CHESAPEAKE BAY PROGRAM

Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model

The Water Quality Goal Implementation Team

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Introduction

The Chesapeake Bay Program (CBP) uses loading estimates to quantify expected amounts of nutrients (nitrogen and phosphorus) or sediment delivered to local waters from specific land uses or point sources. Changes in estimated loads from a particular piece of land can occur in a number of ways, including: 1) a change in the land use (e.g. forest instead of grassland), 2) an adjustment based on an estimate of effectiveness of a best management practice (BMP), 3) a measured reduction in direct load to the land use, and 4) a measured reduction from a treatment process. Some BMPs may combine multiple methods, such as a load source change and an effectiveness value. Additionally, there are BMPs that apply to animal manure, which can change load estimates in several ways. The CBP uses these effectiveness estimates and direct load reductions to land to modify the existing baseline loading for particular land uses and practices. Loads from point sources can be adjusted based on a new treatment process or practice.

The establishment of loading rate reductions will be determined by a panel of experts, vetted and approved by the CBP partnership (see Section IIA). The Water Quality Goal Implementation Team (WQGIT) is responsible for **reviewing** the loading rate reductions as recommended by an Expert Panel , **reviewing** adjustments to these loading reductions in the event that an Expert Panel report is revisited, and **approving by consensus**, in accordance with the CBP partnership Governance Protocols whether the recommendations of the Expert Panel are to be incorporated into the Chesapeake Assessment Scenario Tool (CAST). If recommendations are incorporated into CAST, the WQGIT is also responsible for **approving by consensus** how these recommendations are incorporated in CAST and the procedures associated with tracking, verifying, and reporting of BMPs to the CBP).

Direct nutrient and sediment load reductions and reductions from treatment processes often can be estimated, or measured, with a relatively high degree of accuracy. However, due to the variability of available data and at times, the data values themselves, loading rates and effectiveness estimates for BMPs that are not treatment processes may be based on best professional judgment[1]. While the use of best professional judgment by the Expert Panels is reasonable under those circumstances, other sources of scientific information (see Table I) should be used to support the basis of this judgment and be clearly referenced in the Expert Panel report. Since the definitions and values used for both loading and effectiveness estimates have important implications for the CBP, this Protocol outlines specific procedures for all Expert Panels to follow so the process is consistent, transparent, and scientifically defensible.

The Expert Panel report and associated process will consist of two distinct steps: scientific findings as documented in the Expert Panel report and technical application of the practice as documented in the technical appendix. The scientific findings will reflect the Expert Panel recommendations on establishing a pollutant load reduction efficiency for a BMP and the technical application will describe

[1] "Best professional judgement" in the context of this Protocol is understood as a technical opinion or determination that contributes to an Expert Panel's decision-making or recommendations after reviewing relevant research and data pertaining to the issue under consideration.

how the BMP is to be incorporated into CAST, as well as the tracking, verification, and reporting requirements. While these are two distinct steps, **the Expert Panel report and the technical appendix should be developed concurrently.** It may be necessary for the CBP Modeling Team or the WTWG representatives on the Expert Panel to weigh in on the scientific findings from a more technical perspective as it relates to the application in CAST. Conversely, while the Expert Panel will take the lead role in the development of the Expert Panel reports, they will also be involved in the development and review of the technical appendices, in collaboration with the WTWG and CBP Modeling Team[2].

The purpose of each step is outlined as follows:

Scientific Findings of BMP Performance

Establish the pollutant load reduction efficiencies for a new BMP or revisit an existing BMP expert panel report based on new scientific information. The scientific findings will document the following:

- Land Use or practice name/title
- Detailed definition of the land use or practice
    - The definition should incorporate descriptive elements that can reasonably be checked by anyone involved in the verification assessment of the practice and result in replicable verification findings
- Nitrogen, phosphorus, and sediment loading or effectiveness estimates (practice performance recommendations)
    - Discussion may include alternative modeling approaches to accommodate a specific land use or practice, if appropriate
    - Bioavailability of nutrient load considered, where applicable
    - Nutrient content of sediment load considered, where applicable
    - Summaries of observed empirical results from studies used as the primary basis for the panel recommendations (including measures of unexplained variation)
- Justification for the selected effectiveness estimates, including
    - List of data sources considered (peer-reviewed, unpublished, etc.) and descriptions of how these data sources were considered (see Table 1)
        - Expert Panel members can use unpublished data if such data is based on solid documentation that includes the origin and the quality of the data
    - Identify data sources that were considered, but not used in determining practice effectiveness estimates
    - Documentation of uncertainties in the published literature (across and within studies)
    - Documentation of how the Expert Panel addressed negative results or no pollution reduction in nutrient and sediment loads as a result of implementation of a specific practice
        - Where studies with negative or no pollution reduction data are found (i.e. the practice acted as a source of pollutants), they should be equally considered with all other data

[2] The reason for the close collaboration between the Expert Panel, the WTWG, and the CBP Modeling Team on the development of the technical appendices is that while the Expert Panel can describe the conditions in which the practice is implemented, how that is translated into modeled land uses and load sources might best be addressed by the modeling experts.

    - Explanation of the approach the Expert Panel used to address scientific uncertainties and variation in empirical findings of removal effectiveness (e.g. if "conservative" effectiveness estimates are used to address uncertainty, provide a rationale for the estimate)
- Description of how best professional judgment was used, if applicable, to determine effectiveness estimates
- Description and justification on the use of default values to establish BMP efficiencies, as well as the expected lifespan of such default values
- Land uses to which the practice is applied, where applicable
- Load sources that the practice will address and potential interactions with other practices
- Description of pre-practice and post-practice circumstances, including the baseline conditions for individual practices
- Conditions under which the practice performs as intended/designed:
    - Include conditions/circumstances where the practice will not perform as intended/designed or will be less effective. An example: large storm events that could exceed a practice's design specifications.
    - Any variations in practice performance due to climate variability, hydrogeomorphic region, geologic material/soil type, or other measurable factors.
- Temporal performance of the practice including lag times between establishment and full functioning, if applicable
- Discussion of performance uncertainty of the practice under current and future climate conditions, to the extent that this information is available in qualitative or quantified forms
    - This includes identifying and describing factors of BMP performance that are subject to the most variability or impact under climate change conditions.
- Unit of measure (e.g., feet, acres)
- Locations within the Chesapeake Bay watershed where this practice is applicable
- Description of how the practice may be used to relocate pollutants to a different location. An example is where a practice eliminates a pollutant from surface transport but moves the pollutant into groundwater
- Suggestion for a review timeline; when will additional information be available that may warrant a re-evaluation of the practice effectiveness estimates
- Identification of any unintended consequences or ancillary benefits associated with a practice
- Outstanding issues that need to be resolved in the future and a list of ongoing studies, if any
- Documentation of any dissenting opinion(s) if consensus cannot be reached
- Operation and Maintenance requirements and how neglect alters the practice effectiveness estimates
- A brief summary of BMP implementation and maintenance cost estimates, when this data is available through reviewed literature

Technical Application of the Recommended BMP(s) within CAST

Establish the way the BMP will be accounted for in CAST. This piece will ensure that the BMP can be reported and simulated appropriately in CAST and allow for future adjustments based on CBP partnership experience. This piece of the report will build on the scientific findings and will document:

- Useful life; practice performance over time:
  - The Expert Panel will work with the appropriate sector workgroup, Watershed Technical Workgroup (WTWG), and the CBP modeling team representatives to recommend a "credit duration" for each practice. This determines the time the practice will receive credit in the CBP modeling tools. When the credit duration ends, the practice will need to be verified following the appropriate jurisdictional verification protocols (as documented in the jurisdictions' Quality Assurance Project Plans) to ensure it is still performing properly in accordance with the practice's definition, and thereby renewing the credit duration.
  - Specific text will include the National Environmental Information Exchange Network (NEIEN)-based procedures for flagging and removing practice data that is past its credit duration.
- Inclusion of the NEIEN name and USDA National Resources Conservation Service equivalent practice, and how those practices would be reported into NEIEN.
- Incorporation of reported data into CBP modeling tools:
  - The CBP Modeling Team will work with the Expert Panel members and the WTWG to ensure that new BMP data can be accepted and used in the CBP modeling and reporting tools.
- Recommended description of how the practice could be tracked, reported, and verified:
  - Include a clear indication that this practice will be used and reported by jurisdictions
- Guidance on BMP Verification
  - Description of the BMP verification guidance must be consistent with the CBP partnership's Chesapeake Bay Basinwide BMP Verification Framework[3]. Note that verification protocols and the verification of a practice is ultimately the responsibility of a jurisdiction. Expert Panels are expected to provide only their recommendations as to how verification might be considered.

The following identifies the process to be followed for activities related to new Expert Panels or revisiting previous Expert Panel reports.

I. Determine the need for a review process
II. Review process:
  a. For new estimates
  b. For existing estimates or treatment processes
III. Chesapeake Bay Program review and approval processes

This Protocol will be reviewed by the CBP partnership on an as-needed basis to incorporate new information and/or changes to process based on input received from the CBP partnership. Any changes to the Protocol will take effect immediately upon adoption by the WQGIT. Expert Panels already

[3] http://www.chesapeakebay.net/about/programs/bmpverification

underway will be exempt from changes to those process steps that have already occurred within an Expert Panel.

I. Determine the Need for a Review Process for New and Existing Estimates:

A. New Requests for Evaluation of New Technologies and Practices

Requests should be routed through a signatory member[5] of the CBP partnership to the Chair and Vice Chair of the relevant Workgroup or Goal Implementation Team (GIT). Requests should include the following information:

a) A clear and concise definition of the practice including common versions of the practice that are either explicitly included or excluded from the requested practice.
b) Specific scientific information on how it reduces nitrogen, phosphorus, and sediment, with consideration of bioavailability of nutrients, where applicable, and what nutrient and sediment sources/loads will be treated and whether they are natural or anthropogenic.
    a. Part of this description should elaborate on likely pathways of nutrients or sediment under the baseline no-BMP condition and pathways when the BMP is implemented, to include transformation or removal of nutrients/sediment in the system.
c) References to available science/data on the nutrient and sediment removal efficiencies with the contact information and affiliation of the lead researchers, including the geographical location of where the data was collected.
d) Types of data the jurisdiction(s) currently track and report for a practice
e) A general description of how the panel will be supported, if formed. For example, identification of any funding needed to convene and execute the panel, as well as a coordinator and supporting staff.

The GIT or Workgroup Chair who receives the request may propose that the request be routed to an alternative GIT or Workgroup if he/she feels that placement in another group is more appropriate. These groups will determine if sufficient credible data is available to convene an Expert Panel (i and ii). Alternatively, these groups may determine that the requested BMP is sufficiently similar to a previously approved practice (iii) or can be combined with another panel request (iv). This determination will be made within 90 days[6] from the date received by the GIT or Workgroup Chair.

(i) When a GIT or Workgroup determines a request has sufficient scientific data (e.g., publicly available literature sources that would inform the establishment of an effectiveness value for a practice) for an Expert Panel, they will communicate that finding to the WQGIT along with an email to the requestor describing the basis for such decision.

[5] These members are signatories to the 2014 Chesapeake Bay Watershed Agreement and include the seven Bay watershed jurisdictions, the Chesapeake Bay Commission, and EPA on behalf of the federal government. The signatory member is responsible for raising the request to the Chair and Vice Chair of the relevant Workgroup or GIT. The signatory member is not responsible for leading or supporting the convening of an Expert Panel.

[6] A time extension may be granted if requested.

(ii) When a GIT or Workgroup determines a request lacks sufficient scientific data for an Expert Panel, they will communicate that finding to the WQGIT along with an email to the requestor describing the basis for such decision.

(iii) When a GIT or Workgroup determines a request is sufficiently similar to a previously approved practice, they will document the basis for their recommendation and route it through the WTWG to the WQGIT for approval. Once approved, an email to the requestor describing the resolution of their request will be sent by the GIT or Workgroup Chair. Should the recommendation fail to be approved by the WQGIT, the request will be returned to the appropriate Workgroup for reconsideration of an Expert Panel. The Workgroup will determine next steps to either close out the request or recommend the convening of an Expert Panel. The recommended next steps will then be forward to the WQGIT for a final decision.

(iv) When a GIT or Workgroup determines a request is sufficiently similar to another panel request, that request can be combined for a single Expert Panel and they will document the basis for their recommendation and route it through the WTWG to the WQGIT for approval. Once approved, an email to the requestor describing the resolution of their request will be sent by the GIT Chair. Should the recommendation fail to be approved by the WQGIT, the request will be returned to the appropriate Workgroup for reconsideration of a separate Expert Panel. [The review and approval process of Expert Panel reports can be found in Sections IIA and III.] The Workgroup will then forward the recommended next steps to the WQGIT for final decision.

B. *Reviews of Estimates or Treatment Processes in Existing BMP Expert Panel Reports*
Requests to re-evaluate existing loading and effectiveness estimates may arise if new science or information becomes available. Such reviews can be prompted by the availability of new information, such as a new treatment process or new information on existing efficiencies. Reviews can also be initiated if current estimates produce illogical model outputs or if there is reason to believe that they were developed using inaccurate information. Requests typically fall under one of three categories: (I) New Scientific Data or Information, (II) Seeking Clarity on an Existing Expert Panel Report or (III) Requesting Changes to Data Collection and/or Reporting Requirements.

(I) Reviews of existing Expert Panel reports may be initiated if the requestor seeks a substantial change to BMP efficiency estimates or to the underlying science that was the basis of the findings in the Expert Panel report. The requestor is to submit new or updated scientific data and information to the WQGIT Chair, who will then direct the request to the appropriate Workgroup or GIT to investigate further.

Discussions should occur first at the Workgroup level and the requestor can work with the appropriate Workgroup Chair and Coordinator to vet the materials with the full Workgroup membership prior to discussions with the WQGIT. The requestor is to work with the Workgroup to determine if a formal review of an existing Expert Panel report is warranted.

Once the Workgroup has completed its deliberations, the Workgroup Chair will present its recommendations to the WQGIT for review and approval. If approved by the WQGIT, the review of existing estimates and, when applicable, the definition of a BMP, can be conducted within a Workgroup in consultation with the WTWG. The requestor will be the lead point of contact in working with the Workgroup and the WTWG. This approach should reduce the amount of time necessary to conduct the review because the definition(s) have already been developed, a background of available data already exists, and issues of how the practices or land use is incorporated into CAST have been addressed.

However, the Workgroup and WQGIT can also make the determination that the review could warrant the convening of an Expert Panel. If such is the case, reviews of existing estimates should follow the guidelines listed in IIA of this Protocol.

(II) Alternatively, a requestor can seek clarity concerning an Expert Panel report where the questions being posed were not specifically addressed as part of the Expert Panel report. The requestor is to submit his or her questions to the WQGIT Chair, who will then direct the request to the appropriate Workgroup or GIT to investigate further. Any coordination with other Workgroups will be facilitated by the lead Workgroup assigned to the task.

Once the Workgroup has completed its deliberations, the Workgroup Chair will present its recommendations to the WQGIT for review and approval. If approved, the WQGIT will take appropriate action to follow through on the recommendations.

(III) A request for changes to data collection and reporting requirements specified in an Expert Panel report and/or technical appendix may be sought. The basis for these changes may be related to new data collection methods. The request may also be made based on the ability to implement the data collection and reporting requirements contained in the Expert Panel report and/or technical appendix. The requestor is to submit his or her questions to the WTWG for further investigation.

Once the WTWG has completed its deliberations, the WTWG Chair will present its recommendations to the WQGIT for review and approval. If approved, the WQGIT will take appropriate action to follow through on the recommendations.

C. *Proprietary Devices*

When a sufficient number of non-proprietary designs for the BMP (e.g., floating wetland treatment BMP) have become available and been researched for removal efficiencies, then that class of BMPs will be eligible for the Expert Panel process. However, proprietary BMPs, which meet the definition(s) and qualifying conditions established by the Expert Panel for a class of BMPs, can receive nutrient and sediment reduction credit assigned to that class. Additional credit for proprietary design modifications to the BMP will not be granted.

D. *Communication of Requests and Status of Expert Panels to the Chesapeake Bay Program*

The GIT or Workgroup will develop a list BMPs that have been approved for Expert Panels and present this list to all GITs on no less than an annual basis, together with a list of requests that were found to lack sufficient data and the rationale for not convening Expert Panels. Proposed technologies and practices that have been identified by jurisdictions in their WIPs will be given highest priority.

All information relevant to Expert Panels and associated requests will be posted to the following CBP website: https://www.chesapeakebay.net/who/group/bmp_expert_panels

IIA. Review Process for New Estimates or Revisions to Existing Estimates that Require an Expert Panel

Convening a Panel & Expectations of Panel members

The Workgroup, in consultation with representatives from the WTWG, WQGIT, other appropriate GITs, and the Advisory Committees will coordinate the convening of an Expert Panel, including the development of a draft scope and charge of the Expert Panel, along with a proposed list of Expert Panelists. If an Expert Panel Chair is identified prior to the selection of proposed Expert Panelists then the Expert Panel Chair will be actively involved in the selection process.

The elements of an Expert Panel charge should include the following, at a minimum:

- Background (identification, scope, and definition) of the specific practice(s) under Expert Panel review and deliberation
- Recommendations for Expert Panel member expertise
- Development of an Expert Panel report to address the guidelines and information outlined in this Protocol
- Proposed timeline for the Expert Panel to finalize the Expert Panel report (and technical appendix) and submit the Expert Panel report to the CBP. It should be noted that the proposed timelines are subject to change based on Expert Panel deliberations and the CBP partnership's review process of the tracking, verifying, and reporting requirements

Expert Panel membership must include individuals with the specific expertise and experience in pertinent environmental and water quality-related issues needed to address the scientific charge put to the Expert Panel. Priority for Expert Panel membership will be focused on recognized regional or national experts in their field. Members that understand the programmatic implementation of the BMP, how it might be simulated in the CBP modeling tools, and the geography of the Bay watershed should also be included to help ensure balanced representation and expertise on the Expert Panel, as well as to provide the necessary management application requirements. Qualified local practitioners should be considered for inclusion on Expert Panels as well. Local practitioner is defined in this context as a person with practical, real-world implementation expertise who will provide this technical expertise to the Expert Panel. Examples include but are not limited to a public works director, soil and water conservation specialist, or municipal engineer. In the Expert Panel member selection process, the

hosting Workgroup Chair and Coordinator shall collect input from their own Workgroup, the GITs, and WTWG, the CBP Modeling Team, and the Advisory Committees.

A representative from the requesting Workgroup; a representative from the WTWG; a representative from the CBP modeling team, and a representative from EPA Region III[7] will serve as resources to the Expert Panel, and are tasked with providing information and assistance to the Expert Panel members during their deliberations. These representatives should actively engage in Expert Panel discussions, with a focus on ensuring the Expert Panel's direction and resulting recommendations align with jurisdictional BMP reporting capabilities, the National Environmental Information Exchange Network, CAST, and other modeling tools as well as existing regulatory frameworks. An Expert Panel may also invite additional experts to serve as guests on the Expert Panel, such that they can provide input but are not official members of the Expert Panel.

Potential Expert Panel members must provide to the hosting Workgroup a Curriculum Vitae (CV) or any other justification that illustrates the nature of their expertise as it relates to the Expert Panel's charge. In addition, potential Expert Panel members must disclose actual or potential conflicts of interest in writing to the hosting Workgroup. An actual or potential conflict of interest is deemed to exist when:

- A potential Expert Panel member could benefit financially from the Expert Panel recommendations;
- The employer of or a person closely related to a potential Expert Panel member could benefit financially from the Expert Panel recommendations; and
- A potential Expert Panel member represents a particular point of view or special interest "where one is totally committed to a particular point of view and unwilling, or perceived to be unwilling, to consider other perspectives or relevant evidence to the contrary."[8]

None of the above are intended to exclude jurisdictional subject matter experts solely because their jurisdiction has financial obligations related to implementation of WIPs, two-year milestones, or other commitments under the 2014 Chesapeake Bay Watershed Agreement.

Further information on what constitutes a conflict of interest can be found in Appendix III of this Protocol. As mentioned previously in this Protocol, all proposed Expert Panelists' credentials, CVs, and associated conflict of interest disclosures, will be reviewed by the CBP partnership before an Expert Panel membership is finalized to help ensure that no actual or potential conflicts of interest exist. These conditions will minimize the risk that Expert Panels are biased toward particular interests or regions.

The proposed list of Expert Panelists, as well as the draft scope and charge of the Expert Panel, the Expert Panelists' credentials, CVs, and associated conflict of interest disclosures, will be sent via email

[7] A point of contact from the EPA Region III Office in Philadelphia will be selected to participate by EPA on Expert Panels where permit or other regulatory questions are expected to arise during Expert Panel deliberations.
[8] http://www.nationalacademies.org/coi/bi-coi_form-0.pdf

to the Workgroups, the GITs, and the Advisory Committees for their review and comment. The hosting Workgroup Coordinator or Panel Coordinator is responsible for managing this review process, and a reasonable timeline for review will be determined by these Coordinators. After incorporating or responding to comments received, final approval of the Expert Panel scope and charge, as well as Expert Panel membership, will be reserved for the hosting Workgroup or GIT and will follow the CBP partnership Governance Protocols. In cases where consensus cannot be reached by the Workgroup or GIT, or if concerns remain regarding potential conflicts of interest, the decision will be elevated to the next higher decision-making group.

Expert Panel Meetings

Expert Panel members will be responsible for following the specific charge of the Expert Panel, as well as this Protocol[10]. The Expert Panel meetings function in accordance with the National Academy of Sciences[1112] standard practices for studies of the National Academies of Sciences, Engineering, and Medicine and in compliance with applicable laws. Therefore, Expert Panel deliberations in meetings and conference calls will be closed to the public in order to discuss and develop scientific findings free from outside influences. However, once an Expert Panel has been convened or re-convened, one of the first meetings will be dedicated to an open forum where interested parties are invited to share and present scientific data with the Expert Panel members[13]. The intent is to provide an open exchange of information that may help inform the Expert Panel as it moves forward with its deliberations, as well as provide an opportunity for the public and interested stakeholders to learn more about the Expert Panel's charge. Announcements of these open forum meetings will be posted on the CBP partnership's website and distributed via email to the hosting Workgroup, the GITs, and the Advisory Committees.

The Expert Panel may elect to solicit input from guests to ensure that the Expert Panel receives the full range of information and science available on the Expert Panel topic. In addition, guests may submit relevant BMP performance data or any other such supporting literature for the Expert Panel to consider. Any written materials provided to the Expert Panel will be maintained in an archived location as determined by the Expert Panel that can be made available for review upon request.

When objections or dissenting opinions are raised in the context of Expert Panel discussions and in the development of Expert Panel reports, consensus should be the primary approach taken to resolve such dissent. In the event that consensus cannot be reached, all dissenting opinions must be documented and described in the Expert Panel's report.

Support to Expert Panels

The Expert Panel Chair and Coordinator will be the primary points of contact during the Expert Panel process and it is up to them on how best to assign responsibilities amongst the Expert Panel members. It

[10] Copies of the Protocol will be distributed to all Expert Panel members in advance of their first call or meeting.
[11] http://www.nationalacademies.org/xpedio/groups/nasite/documents/webpage/na_069620.pdf
[12] Appendix II: http://www.nationalacademies.org/xpedio/groups/nasite/documents/webpage/na_069618.pdf
[13] This open forum meeting should not be scheduled prior to three weeks after its public announcement through the CBP website and email notifications to the CBP partnership.

is recognized that the majority of Expert Panel members will serve on a voluntary basis. It is the responsibility of the hosting Workgroup, GIT, or the original requestor for the Expert Panel to identify and provide any required resources needed to convene and fully execute an Expert Panel, following this Protocol and in consultation with the CBP partnership.

Panel Progress Updates

The Expert Panel Chair or Coordinator will routinely update the hosting Workgroup or GIT on the Expert Panel's progress; preliminary findings; and any information or logistical gaps/needs that require input from those beyond the Expert Panel membership. The hosting Workgroup Coordinator will work closely with the Expert Panel Chair and Coordinator on scheduling these status updates during regularly scheduled Workgroup meetings/calls. Status information could include when an Expert Panel expects to hold an open forum or release a final report and technical appendix; initial findings of the Expert Panel; or specific issues that the Expert Panel expects the Workgroups and GITs to decide upon. These updates will be compiled for all active Expert Panels for distribution to the GITs

Ancillary Benefits and Unintended Consequences

The charge to each Expert Panel will include developing definitions and loading or effectiveness estimates for the specific nutrient and sediment reducing technologies and practices they are tasked to address. However, Expert Panel members will also be expected to identify any significant ancillary benefits or unintended consequences beyond impacts on nitrogen, phosphorus, and sediment loads. Addressing this expectation should be included in the Expert Panel's charge. Emphasis should be placed on benefits or consequences that have the potential to impact the implementation of the Goals and Outcomes of the 2014 Chesapeake Bay Watershed Agreement. Examples include increased, or reduced, air emissions, changes to habitat, or climate change impacts. It is recognized that an expanded analyses into ancillary benefits or unintended consequences could be a significant and useful contribution as an appendix to the final Expert Panel report. Therefore, the Expert Panel Chair and Coordinator should notify the appropriate GIT of any identified ancillary effects to determine if the GIT wants to develop and provide such information. Should the identification of ancillary effects originate from a GIT, notification must be submitted to the Expert Panel Chair and Coordinator to inform them of the GIT's intention to draft the ancillary benefits and unintended consequences appendix.

The appendix will include the authors involved in the analyses, as well as the finalization date of the appendix by the GIT. It is anticipated that further research into any ancillary benefits or unintended consequences will be conducted concurrently with the Expert Panel itself; however, this assumption does not preclude the development of such an appendix after the Expert Panel report is final.

It is important to note that the purpose of the Expert Panels is not to incentivize or promote the use of any management practice; it is to increase the understanding of the nutrient and sediment reductions associated with these practices. In addition, any appendix on ancillary benefits or unintended consequences does not change the definitions and loading or effectiveness estimates for nutrient and sediment reducing technologies and practices in the final Expert Panel report. State and local governments may then consider both the definitions and effectiveness estimates from the main Expert

Panel report, as well as ancillary benefits or unintended consequences from the appendix, when deciding upon which technologies and practices they intend to select, fund, and implement within their respective jurisdictions.

Data applicability
Determining which data should be used to develop loading and effectiveness estimates is a critical step. When considering sources of data, the Expert Panel must decide: 1) if the data is appropriate, and 2) how much influence each data source should have on the final estimate. Each of these decisions should be discussed explicitly in the final Expert Panel report for each data source or group(s) of data sources.

Data sources should be characterized using Table 1 (below) and included in the Expert Panel report.

Table I. Data source characterization

	High Quality	**Medium Quality**	**Low Quality**
Extent of Replication	Clearly documented and well-controlled past work that has since been replicated or strongly supported by the preponderance of other work; recent (< 5-year old) work that was clearly documented and conducted under well-controlled conditions and thus conducive to possible future replication	Clearly documented older (>5-yr old) work that has not yet been replicated or strongly supported by other studies, but which has also not been contraindicated or disputed	Work that was not clearly documented and cannot be reproduced, or older (>5-yr old) work for which results have been contraindicated or disputed by more recent results in peer-reviewed publication or by other studies that are at least equally well documented and reproducible
Applicability	Purpose/scope of research/publication matches information/data need	Limited application	Does not apply
Study location	Within Chesapeake Bay	Characteristic of the Chesapeake Bay, but outside of watershed	Outside of the Chesapeake Bay watershed and characteristics of study location not representative
Data collection & analysis methods	Approved state or federal methods used; statistically relevant	Other approved protocol and methods; analysis	Methods not documented;

		done but lacks significance testing	insufficient data collected
Conclusions	Scientific method evident; conclusions supported by statistical analysis	Conclusions reasonable but not supported by data; inferences based on data	Inconclusive; insufficient evidence
References	Majority peer-review	Some peer-review	Minimal-to-none peer-review

The Expert Panel should also consider the following:

- Was the data generated from a BMP design and implementation consistent with those found in the Chesapeake Bay watershed?
- How does the duration of the experiment compare to the intended timeline of the BMP? If the experiment is substantially shorter, how might that influence the evaluation of operational effectiveness of the practice?
- Do results reflect changes in pollution reduction benefits over the lifetime of the practice?
- Whether factors that could affect pollution reduction benefits are adequately addressed (such as location of practice with respect to pollution sources and pollution content of sources treated)?
- What parameters were sampled and monitored (paired watershed study, grab samples, ground water, etc.)?
- What, if any, assumptions were made during the experiment and conclusion?

Once the Expert Panel has characterized a data source, they must determine how much influence (i.e. 'weight') the data should have on resulting estimates. For example, peer-reviewed publications will usually have more weight than non-peer-reviewed sources. However, the exact influence of a particular data source will also consider other factors, such as those listed in the questions above, which the Expert Panel will consider. Citations to such literature shall be provided in the Expert Panel reports.

Incremental Scientific Findings. The duration of an Expert Panel is dependent upon the complexity of the review and workload issues. However, the CBP partnership may recommend expediting an element of the review process (e.g. partner's request for BMP effectiveness estimates that have immediate implications for progress or planning purposes). Therefore, an Expert Panel is welcome to make incremental scientific findings that can be sent forward to the CBP partnership. If the Expert Panel is charged with producing incremental scientific findings at the inception of the Expert Panel, it will be the responsibility of the Expert Panel to produce those incremental scientific findings. However, if the request for incremental scientific findings is made after the Expert Panel has received its charge and has begun work on those charges, it is at the Expert Panel's discretion as to whether or not the incremental scientific findings will be pursued. The Expert Panel is still expected to complete and finalize the Expert Panel report which will contain the more comprehensive set of scientific findings.

Expert Panel Reports

The Expert Panel will develop a report documenting their scientific findings for definitions and loading or effectiveness estimates for nutrient and sediment reducing technologies and practices. The Expert Panel will work with the appropriate Workgroup and WTWG to develop a report documenting their scientific findings. The following is a table of contents that every report must address:

- Identity and expertise of Expert Panel members
- Land Use or practice name/title
- Detailed definition of the land use or practice
    - The definition should incorporate descriptive elements that can reasonably be checked by anyone involved in the verification assessment of the practice and result in replicable verification findings
- Nitrogen, phosphorus, and sediment loading or effectiveness estimates (practice performance recommendations)
    - Discussion may include alternative modeling approaches to accommodate a specific land use or practice, if appropriate
    - Bioavailability of nutrient load considered, where applicable
    - Nutrient content of sediment load considered, where applicable
    - Summaries of observed empirical results from studies used as the primary basis for the panel recommendations (including measures of unexplained variation)
- Justification for the selected effectiveness estimates, including
    - List of all data sources considered (peer-reviewed, unpublished, etc.) and a description of how each data source was considered (see Table 1)
        - Expert Panel members can use unpublished data if such data is based on solid documentation as to the origins and the quality of the data
    - Identify data sources that were considered, but not used in determining practice effectiveness estimates
    - Documentation of uncertainties in the published literature (across and within studies)
    - Documentation of how the Expert Panel addressed negative results or no pollution reduction in nutrient and sediment loads as a result of implementation of a specific practice
        - Where studies with negative or no pollution reduction data are found (i.e. the practice acted as a source of pollutants), they should be considered the same as all other data
        - Explanation of the approach the Expert Panel used to address scientific uncertainties and variation in empirical findings of removal effectiveness (e.g. if "conservative" effectiveness estimates are used to address uncertainty, provide a rationale for the estimate)
- Description of how best professional judgment was used, if applicable, to determine effectiveness estimates
- Description and justification on the use of default values to establish BMP efficiencies, as well as the expected lifespan of such default values

- Land uses to which the practice is applied
- Load sources that the practice will address and potential interactions with other practices
- Description of pre-practice and post-practice circumstances, including the baseline conditions for individual practices
- Conditions under which the practice performs as intended/designed:
    - Include conditions/circumstances where the practice will not perform as intended/designed or will be less effective. An example: large storm events that could exceed a practice's design specifications.
    - Any variations in practice performance due to climate variability, hydrogeomorphic region, geologic material/soil type, or other measurable factors.
- Temporal performance of the practice including lag times between establishment and full functioning, if applicable
- Unit of measure (e.g., feet, acres)
- Locations within the Chesapeake Bay watershed where this practice is applicable
- Cumulative or annual practice
- Description of how the practice may be used to relocate pollutants to a different location. An example is where a practice eliminates a pollutant from surface transport but moves the pollutant into groundwater
- Suggestion for a review timeline; when will additional information be available that may warrant a re-evaluation of the practice effectiveness estimates
- Identification of any unintended consequences or ancillary benefits associated with a practice
- Outstanding issues that need to be resolved in the future and a list of ongoing studies, if any
- Documentation of any dissenting opinion(s) if consensus cannot be reached

In an effort for the CBP partnership to more efficiently approve the technical requirements for NEIEN and CAST that are required by each Expert Panel report, the CBP Modeling Team will work with the Expert Panel members and the WTWG to develop a technical appendix that describes changes that will be made to the modeling and reporting tools to accommodate the BMP(s). Elements of the technical appendix will include, but aren't limited to:

- Useful life; practice performance over time:
    - The Expert Panel will work with the appropriate Workgroup, WTWG, and the CBP modeling team representatives to recommend a "credit duration" for each practice. This determines the time the practice will receive credit in the CBP modeling tools. When the credit duration ends, the practice will need to be verified following the appropriate jurisdictional verification protocols to ensure it is still performing properly in accordance with the practice's definition, and thereby renewing the credit duration.
- Inclusion of the NEIEN name and USDA National Resources Conservation Service equivalent practice, and how those practices would be reported into NEIEN.
- Recommended description of how the practice could be tracked, reported, and verified:
    - Include a clear indication that this practice will be used and reported by jurisdictions

- Guidance on BMP Verification
  - Description of the BMP verification guidance must be consistent with the CBP partnership's Chesapeake Bay Basinwide BMP Verification Framework[16]. Note that verification protocols and the verification of a practice is ultimately the responsibility of a jurisdiction. Expert Panels are expected to provide only their recommendations as to how verification might be considered.
- Operation and Maintenance requirements and how neglect alters the practice effectiveness estimates
- A brief summary of BMP implementation and maintenance cost estimates, when this data is available through existing literature

Specific text will include the NEIEN-based procedures for flagging and removing practice data that is past its credit duration. **The technical appendix should be developed in conjunction with the Expert Panel report to help ensure that recommendations can be fully incorporated into the CBP modeling tools**.

III. Chesapeake Bay Program Review and Approval Processes

All Expert Panel reports represent the scientific findings of recognized regional and/or national experts. Before the Expert Panel report is finalized, the Expert Panel Chair and Coordinator will release the scientific findings of the Expert Panel reports for a 30-day public comment period. It is ultimately at the discretion of the Expert Panel on whether modifications will be adopted as a result of the public input period; otherwise, the scientific recommendations reflected in the Expert Panel report will stand.

However, recommendations on if and how the scientific findings will be simulated in CAST and how the BMP will be tracked, verified, and reported will also undergo a separate three-stage formal review and approval process by the CBP partnership, with a public comment period during the first stage of review, in concurrence with when the associated Expert Panel report is released for public review and comment. The three-stage formal review process will include, at a minimum, the following groups:

- WTWG
- Relevant Workgroup(s)
- Relevant GIT(s)

The WTWG, the Workgroups, and relevant GITs, in consultation with the Expert Panel, will be responsible for analyzing the technical components of the scientific recommendation(s) and determining that the tracking and reporting data that is needed to receive credit is available in the appropriate Chesapeake Bay jurisdiction(s) thereby ensuring that no double counting is occurring.

Formal Review Stage #1 - WTWG

The first review stage will begin with a presentation meeting of the technical appendix, led by the WTWG Chair, Coordinator, and/or CBP Modeling Team representative. The presentation will include:

[16] http://www.chesapeakebay.net/about/programs/bmpverification

- Rationale for review
- The recommendations/findings of the Expert Panel for effectiveness and loading estimates (information only to provide context)
- Recommendations of the technical appendix
- Next steps and comment period logistics

The technical appendix presentation meeting will typically be scheduled as part of a regular meeting of the WTWG. The WTWG Chair or Coordinator will be responsible for distributing the draft technical appendix at least 10 business day in advance of the presentation meeting to the WTWG, other GITs and Workgroups, and the Advisory Committees. The WTWG Chair or Coordinator should work with the Expert Panel Chair or Coordinator to ensure that both the Expert Panel Report and the technical appendix are released together, as part of scheduling the presentation meeting for the WTWG. Technical appendices will become publicly available when they enter this first stage of review through posting to the CBP website and electronic distribution to these CBP partnership groups. This meeting will begin a 30-day open comment period. Members of these CBP partnership groups, plus any other groups or individuals interested in reviewing the draft recommendations, are encouraged to do so at this time. Commenters should send specific edits in track change format or more general comments in writing to the WTWG Chair and Coordinator during this comment period to better ensure the effective resolution of any substantive comments. Any requests for review extensions can be submitted to the WTWG Chair or Coordinator for consideration. Approval of the draft technical appendix will be sought from the WTWG after the comment period has closed and the WTWG has addressed any comments received. The Expert Panel Chair and Coordinator should be available to assist the WTWG with the review and comment period, as needed and requested.

<u>Formal Review Stage #2 – Workgroup</u>
Once approval has been reached by the WTWG, the draft technical appendix will enter the second stage of review and approval by the Workgroup. The Workgroup will be given a minimum of 10 business days for their review prior to the meeting where a decision is requested. Should concerns arise during the Workgroup review, the WTWG Chair and Coordinator, in coordination with the Expert Panel, as necessary, are responsible for working through those concerns with the Workgroup members. This process may involve vetting proposed changes with the Expert Panel members as well as the WTWG.

Formal Review Stage #3 – WQ/GIT
Once approval has been reached by the Workgroup, the technical appendix will enter the third and final stage of review - approval by the WQGIT and any other GIT, as appropriate, in accordance with the CBP partnership Governance Protocols. The WQGIT will be given a minimum of 10 business days for their review prior to the meeting where a decision is requested. Should concerns arise during the WQGIT review, the WTWG Chair and Coordinator, in coordination with the Expert Panel Chair and Panel Coordinator, as appropriate, are responsible for working through those concerns with the WQGIT

members. This process may involve vetting proposed changes with the Expert Panel members, the hosting Workgroup, and the WTWG.

The WTWG Chair or Coordinator will be responsible for developing a "response to comments" document that provides a response to comments received. This document will be included as part of the approved technical appendix. Specific responses will not be provided for:

- Overlapping comments (one response will be provided)
- Comments outside the scope of or demonstrate no relevancy to the technical appendix
- Editorial changes, such as grammatical edits

Commenters are requested to notify the Workgroup/GIT Chair prior to the approval meeting if they intend to register a major objection to a technical appendix, and request time on the meeting agenda to explain their perspectives. If objections to a technical appendix are not addressed in time of the approval meeting, the Workgroup/GIT Chair may table the action until the next meeting of the Workgroup/GIT. In cases where an objection is not identified before an approval meeting, the Workgroup/GIT Chair may choose, at his or her discretion, to ask the Workgroup or GIT to approve the report. Although the goal is consensus, and every effort has been made to address any comments, timelines may necessitate the report moving forward. In the event that a comment does not result in a change to the technical appendix, the WTWG Chair and Coordinator, in coordination with the Expert Panel Chair and Panel Coordinator, as appropriate, shall work with the specific commenter(s) to resolve the issue. In all cases, the CBP partnership Governance Protocols will be followed.

Although the WTWG Chair and Coordinator are responsible for managing the comment process through the three-stage review period, Expert Panel members may be asked to assist in addressing and responding to comments. Once the comment period has ended and the technical appendix is finalized by the WQGIT or GIT, the charge of the Expert Panel has been met and Expert Panel members are released from duty.

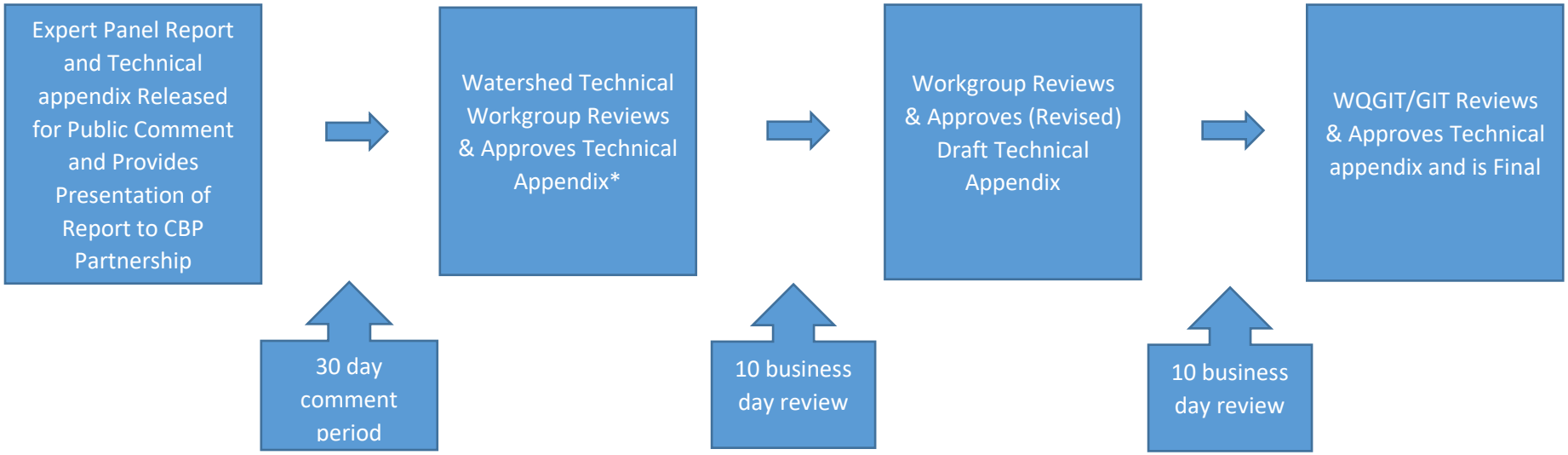
In the event that the technical appendix recommendation(s) are substantively modified during the stage 2 or stage 3 approval process and the WTWG and Expert Panel membership does not support such changes, a document will be generated that explicitly details the modifications to the original technical appendix recommendations and the justification for such changes and any unresolved issue(s) or dissenting opinions. The original technical appendix will be attached to that document.

Once the technical appendix has been approved by the WQGIT or GIT, the WTWG will distribute the final technical appendix, along with the Expert Panel report, to the CBP partnership and post it online at: https://www.chesapeakebay.net/who/group/bmp_expert_panels

The WQGIT Staffers will be responsible for maintaining two lists derived from each final Expert Panel report and technical appendix:

- Follow up actions identified in the Expert Panel reports and technical appendices along with the due dates of those actions and responsible party (such as trial periods, updates, reevaluation schedule, etc.)
- Research needs identified by Expert Panel reports and the technical appendices

Appendix I: CBP Partnership Review Process for BMP Expert Panel Reports & Technical Appendices



CBP Partnership has Opportunity to Review and Comments on Draft Technical Appendices during Each Stage of Review Process

To better ensure effective resolution of comments, all interested partners, groups or individuals are encouraged to submit their comments during the first review and comment period. New comments at later stages will be considered, but the Panel can more effectively address substantive comments the earlier they receive them.

*The WTWG Chair and Coordinator are responsible for developing a "Response to Comments" document based on feedback received through partnership review. The "Response to Comments" document will be included with the final technical appendix.

Appendix II: The National Academies – Our Study Process[17]

interest, no individual can be appointed to serve (or continue to serve) on a committee of the institution used in the development of reports if the individual has a conflict of interest that is relevant to the functions to be performed. For more information, see the National Academies' Web site at www.national-academies.org.

Other considerations. Membership in the three Academies (NAS, NAE, IOM) and previous involvement in National Academies studies are taken into account in committee selection. The inclusion of women, minorities, and young professionals are additional considerations.

Specific steps in the committee selection and approval process are as follows:

- Staff solicit an extensive number of suggestions for potential committee members from a wide range of sources, then recommend a slate of nominees.
- Nominees are reviewed and approved at several levels within the National Academies; a provisional slate is then approved by the President of the National Academy of Sciences, who is also the Chair of the National Research Council.
- The provisional committee list is posted for public comment in the Current Projects System on the Web (http://www4.national-academies.org/cp.nsf).
- The provisional committee members complete background information and conflict of interest disclosure forms.
- The committee balance and conflict of interest discussion is held at the first committee meeting.
- Any conflicts of interest or issues of committee balance and expertise are investigated; changes to the committee are proposed and finalized.
- Committee is formally approved.
- Committee members continue to be screened for conflict of interest throughout the life of the committee.

STAGE 3. Committee Meetings, Information Gathering, Deliberations, and Drafting the Report

Study committees typically gather information through: 1) meetings that are open to the public and that are announced in advance through the National Academies Web site; 2) the submission of information by outside parties; 3) reviews of the scientific literature, and 4) the investigations of the committee members and staff. In all cases, efforts are made to solicit input from individuals who have been directly involved in, or who have special knowledge of, the problem under consideration.

In accordance with federal law and with few exceptions, information-gathering meetings of the committee are open to the public, and any written materials provided to the committee by individuals who are not officials, agents, or employees of the National Academies are maintained in a public access file that is available for examination.

The committee deliberates in meetings closed to the public in order to develop draft findings and recommendations free from outside influences. The public is provided with brief summaries of these meetings that include the list of committee members present. All analyses and drafts of the report remain confidential.

STAGE 4. Report Review

As a final check on the quality and objectivity of the study, all National Academies reports—whether products of studies, summaries of workshop proceedings, or other documents—must undergo a rigorous, independent external review by experts whose comments are provided anonymously to the committee members. The National Academies recruit independent experts with a range of views and perspectives to review and comment on the draft report prepared by the committee.

The review process is structured to ensure that each report addresses its approved study charge and does not go beyond it, that the findings are supported by the scientific evidence and arguments presented, that the exposition and organization are effective, and that the report is impartial and objective.

Each committee must respond to, but need not agree with, reviewer comments in a detailed "response to review" that is examined by one or two independent report review "monitors" responsible for ensuring that the report review criteria have been satisfied. After all committee members and appropriate National Academies officials have signed off on the final report, it is transmitted to the sponsor of the study and is released to the public. Sponsors are not given an opportunity to suggest changes in reports. The names and affiliations of the report reviewers are made public when the report is released.

HOW THE PUBLIC CAN FOLLOW AND PROVIDE INPUT TO STUDIES

The Current Projects System was established with a link from the National Academies homepage, **www.national-academies.org**, to make it easy for members of the general public with interest in the subject to follow the progress of a study and submit comments. The system offers separate views by subject and by project title.

Reports of the National Academies are available from the National Academies Press, 500 Fifth Street, NW, Washington, DC 20001 1-800-624-6242 • www.nap.edu.

THE NATIONAL ACADEMIES
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THE NATIONAL ACADEMIES
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[17] http://www.nationalacademies.org/xpedio/groups/nasite/documents/webpage/na_069618.pdf

For more than 140 years, the National Academies have been advising the nation on issues of science, technology, and medicine. The 1863 Congressional charter signed by President Lincoln authorized this non-governmental institution to honor top scientists with membership and to serve the nation whenever called upon. Today the National Academies—**National Academy of Sciences, National Academy of Engineering, Institute of Medicine, and National Research Council**—continue that dual mission.

Like no other organization, the National Academies can enlist the nation's foremost scientists, engineers, health professionals, and other experts to address the scientific and technical aspects of society's most pressing problems. Each year, more than 6,000 of these experts are selected to serve on hundreds of study committees that are convened to answer specific sets of questions. All serve without pay.

Federal agencies are the primary financial sponsors of the Academies' work. Additional studies are funded by state agencies, foundations, other private sponsors, and the National Academies endowment. The Academies provide independent advice; the external sponsors have no control over the conduct of a study once the statement of task and budget are finalized. Study committees gather information from many sources in public meetings but they carry out their deliberations in private in order to avoid political, special interest, and sponsor influence.

Through this careful study process, the National Academies produce 200–300 authoritative reports each year. Recent reports cover such topics as the obesity epidemic, the use of forensics in the courtroom, invasive plants, underage drinking, the Hubble Telescope, vaccine safety, the hydrogen economy, transportation safety, climate change, and homeland security. Many reports influence policy decisions; some are instrumental in enabling new research programs; others provide program reviews.

STEPS TAKEN TO ENSURE INDEPENDENCE AND OBJECTIVITY

The reports of the National Academies are viewed as being valuable and credible because of the institution's reputation for providing independent, objective, and non-partisan advice with high standards of scientific and technical quality. Checks and balances are applied at every step in the study process to protect the integrity of the reports and to maintain public confidence in them. The study process can be broken down into four major stages: 1) defining the study; 2) committee selection and approval; 3) committee meetings, information gathering, deliberations, and drafting of the report; and 4) report review.

STAGE 1. Defining the Study

Before the committee selection process begins, National Academies' staff and members of their boards work with sponsors to determine the specific set of questions to be addressed by the study in a formal "statement of task," as well as the duration and cost of the study. The statement of task defines and bounds the scope of the study, and it serves as the basis for determining the expertise and the balance of perspectives needed on the committee.

The statement of task, work plan, and budget must be approved by the Executive Committee of the National Research Council Governing Board. This review often results in changes to the proposed task and work plan. On occasion, it results in turning down studies that the institution believes are inappropriately framed or not within its purview.

STAGE 2. Committee Selection and Approval

Selection of appropriate committee members, individually and collectively, is essential for the success of a study. All committee members serve as individual experts, not as representatives of organizations or interest groups. Each member is expected to contribute to the project on the basis of his or her own expertise and good judgment. A committee is not finally approved until a thorough balance and conflict of interest discussion is held at the first meeting, and any issues raised in that discussion or by the public are investigated and addressed.

Careful steps are taken to convene committees that meet the following criteria:

An appropriate range of expertise for the task. The committee must include experts with the specific expertise and experience needed to address the study's statement of task. One of the strengths of the National Academies is the tradition of bringing together recognized experts from diverse disciplines and backgrounds who might not otherwise collaborate. These diverse groups are encouraged to conceive new ways of thinking about a problem.

A balance of perspectives. Having the right expertise is not sufficient for success. It is also essential to evaluate the overall composition of the committee in terms of different experiences and perspectives. The goal is to ensure that the relevant points of view are, in the National Academies' judgment, reasonably balanced so that the committee can carry out its charge objectively and credibly.

POINT OF VIEW IS DIFFERENT FROM CONFLICT OF INTEREST

A point of view or bias is not necessarily a conflict of interest. Committee members are expected to have points of view, and the National Academies attempt to balance these points of view in a way deemed appropriate for the task. Committee members are asked to consider respectfully the viewpoints of other members, to reflect their own views rather than be a representative of any organization, and to base their scientific findings and conclusions on the evidence. Each committee member has the right to issue a dissenting opinion to the report if he or she disagrees with the consensus of the other members.

Screened for conflicts of interest. All provisional committee members are screened in writing and in a confidential group discussion about possible conflicts of interest. For this purpose, a "conflict of interest" means any financial or other interest which conflicts with the service of the individual because it could significantly impair the individual's objectivity or could create an unfair competitive advantage for any person or organization. The term "conflict of interest" means something more than individual bias. There must be an interest, ordinarily financial, that could be directly affected by the work of the committee. Except for those rare situations in which the National Academies determine that a conflict of interest is unavoidable and promptly and publicly disclose the conflict of

Appendix III – Conflict of Interest Disclosure Form

CHESPEAKE BAY PROGRAM WATER QUALITY GOAL IMPLEMENATION TEAM
BMP EXPERT PANEL CONFLICT OF INTEREST DISCLOSURE
Version date: June 19, 2015

NAME: _____ TELEPHONE: _____

ADDRESS: _____

_____

_____

EMAIL ADDRESS: _____

EMPLOYER: _____

BMP PANEL: _____

INSTRUCTIONS[18]

The primary focus of the CBP BMP expert panels is to develop BMP-specific nutrient and sediment reduction effectiveness estimates *(i.e.,* performance estimates). A secondary focus may include describing future BMP-specific research needs and ancillary benefits. It is essential that the work of BMP expert panels not be compromised by significant conflicts of interest. Except for those situations in which the Chesapeake Bay Program (CBP) partnership determines that a conflict of interest is unavoidable and publicly discloses the conflict of interest, no individual can be appointed to serve (or continue to serve) on an expert panel if the individual has a conflict of interest that is relevant to the functions to be performed.

For the purposes of the BMP expert panels convened by the CBP partnership, the term **"conflict of interest" is any financial or other interest which conflicts with the service of the individual because it (1) could significantly impair the individual's objectivity or (2) could create an unfair competitive advantage for any person or organization.** The term "conflict of interest" applies only *to current interests.* It does not apply to past interests that have expired, no longer exist, and cannot reasonably affect current behavior. Nor does it apply to possible interests that may arise in the future, because such future interests are inherently speculative and uncertain.

"Conflict of interest" means something more than individual bias. A point of view or bias is not necessarily a conflict of interest. Expert panel members are expected to have points of view and the CBP partnership attempts to balance points of view by supporting diverse expert panel membership. Panel members are asked to consider respectfully the viewpoints of other members, to reflect their own views rather than to be a representative of any organization, and to base their scientific conclusions and judgment on relevant evidence.

This conflict of interest disclosure form is designed to prophylactically eliminate potentially compromising situations from arising, and thereby to protect the individual, the other members of the expert panel, the CBP partnership, and the public interest. The individual, the expert panel, and the partnership should not be placed in a situation where others could reasonably question, and perhaps discount or dismiss, the work of the expert panel simply because of the existence of conflicting interests.

The overriding objective of this conflict of interest disclosure form is to identify whether there are interests – primarily financial in nature – that conflict with the expert panel service of the individual because they could impair the individual's objectivity or could create an unfair competitive advantage for any person or organization. The fundamental question in each case is this: Does the individual, or others with whom the individual has substantial common financial interests, have identifiable interests that could be directly affected by the outcome of the activities of the expert panel on which the individual has been asked to

[18] Note: This form was created and informed by National Academies documentation found at http://www.nationalacademies.org/coi.

serve? The following questions are designed to elicit information from potential expert panel members concerning potential, relevant conflicts of interest.

1. FINANCIAL INTERESTS.
   a) Taking into account stocks, bonds, and other financial instruments and investments including partnerships (but excluding broadly diversified mutual funds and any investment or financial interests valued at less than $10,000), do you or, to the best of your knowledge others with whom you have substantial common financial interests, have financial investments that could be affected, either directly or by a direct effect on the business enterprise or activities underlying the investments, by the recommendations made by the expert panel on which you have been invited to serve?
   b) Taking into account real estate and other tangible property interests, as well as intellectual property (patents, copyrights, etc.) interests, do you or, to the best of your knowledge others with whom you have substantial common financial interests, have property interests that could be directly affected by the findings made by the expert panel on which you have been invited to serve?
   c) Could your employment (or the employment of your spouse), or the financial interests of your employer or clients (or the financial interests of your spouse's employer or clients) be directly affected by the findings made by the expert panel on which you have been invited to serve?
   d) Taking into account research funding and other research support (e.g., equipment, facilities, industry partnerships, research assistants and other research personnel, etc.), could your current research funding and support (or that of your close research colleagues and collaborators) be directly affected by the findings made by the expert panel on which you have been invited to serve?
   e) Could your service on the expert panel on which you have been invited to serve create a specific financial or commercial competitive advantage for you or others with whom you have substantial common financial interests?

   If the answer to all of the above questions under FINANCIAL INTERESTS is either "no" or "not applicable," check here _____ (NO).

   If the answer to any of the above questions under FINANCIAL INTERESTS is "yes," check here ____ (YES), and briefly describe the circumstances below.

EXPLANATION OF "YES" RESPONSES: (attach additional pages, if needed)

2. OTHER INTERESTS.
   a) For the expert panel on which you have been invited to serve, is a principal charge to provide a critical review and evaluation of your own work or that of your employer?
   b) Do you have any existing professional obligations that effectively require you to publicly defend a previously established position on an issue that is relevant to the functions to be performed by this expert panel?

c) To the best of your knowledge, will your participation on this expert panel enable you to obtain access to a competitor's or potential competitor's confidential proprietary information?

d) If you are, or have ever been, a federal, state, or local government employee, to the best of your knowledge are there any conflict of interest restrictions that may be applicable to your service on this expert panel?

If the answer to all of the above questions under OTHER INTERESTS is either "no" or "not applicable," check here _____ (NO).

If the answer to <u>any</u> of the above questions under <u>OTHER INTERESTS</u> is "yes," check here ____ (YES), and briefly describe the circumstances below.

<u>EXPLANATION OF "YES" RESPONSES</u>: (attach additional pages, if needed)

Per the CBP BMP Protocol,[19] all proposed panel members are subject to review and approval by the appropriate sector Workgroup or WQGIT. **Please read and initial each of the following statements.**

_____ *In addition to this conflict of interest disclosure form, I have received a copy of the current BMP Protocol and, if I am accepted as a panel member, I will, to the best of my ability and with guidance from the Panel Chair and Coordinator, adhere to the expectations and procedures described therein.*

_____ *I understand that a conflict of interest may prevent my participation as a member of the proposed BMP expert panel if the CBP partnership, in coordination with the Panel Chair, determine that the circumstances of my particular conflict of interest are not consistent with the intentions or purpose of the expert panel or the BMP Protocol. Furthermore, I understand that any such finding would NOT reflect an assessment by the CBP partnership of my actual expected behavior or in any way be an assessment of my character or my ability to act objectively despite the relevant conflicting interest.*

_____ *If I am not confirmed by the CBP partnership as a panel member, I understand that there can be other opportunities to provide my expert input to the panel, as described in the BMP Protocol and that I am welcome to discuss these opportunities with the Panel Chair and Coordinator.*

_____ *I affirm that as a panel member I will respectfully consider the expert opinions and judgments of other members within the context of their perspectives, expertise, and experience, and I will reflect on these as I express my own expert opinions and formulate my own professional judgments. Further, I will base my findings, conclusions, and professional judgment on all of the relevant scientific evidence available to the expert panel on which I serve.*

During your period of service in connection with the panel for which this form is being completed, any changes in the information reported, or any new information which needs to be reported, should be reported promptly by written or electronic communication to the Panel Chair and Coordinator.

_____ _____
Signature Date

_____
Print Name

_____ _____
Reviewed WQGIT Co-Chair Date

_____
Print Name

_____ _____
Reviewed WQGIT Co-Chair Date

_____
Print Name

[19] http://www.chesapeakebay.net/publications/title/bmp_review_protocol