Disconnecting Existing Impervious Area Runoff from Stormwater Drainage Systems Expert Panel Request for Proposals

I. Summary:

The U.S. Environmental Protection Agency Chesapeake Bay Program (CBP) through its Expert Panel Management Cooperative Agreement with Virginia Tech (VT) is seeking proposals to assemble an expert panel to evaluate the nutrient and sediment removal, and runoff reduction benefits, associated with a proposed best management practice (BMP) that is presently described as "**Disconnecting Existing Impervious Area Runoff from Stormwater Drainage Systems**", hereafter described as the Impervious Disconnect (ID) BMP. Disconnecting impervious areas typically involves managing stormwater runoff close to its source by intercepting, infiltrating, filtering, treating or reusing the runoff prior to it entering the stormwater drainage system. Proposals should address how the identified expert panel will go about developing a defensible, science-based BMP definition and nutrient (nitrogen and phosphorus), sediment, and runoff reduction performance estimates. When conducting their business and reporting their findings, expert panels are expected to adhere to the process and protocols contained in the current version of the document entitled *Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model* [1] hereafter referred to as the "BMP Protocol." The selected expert panel will be assisted by Virginia Tech personnel located in EPA's Chesapeake Bay Program Office in Annapolis, MD. Included in that assistance is logistical support for all expert panel conference calls (including providing a conference bridge and webinar platform) and meetings.

II. Background:

Urban stormwater runoff is a growing source of nutrient and sediment loads to the Chesapeake Bay. Modeling performed by the CBP estimates that urban stormwater currently accounts for over 14 percent of nitrogen and phosphorus loads, and 18 percent of sediment loads delivered to the Bay. Disconnecting existing impervious area runoff from stormwater drainage systems is one proposed strategy to reduce stormwater runoff volumes and decrease the associated nutrient and sediment loads entering the Bay. The CBP's Urban Stormwater Workgroup (USWG) is interested in convening an expert panel tasked with defining an impervious area disconnect BMP and developing science-based performance estimates (nutrient and sediment removal, and runoff reduction) for that BMP.

As part of the process of determining that an ID BMP expert panel was needed, the USWG considered the advantages and disadvantages of creating a specific "disconnected impervious cover" land use for use in the Chesapeake Bay Watershed Model (CBWM). The USWG ultimately concluded that available mapping and monitoring data could not accurately differentiate between connected and disconnected impervious area at the scale of the Bay watershed.[2,3] Consequently, the USWG chose to move forward with the BMP expert panel process. This choice was subsequently endorsed by the CBP's Water Quality Goal Implementation Team (WQGIT) and Modeling Workgroup.

III. Scope of Activities:

This RFP solicits proposals to assemble an expert panel to evaluate the nutrient and sediment removal, and runoff reduction benefits, associated with a proposed BMP that is presently described as disconnecting existing impervious areas. In this context, impervious disconnection involves directing or otherwise diverting all stormwater

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[1] (http://www.chesapeakebay.net/documents/Nutrient-Sediment_Control_Review_Protocol_v7.14.2014.pdf).
[2] Sample, D. et al. 2014. The Peculiarities of Pervious Cover: A Research Synthesis on Allocating Pollutant Loads to Urban Land Uses in the Chesapeake Bay Watershed. STAC Publication No. 14-006. Edgewater, MD. 54 pp.
[3] Tetra Tech, Inc. 2014. Final Land Use Loading Literature Review: Summary and Results. Prepared for Chesapeake Bay Partnership. Annapolis, MD. March 31, 2014.

runoff from existing developed impervious cover areas (not new development or re-development) to acceptable areas of pervious cover where the diverted runoff can be effectively stored and infiltrated or otherwise treated. In the context of this practice, this will often entail soil modifications to the area receiving the runoff as most urban soils are too compacted or otherwise unsuited to readily infiltrate the captured runoff volume. Therefore, this expert panel is being asked to explore a modified disconnection scenario whereby existing site and drainage networks are assessed to determine if they can be effectively "retrofitted" to achieve full stormwater runoff disconnection. This might be done via modifications to the existing soils or vegetation of existing pervious cover areas, or by changing flow paths or retention within an existing drainage network. The cumulative effect of any modifications on the hydrologic response for an existing site would need to be documented, using a defensible methodology that would assess whether complete impervious disconnection was achieved. In addition to developing the methodology to assess the degree of impervious disconnection achieved, the expert panel is being asked to develop commensurate nutrient, sediment and runoff reduction performance estimates or some methodology to determine performance estimates. Performance estimates could, for example be benchmarked to some other nutrient and sediment loading condition or scenario (i.e., the load from a semi-disconnected impervious area might equate to the load from an alternative land use already recognized by the CBP). As previously stated, all panel recommendations should be based on the best available science. The collective best professional judgment of the expert panel should also be brought to bear on any panel recommendations.

Recommendations related to the ID BMP are slated to be incorporated into Phase 6 of the Chesapeake Bay Watershed Model (CBWM). Phase 6 is expected to be released in draft form in early 2016. This expert panel will be expected to liaise with the CBP modeling team to make sure that their assumptions and recommendations are consistent with the capabilities of the Phase 6 CBWM, and that the data required to make any ID BMP performance estimates can be readily collected by a jurisdiction wishing to report on ID BMP implementation.

It should be noted that several types of similar BMPs have already been addressed by previous expert panels, and are therefore outside the scope for this impervious disconnect expert panel RFP:

- Methods to disconnect impervious cover used to comply with new state stormwater performance standards for new development or redevelopment projects (e.g., multiple structural and non-structural practices to reduce runoff are already established by a prior expert panel).
- Homeowner BMPs such as rain gardens, rain barrels, dry wells and downspout disconnections that are used to retrofit existing residential properties (e.g., credits for these on-site retrofit practices have already been established by the retrofit expert panel).
- Urban filter strips, urban or agricultural stream buffers, and shoreline management practices that accept stormwater runoff from adjacent areas (e.g., credits and qualifying conditions for these types of runoff disconnection practices have already been established by prior expert panels).

IV. Content and Length:

Proposals submitted under this RFP may request funding up to $42,000 in total costs including any indirect or overhead. The project duration is a maximum of twelve (12) months from the award date. Proposals should be no longer than five (5) 8 ½" x 11" pages, single-spaced, 12 pt Arial font. Two-page (maximum) CVs that document the qualifications of each of the proposed Expert Panel members, including the expert panel chair, should be included with the proposal submission. The CVs are in addition to the five page proposal limit. Proposals must specify/identify the following:

1. Expert Panel Chair.
2. Expert Panel membership. As specified in the BMP Protocol[1], the Panel must include at least eight individuals; three recognized topic experts, three individuals with expertise in environmental and water quality-related issues, a representative from the CBP's Watershed Technical Work Group (WTWG), and a representative from the CBP modeling team. An additional support person will be provided by EPA Region III to serve as a resource for

regulatory questions that arise during the Panel's work. The CBP will assign individuals from the WTWG and the CBP modeling team and applicants need not include the CV's of these CBP-selected individuals in their proposal. These assigned support individuals will lend specific expertise to the Panel (e.g., the CBP modeling team panel member will lend a working knowledge of the CBP Watershed Model and potential ways the model can accommodate various BMPs). Panelists' areas of expertise may overlap. Suggested areas of expertise that may be applicable to the ID BMP panel include, but are not limited to: urban stormwater management, watershed modeling, environmental/civil/biological systems engineering, biogeochemistry, soil chemistry, soil physics, and nutrient cycling dynamics in urban systems. **Panel members MUST NOT represent entities with potential conflicts of interest, such as entities that could receive a financial benefit from panel recommendations or where there is a conflict between the private interests and the official responsibilities of those entities. All panelists MUST identify any potential financial or other conflicts of interest prior to serving on the panel.**

3. Project Narrative/Scope of Work that details how the Expert Panel Chair and membership plan to develop their final report. This section should document how the proposed Expert Panel will execute the process and procedures detailed in the CBP's BMP Protocol[1].
4. Project timeline.
5. Project Budget including a detailed budget justification.

V. Proposal Review and Selection

Proposals will be reviewed by Chesapeake Bay Watershed Research and Outreach Collaborative (CBW-ROC) Steering Committee. Current CBW-ROC Steering Committee membership includes representatives from selected land grant universities within the Chesapeake Bay watershed (Table 1). Proposals will be scored and ranked using the criteria specified below. The proposals will also be shared with and reviewed by the CBP Program Officer responsible for oversight of the Expert Panel Management Cooperative Agreement with VT. Review comments made by the CBP Program Officer will be considered when selecting the winning proposal. Upon selection by CBW-ROC, the Panel's scope of work (SOW) and list of proposed panel membership will be subject to review and comment by the following CBP partnership groups, as described in the BMP Protocol:[1] the Water Quality Goal Implementation Team (WQGIT), the USWG and other relevant workgroups, the Habitat Goal Implementation Team, and the Scientific and Technical Advisory Committee. Approval of the SOW and membership will be requested from the Urban Stormwater Workgroup or WQGIT, and the panel will be convened following that approval. Any changes to the SOW or membership as a result of this process will be made cooperatively between the Panel Chair and the CBP partnership.

Table 1. Current Chesapeake Bay Watershed Research and Outreach Collaborative (CBW-ROC) Steering Committee

Jurisdiction	Team Member	Institution
Delaware	Jenn Volk	University of Delaware
Maryland	Frank Coale	University of Maryland
New York	Quirine Ketterings	Cornell University
Pennsylvania	Matt Royer	Penn State University
Virginia	Brian Benham (Chair)	Virginia Tech
Washington, D.C.	Tolessa Deksissa	University of the District of Columbia
West Virginia	Tom Basden	West Virginia University

V.i. *Evaluation Criteria:*

1. ***Organizational Capability and Program Description (40%):***

   Proposals will be scored based on the overall quality of the proposal and how it demonstrates/illustrates the process/tasks that will be undertaken to successfully achieve the project's objectives by the posed deadline. Reviewers will specifically assess the extent to which proposed project acknowledges and will

adhere to the BMP Protocol[1]. As presented in the BMP Protocol, Expert Panels are expected to develop definitions and loading or effectiveness estimates for the nutrient- and sediment-reducing technologies and practices they have agreed to review. Each Expert Panel will work with the Project Coordinator (a VT employee stationed at the CBP office in Annapolis, MD), the appropriate CBP source Workgroup(s) and the CBP Watershed Technical Work Group to develop a final report that documents the following:

- Identity and expertise of Panel members.
- BMP name/title.
- Detailed definition of the practice.
- Recommended N, P, and sediment loading or effectiveness estimates.
    - Discussion may include alternative modeling approaches if appropriate.
- Justification for the selected effectiveness estimates, including:
    - List of references used (peer-reviewed, grey literature, etc.).
    - Detailed discussion of how each reference was considered and, if applicable, which sources of potential relevance were not considered.
- Description of how best professional judgment was used, if applicable, to supplement available literature and data.
- Expected Phase 6 Watershed Model land uses to which the BMP will be applied.
- Load sources that the BMP will address and potential interactions with other practices.
- Description of pre-BMP and post-BMP circumstances, including the baseline conditions for practices.
- Conditions under which the BMP works:
    - Should include conditions where the BMP will not work, or will be less effective. An example is large storms that overwhelm the design.
    - Any variations in BMP effectiveness across the watershed due to climate, hydrogeomorphic region, or other measureable factors.
- Temporal performance of the BMP including lag times between establishment and full functioning (if applicable).
- Unit of measure for the BMP and its effectiveness estimate (e.g., feet, acres).
- Locations within the Chesapeake Bay watershed where this practice is applicable.
- Useful life; effectiveness of practice over time.
- Cumulative or annual practice.
- Description of how the BMP will be tracked, reported, and verified.
    - Include a clear indication that this BMP should be used and reported by jurisdictions;
- Suggestion for a review timeline; when will additional information be available that may warrant a re-evaluation of the estimate.
- Outstanding issues that need to be resolved in the future and a list of ongoing studies, if any, that may inform future reviews of the practice.
- Documentation of any dissenting opinion(s) if consensus cannot be reached.
- Operation and Maintenance requirements and how neglect alters performance.

2. ***Past Performance and Programmatic Capability (20%)***

Proposals should, to the extent possible, discuss how the applicant's past performance will ensure the successful completion of proposed activity (i.e., managing a panel of experts to seek out and review relevant data/information to produce a science-based, defensible report on a given topic or suite of topics).

3. ***Probability of success of the project (40%)***

Proposals will be evaluated against the following criteria:

a. Reasonableness of timeline.
b. Qualifications of proposed Expert Panelists and their willingness to participate (can be demonstrated with a letter of collaboration appended to proposal).

c. Appropriateness of requested budget and budget justification.
d. Adequacy of available support personnel and facilities (if specified in proposal).

VI. Proposal Submission

Proposals are due by the close of business on March 27, 2015. Proposals may be submitted via email or via regular mail to:

Brian Benham
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Virginia Tech
Biological Systems Engineering (MC0303)
Seitz Hall RM 209, Virginia Tech
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Questions about this RFP should also be directed to Project Coordinator Jeremy Hanson (410.267.5753; hanson.jeremy@epa.gov) or Dr. Benham.