g. street trees, parking lots). "Urban" is defined broadly to encompass all developed areas in urban/suburban/rural communities where turf grass and impervious surfaces (roads, buildings, parking lots, etc.) are the underlying land cover. The credit for the Urban Tree Canopy Expansion BMP is based on the number of individual trees planted which gets converted to equivalent acres in the BMP reporting database (NEIEN). The credit for this practice was recently updated (see Expert Panel Report). A credit of 144 ft^2 per tree planted is equivalent to 300 trees planted per acre; however this is not a planting density requirement. Thus, each newly planted tree that is reported converts 1/300 an acre of either turf or impervious to tree canopy land uses, which have lower pollutant loading rates. This BMP credit does not require trees to be planted in a contiguous area and assumes that the understory remains managed as turf or impervious surfaces.

BMP Descriptions – ADDED: (same as Forestry WIP guide)

Urban Tree Canopy Expansion BMP Description (cont) -

There are several types of tree plantings which should not be reported using the Urban Tree Canopy Expansion BMP. For larger plantings in developed areas that are managed to create forest-like conditions/understory, use the Urban Forest Planting BMP. Tree plantings along streams and rivers with a minimum width of 35 ft. should be reported using the Urban Forest Buffer BMP. The water quality benefits of trees planted as part of a structural BMP (bioretention, enhanced tree pits) are captured separately through stormwater BMP reporting and should not be reported under Urban Tree Canopy Expansion. Finally, because this BMP is intended to capture the water quality benefits of expanded (i.e. additional) tree canopy, mitigation plantings which simply replace existing trees that have been removed should not be reported.

BMP Descriptions – ADDED: (same as Forestry WIP guide)

Urban Forest Planting BMP Description -

The Urban Forest Planting BMP applies to tree planting projects in developed areas with the intent of establishing forest ecosystem processes and function. Trees are planted in a contiguous area according to a planting and maintenance plan that meets State or District of Columbia definitions for planting density and associated standards for establishing forest conditions, including no fertilization and minimal mowing as needed to aid tree and understory establishment. The credit for this BMP is based on a land use conversion from developed turf grass to forest, which has much greater pollutant load reduction benefits than the Urban Tree Canopy Expansion BMP. Local jurisdictions should consult with their State or District forestry agency to determine eligibility of tree planting projects for this credit.

BMP Descriptions – ADDED: (same as Forestry WIP guide)

Urban Forest Buffer BMP Description -

Urban forest buffers are linear wooded areas planted along rivers and streams in developed areas that help prevent pollutants from reaching the stream. They also offer complementary benefits such as habitat, shading, recreation and urban beautification. The recommended buffer width is 100 feet, with a 35 feet minimum width. The BMP description does not specify technical details such as how many different species should be planted, but state and local guidelines and requirements should be followed. Buffers in urban areas have a different efficiency than agricultural buffers. Both types of buffers are credited with changing land use to forest. But, because impervious surfaces like roads and parking lots typically route water into storm sewer systems rather than into riparian areas, urban buffers are not expected to treat upland runoff and do not receive the extra credit for this function that agricultural buffers do. “Urban” is defined broadly to encompass all developed, non-agricultural areas in urban/suburban/rural communities where turf grass is the land cover.

Verification Guidance - Updates

1. Establish urban forestry partner and support mechanisms

- For urban forestry BMPs, which are decentralized practices occurring on a mix of public and private lands, a local urban forestry partner improves confidence in tree survival/health and accuracy in tree reporting in a defined locality. An urban forestry partner may be a local government entity, or a non-governmental organization with necessary expertise who works cooperatively with the locality. The partner should be approved by the state forestry agency, which provides oversight and support with training, tools, etc. In turn, local urban forestry partners can provide outreach and technical assistance on urban tree planting, tree care, and other issues that arise.
- NEW-Where there are multiple urban forestry partners implementing tree planting BMPs in a given local jurisdiction, a lead reporting partner should be established to coordinate data collection efforts across partners and to ensure that BMPs are not double-counted. For example, a given tree planting project in a city park might be separately tracked by 1) the non-profit who completes the planting, 2) the local government who manages the park, and 3) the state agency who funded the non-profit's tree planting. In such cases, the state forestry agency should work with local partners to confirm a local reporting lead to ensure the project is only reported once to NEIEN for credit.

Verification Guidance - Updates

OLD LANGUAGE:

2. Urban forestry partner tracks and reports new acres of tree canopy in locality

- For new plantings, the following information should be collected: 1) acres of planting, 2) dates of planting, and 3) anticipated stature of trees at maturity (e.g. large or small). Urban tree canopy plantings can be credited once planting is confirmed.
- For natural regeneration acres, two similar pieces of data should be recorded: 1) acres of treatment, and 2) date started. But because of the difficulty to establish tree canopy in this way, this information should be reported for credit only after a 4-year maintenance period. Regeneration areas can be mowed, fenced or signed as deemed necessary.
- To receive credit, plantings should be site-checked. To credit plantings voluntarily-reported by a landowner or other partner and not overseen by the forestry partner, the states or localities should develop a spot-checking/sampling strategy similar to approaches for some other voluntarily-reported urban practices. A 20% spot check is recommended. Protocols should indicate how the BMP acreage credit will be discounted based on survival rate, information source, or other measures of uncertainty.

Verification Guidance - Updates

NEW LANGUAGE:

2. Urban forestry partner tracks and reports Urban Tree Canopy Expansion, Urban Forest Planting, and/or Urban Foresty Buffer BMPs in locality

- For the Urban Tree Canopy Expansion BMP, the urban forestry partner should track 1) number of trees planted, 2) planting date, 3) underlying land cover – turf or impervious, and 4) location (county or land-river segment), as well as any other data required by the state forestry agency.
- For the Urban Forest Planting BMP, the urban forestry partner should track and report 1) acres of urban forest planted (projects can be a portion of an acre), 2) planting date, and 3) location (lat long/address), as well as any other data required by the state forestry agency. 4) The urban forestry partner must keep on file for each reported project a planting and maintenance plan that meets state forestry guidelines for establishing forest conditions (e.g. stocking rate, no fertilizer application, minimal mowing to aid forest establishment).

Verification Guidance - Updates

NEW LANGUAGE:

2. Urban forestry partner tracks and reports Urban Tree Canopy Expansion, Urban Forest Planting, and/or Urban Foresty Buffer BMPs in locality (cont.)

- For the Urban Forest Buffer BMP, the urban forestry partner should report 1) acres of buffer planted (projects can be a portion of an acre), 2) average buffer width (35 ft. minimum), 3) planting date, and 4) location. (lat/long?, county or land-river segment?)), as well as any other data required by the state forestry agency.
- To receive credit, plantings should be site-checked by the local urban forestry partner to confirm establishment. To credit plantings voluntarily-reported by a landowner or other partner and not overseen by the forestry partner, the states or localities should develop a spot-checking/sampling strategy similar to approaches for some other voluntarily-reported urban practices. A 20% spot check is recommended. Protocols should indicate how the BMP acreage credit will be discounted based on survival rate, information source, or other measures of uncertainty.

Verification Guidance - Updates

OLD LANGUAGE:

3. Urban forestry partner should maintain new areas of canopy

- New urban plantings can have a high rate of mortality, succumbing to weed competition, dehydration, physical damage, or other injury. Removing competing vegetation is often necessary. A planted tree (e.g., one in a tree pit or open-planted, i.e., non-contiguous) that dies should be replaced, or removed from the NEIEN database.
- For natural regeneration areas, maintain desirable tree growth until a density of 100 trees per acre is reached and the trees are of a height where they can grow unhampered (above competing vegetation and deer browsing level of 4 feet). Area of intended tree canopy via natural regeneration should be a minimum of 1/4 acre (or adjoin to existing forest).

Verification Guidance - Updates

NEW LANGUAGE:

3. Urban forestry partner should maintain Urban Forestry BMPs

- New urban plantings can have a high rate of mortality, succumbing to weed competition, dehydration, physical damage, deer browse, or other injury. Depending on the type of planting, regular summer watering, mulching, and/or removal of competing vegetation is often necessary for 1-2 years or longer to ensure successful establishment. Ongoing maintenance after the establishment period is also necessary and should be planned for by the urban forestry partner.
- The Urban Tree Canopy Expansion BMP credit assumes a 5% mortality rate, so urban forestry partners should implement best planting and maintenance practices to achieve this level of survival or better.
- The Urban Forest Planting BMP requires that a tree planting and maintenance plan be followed that meets state guidelines for establishing forest-like conditions (e.g. stocking rate, no pesticide application and minimal mowing to aid establishment). Since Urban Forest Planting BMPs are afforded a much higher level of pollution reduction credit than Urban Tree Canopy Expansion, projects should be monitored to ensure that forest-like conditions are being established and maintained over time.

Verification Guidance - Updates

OLD LANGUAGE:

4. Reported practice should represent a net gain

- In 2015, the Chesapeake Bay Program agreed to create a high-resolution land-cover map that will be updated periodically to indicate a gain or loss in urban tree canopy. The gain or loss will be reflected in the regularly-updated land-use portion of the CB Model. The high resolution tree canopy data will serve as a periodic cross-check on urban tree planting BMP data, to help ensure that what is credited in the model reflects actual tree canopy progress on the ground.

Verification Guidance - Updates

NEW LANGUAGE:

4. Reported practice should represent a net gain, verified over the long-term via high resolution land-cover datasets.

- In 2015, the Chesapeake Bay Program agreed to create high-resolution land-cover and land use datasets that include forest and tree canopy among the land use classes used in the Chesapeake Bay modeling tools. These land cover/land use datasets will be updated periodically (e.g. every 3 years or so) to reflect the latest on-the-ground conditions. Thus, the ultimate verification of urban forestry BMPs will be accomplished through the gains and losses in tree canopy and forest that are picked up in the land cover data. Based on the Urban Tree Canopy Expert Panel Report, the Urban Tree Canopy Expansion and Urban Forest Planting BMPs receive credit for a 10 year period, at which time the BMPs are removed from the model because the tree canopy growth is assumed to be picked up in the updated land cover data that are used in the model.

Verification Guidance - Updates

OLD LANGUAGE:

5. State oversight of reporting localities

- To provide accountability, state forestry agencies regularly spot-check a subset of a locality/urban forest partner BMP project files and/or 5-year assessments of net gain for accuracy and thoroughness. This may also entail site visits to tree planting sites on record. 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. Improvements on reporting are suggested. The state forestry agency should coordinate with the state MS4 oversight program, where local partners are implementing tree planting BMPs regulated by that program.

Verification Guidance - Updates

NEW LANGUAGE:

5. State oversight of reporting localities

- To provide accountability, state forestry agencies regularly spot-check a subset of a locality/urban forest partner BMP project files for accuracy and thoroughness. This may also entail site visits to tree planting sites on record for Urban Tree Canopy Expansion, Urban Forest Planting, and Urban Forest Buffers 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. An oversight report should be communicated with the locality/urban forest partner to underscore what is being done well and what needs improvement. Using an adaptive management approach, verification efforts should identify improvements in planting, maintenance, and reporting practices to be incorporated into future verification guidance and protocols. The state forestry agency should coordinate with the state MS4 oversight program, where local partners are implementing tree planting BMPs regulated by that program.

Verification Guidance - Updates

REMOVED ALL STAND-ALONE GUIDANCE FOR URBAN FOREST BUFFER BMP (incorporated key points into above)

5. State oversight of reporting localities

- To provide accountability, state forestry agencies regularly spot-check a subset of a locality/urban forest partner BMP project files for accuracy and thoroughness. This may also entail site visits to tree planting sites on record for Urban Tree Canopy Expansion, Urban Forest Planting, and Urban Forest Buffers 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. An oversight report should be communicated with the locality/urban forest partner to underscore what is being done well and what needs improvement. Using an adaptive management approach, verification efforts should identify improvements in planting, maintenance, and reporting practices to be incorporated into future verification guidance and protocols. The state forestry agency should coordinate with the state MS4 oversight program, where local partners are implementing tree planting BMPs regulated by that program.

Verification Guidance - Updates

REMOVED ALL STAND-ALONE GUIDANCE FOR URBAN FOREST BUFFER BMP

(incorporated key points into above)

- Partner should maintain information at local level of each new urban riparian forest buffer.
- For new plantings, data to be recorded should include: location (lat/long) and name of property, 2) acres planted (if appropriate, or length) and width, and date(s) planted.
- For natural regeneration acres, data to be recorded should include: location, acres of treatment, width, and date started. Naturally regenerating urban buffers are reported after 4 years of establishment if there are 100 or more live native trees per acre.
- All new buffer areas will be visited by the local urban forestry partner to confirm successful establishment.

Verification Guidance - Updates

REMOVED ALL STAND-ALONE GUIDANCE FOR URBAN FOREST BUFFER BMP

(incorporated key points into above)

1. Urban forestry partner ensures maintenance of urban riparian buffer

- New buffer plantings can have a high rate of mortality, succumbing to weed suppression, dehydration, physical damage, or other injury. Competing vegetation should be removed.
- Reporting localities should be 80% confident that maintenance is occurring to avoid impacts to water quality pollution reduction efficiencies. Spot checking and/or statistical sampling is recommended. The sampling design should focus on specific maintenance issues that have the biggest potential impact on water quality such as concentrated flow. See guidance for maintenance of Agricultural Riparian Forest Buffers for more direction.

2. Reported practice represents a net gain

- A gain or loss in urban riparian forest buffers will be reflected in the regularly-updated land-use portion of the CB Model. This information will be used to cross-check what has been reported to the Model.

Verification Guidance - Updates

REMOVED ALL STAND-ALONE GUIDANCE FOR URBAN FOREST BUFFER BMP

(incorporated key points into above)

3. State oversight of reporting localities

- To provide accountability, state forestry agencies should regularly spot-check a locality/urban forest partner BMP project files on urban forest buffer establishment for accuracy and thoroughness. This may also entail site visits to buffer sites on record. 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. An oversight report should be communicated with the locality/urban forest partner to underscore what is being done well and what needs improvement.