

Proposed Scope and Charge for Impervious Cover Disconnection Expert Panel

This panel will evaluate the nutrient and sediment removal and runoff reduction benefits associated with disconnecting existing acres of impervious cover through several engineering and/or field assessment methods as defined herein:

Background.

Disconnecting impervious cover has the potential to be an excellent strategy to reduce stormwater runoff and possibly sediments and nutrients generated from urban land. The Urban Stormwater Workgroup (USWG) has consistently voted this practice as a top priority for launching an expert panel to define its pollutant reduction capability.

During 2014, the USWG evaluated the potential to create a land use category to represent disconnected impervious cover in the Phase 6 Chesapeake Bay Watershed Model (CBWM), but concluded that available mapping and monitoring data could not accurately differentiate between connected and disconnected impervious cover at the scale of the Bay watershed at the present time (Sample et al, 2014, Tetra Tech, 2014). Consequently, the USWG did not recommend that a separate land use category be created for disconnected impervious cover in the next phase of the watershed model. This recommendation was subsequently endorsed by the WQGIT and Modeling Workgroup.

The preferred approach was to investigate methods to calculate credits for this best management practice (BMP), in one of two ways. The Panel can consider and modify these approaches based on available science and their best professional judgment.

1. Direct or otherwise spread stormwater runoff from impervious cover of existing development (not new or re-development) to an acceptable area of pervious cover where it may be effectively stored and infiltrated into the soil.¹ In many cases, this will usually entail some modification to the soils of the pervious cover receiving the runoff, such as soil tilling, compost or other soil amendments, phyto-remediation or special plantings.² These modifications are needed because most urban soils have likely lost their original capacity to infiltrate runoff due to the mass grading and engineered soil compaction that has historically accompanied land development.

It is anticipated that relatively few parcels in the watershed will qualify for full disconnection. Therefore, the panel should explore a modified method whereby the site and drainage network are re-evaluated to determine if it can be effectively "retrofit" to achieve full disconnection via modifications to the soils or vegetation of existing pervious cover or changes in the flow path or retention within the existing drainage network. The

¹ For example design specifications for impervious surface disconnection, see Chesapeake Stormwater Network (2013), Virginia Stormwater Design Specification No. 1, available online at: <http://chesapeakestormwater.net/2012/03/design-specification-no-1-rooftop-disconnection/>

² For example design specifications for soil amendments, see Chesapeake Stormwater Network (2013), Virginia Design Specification No. 4, available online at: http://chesapeakestormwater.net/wp-content/uploads/downloads/2014/05/VA_BMP_Spec_No_4_SOIL_AMENDMENT_FINAL_Draft_v2-0_01012013.pdf

cumulative effect of these modifications on the hydrologic response for the entire site would need to be documented using the Panel's recommended hydrologic engineering model(s) (i.e., achieving the full disconnection benchmark). The panel would then evaluate whether the existing retrofit adjustor curves would be suitable to assess the sediment and nutrient reduction potential for this new category of stormwater retrofit.

2. The second approach is to evaluate whether impervious cover for existing development is situated or configured in such a manner as to be effectively disconnected or semi-connected, relative to a known or measurable hydrologic benchmark (e.g., meadow in good condition, pervious cover runoff coefficient, or other performance standard of the panel's choosing).

Under the field assessment phase, site-based data would be collected for both the contributing impervious area, receiving pervious area and any intervening drainage network. Examples of site-based data collected may include engineering parameters such as soil type, degree of soil compaction, measured infiltration rates, slopes and length of sheet flow paths, the quality and/or density of vegetative cover, or any other hydrologic factors deemed important by the panel. The panel would then recommend a hydrologic simulation model to evaluate whether the engineering parameters established for the site can meet or exceed the hydrologic benchmark for full disconnection, as previously identified by the expert panel.

What is NOT within the scope of this expert panel

Several types of impervious cover disconnection have already been addressed by previous expert panels, and are therefore, outside the scope of this new impervious disconnect expert panel.

- 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 previous 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 previous expert panels).

In addition to the practices listed above, other ongoing or existing urban stormwater BMPs approved, or under review, by the Chesapeake Bay Program (CBP) are outside the scope of this expert panel, including bioretention and other infiltrations practices as defined by the CBP.

Other Important Notes for Panel

During its deliberations, the panel will be expected to be mindful that the disconnection practice is only proposed for Phase 6 of the CBWM, and not the current Phase 5.3.2. This is extremely important because the target sediment and nutrient loads for impervious and/or pervious cover may change as a result of future model calibration during the mid-point assessment, particularly if existing urban loads are shifted to new land use categories, such as the urban stream corridor. The impervious disconnect panel will need to closely liaise with the CBPO modeling team to make sure that their technical assumptions about urban loadings are consistent with these future modeling decisions.

References

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.

Tetra Tech, Inc. 2014. Final Land Use Loading Literature Review: Summary and Results. Prepared for Chesapeake Bay Partnership. Annapolis, MD. March 31, 2014.