

Table 6. Jurisdictional BMP Verification Program Development Decision Steps for Implementation

Below are the 14 steps for each Chesapeake Bay watershed jurisdiction to consider when developing their BMP verification program. Under each step are questions for consideration which will prompt decisions that may be needed to develop jurisdictions' verification protocols.

1) Determine what BMPs to collect:

- a) Do you want to collect all BMPs that were listed in your jurisdiction's Phase II WIP? Additional/or some other combination of BMPs?
- b) Do the listed BMPs meet NRCS standards, state standards, and/or Chesapeake Bay Program (CBP) definitions?
- c) Do you want to report BMPs that are considered resource improvement practices (i.e., they do not meet NRCS standards, state standards, or CBP BMP definitions but do result in nutrient and/or sediment pollutant load reductions)?
- d) When collecting the selected BMPs, do you know the year they were implemented?
- e) For reported BMPs, are you collecting all the elements required for CBP model application (for example, for cover crops, do you know species, date planted, kill down date, fertilization if any, etc.?) or will you take the lowest credited efficiency available?
- f) Have the selected BMPs been approved by CBP? If not, do the BMPs have CBP provisional acceptance status as an interim BMP?
- g) Are the practices you plan to collect worth the cost of collection?

2) Determine where to collect BMPs:

- a) Depending on the BMPs you choose to collect, at what level will you report these (i.e., site specific scale; on a county level; on a (sub-) watershed level, state-wide, etc.)?
- b) Does the whole state need to be canvassed or only certain areas where there is a resource concern or particular practice implementation (i.e., Eastern Shore vs. rest of state)?

3) Protocol—how to collect BMPs:

- a) What system/method have you decided to use to collect the BMPs?
- b) If the BMP is only present at a certain time of year (i.e., cover crops, conservation tillage, etc.), does your verification method and associated workload requirements take this into account?
- c) What is the cost benefit ratio on the system selected (high, medium, low)?
- d) Do you have current funding for the BMP collection system selected?
- e) Do you plan to collect BMPs in the selected areas only during certain seasons of the year, throughout the fiscal year, or will it take several years to determine if they are properly functioning?
- f) Has your selected system been accepted by the people who will be collecting the BMPs—i.e., conservation districts, municipalities, state agencies, farm community, special interest groups, NGOs, USDA, EPA, USFWS, or other federal agencies?

4) BMP verification system development:

- a) What system/method will be used for the verification of collected BMPs?

- b) Does it require: trained state or federal employees; other trained specialists; self-certification; or technological expertise (i.e., aerial photograph interpretation)?
- c) Has your selected system been approved by the appropriate CBP workgroup?

5) Training on selected data collection and verification systems:

- a) Do you have written guidance and documentation on the data collection and verification systems?
- b) How will you train data collectors and verifiers to use the selected system/method (i.e., in person, webcast, etc.)?
- c) Does your system require independent verification?
- d) Is there a “certification requirement” for anyone who collects data and a follow-up CEU requirement?
- e) Who do the data or verification collectors call if there is a question?

6) Use of existing electronic data collection system or update/development of new systems:

- a) Does the electronic data collection and storage system exist for recording BMP implementation, or do you have to build a new one, or make adjustments to the existing system?
- b) What is the cost to develop updates or create the system and do you have funding?
- c) How long will the system be viable (due to technology or other changes)?
- d) What is the ease of use for the BMP verifiers and data entry personnel?
- e) What is the ease of use for the landowner (if applicable in self-certification)?
- f) Where will the data be maintained and is the system secure?
- g) Is the system mapped to provide the data required to NEIEN and to CBP?
- h) Who will transmit the data?
- i) How will you update the data in the future and remove BMPs that are not being maintained, no longer in use, or no longer in existence or expired?
- j) Does the electronic system have standard reports that can be provided to agency leadership or others if requested or will someone have to build reports?
- k) Have you taken into account BMPs that may have more than one funding source so that you do not have double counting?
- l) Is the data available to the public? Do you have appropriate FOIA, Section 1619 or other protection needed for the data?

7) Training on data entry:

- a) Will the training on the selected data entry system be given by: reading documentation or guidance documents; group training; net meetings; field training; or any combination?
- b) Will there be a “certification” requirement to use the data entry system?
- c) If you are recording initial verification determinations on paper, how do you make sure they are accurately entered into the electronic system?
- d) Will training be required for the landowners if they are entering data?
- e) How and when is the best time to conduct the training for data entry personnel?
- f) Will there be a “certification” requirement for those who enter data?

8) Pilot of collection, verification and data entry systems:

- a) Where will the state pilot the data collection and verification systems?

- b) How long will the pilots(s) take?
- c) Who will be involved in the pilot(s)?
- d) How will debriefing be conducted to determine pilot success and/or system changes needed after the pilot?

9) Reliability and validity testing of the new system:

- a) Reliability assures that every time you ask the data collection question, you get the same answer. How will you test this?
- b) Validity is when you compare what you collected to another system of collection, to see if you get the same or a similar answer. How will you test this? (Example: looking at the same data in another system like ChesapeakeStat, USDA's CEAP and NASS data systems, etc.)

10) Adjust systems and training:

- a) After testing the systems, how will you implement adjustments you have to make and are there documentation changes, system changes, or re-training involved in making those changes?

11) Implement tested and adjusted data collection and verification systems:

- a) After you have tested the system you should re-test the adjusted system to make sure you still have adequate reliability and validity of the data.
- b) If the tested system changes the use of the system, documentation, output of data or timeline for collection, you may need to re-train all employees.
- c) Realize that new systems are very seldom right the "first time" implemented.
- d) Allow for the system to operate without continuous changes (usually one year, unless the problem is really significant) for data collection personnel to get used to the system.
- b) Set up a system for users to report problems to system designers.

12) Follow-up checking procedures:

- a) What method is used to select the statistical sample for quality assurance?
- b) What documentation is needed for follow-up check findings?
- c) What actions will be taken if problems are found (i.e., additional training, removal or correction of data in system, etc.)?

13) Communication strategy:

- a) Do you need to prepare and conduct communication strategies for: the data collection event; landowners; local, state or federal leadership; general public?
- b) How will information be provided: written, electronic, news or media, public meetings or any combination?
- c) Do you want feedback about what you propose to do before you start the process?
- d) Will you make changes if you accept feedback?
- e) Will there be communication of findings throughout the process or at a specific time in the process?
- f) Who does the landowner or general public call if they have questions?
- g) Will there be a published document of the findings and outcomes of the collection of BMPs?

14) Future year systems:

- a) As BMP technologies or electronic computer systems change, will you be able to change how often you collect and verify data (i.e., moving from on the ground collection to satellite imaging)?
- b) Will new technology change how to determine if the practice is still in existence or needs to be re-verified?
- c) How will you remove practices from the database that are not being maintained, no longer in existence or have expired in the future?
- d) If you use different systems in the future, have you gone through all of the above steps?

Source: CBP Partnership's BMP Verification Review Panel November 19, 2013
Recommendations Document