Source	Comment	Response
	Text of comments is verbatim, but split into rows for purpose of providing responses.	
WV DEP	1. Under Qualifying Conditions, I was surprised to see such specific requirements for the compost: "Compost must meet safety requirements for human contact, have a total nitrogen content of less than 2% (95% in organic form), and a total phosphorus content of less than 3%. Compost must meet the US Composting Council's soil amendment compost specifications found at:http://compostingcouncil.org/specifying-sta/, which includes a maturity rating of >80%, and be provided by a member of the US Composting Seal of Testing Assurance (STA) program. Seewww.compostingcouncil.orgfor a list of local providers." I skimmed the expert panel meeting minutes but did not see a clear decision to require all of this; maybe it's because the state stormwater design manuals require various versions of the above specifications. Could you perhaps comment on this when we discuss it at USWG or WTWG?	Thank you for your comment. The compost specifications were largely adopted from Virginia. Greg Evanylo presented on this during the January 14, 2016 panel meeting, where we discussed the nitrogen and phosphorus issues. There was follow-up discussion on the N and P content in compost during the April 6, 2016 panel meeting.
WV DEP	2. Near the end of Section 4.1 "Performance of Modified Pervious Areas…" , under Vegetative Cover Management… consider replacing "troth" with whatever it means. I can't find an agronomic type definition, but can sort of figure it out from context.	Thank you for your comment, we will address in the final editing.
WV DEP	3. Section 4.2 "The Effect of Site…" under Existing Soil Phosphorus Content, I think it should say "via" instead of "vial."	Thank you for your comment, we will address in the final editing.
WV DEP	4. Section 5.1.2 "These curves also assume the initial soil has a compaction factor of 1:1…" Consider putting the "CF" abbreviation there so that the curve titles make easier sense to	Thank you for your comment, we will address in the final editing.

	the reader. It's easier than flipping back to the list of abbreviations.	
WV DEP	*5.* Section 5.1.2, Step 1. "Pervious areas consisting of asandy clayare, generally, not recommended…"*should that sayclay or sandy clay?*	Thank you for your comment, we will address in the final editing.
WV DEP	6. I think the column headings in Table 9 should have units of "%"	Thank you for your comment, we will address in the final editing.
WV DEP	7. The default method in 5.1.1 gives you % reductions of the pollutants. The Simple Method in 5.1.2 gives you "water treated" – could you maybe add language that tells you how to look up the % reductions of the pollutants, like you do in Step 5 of method 5.1.3?	Thank you for your comment, we will address in the final editing.
WV DEP	8. The last sentence in Sect. 5.3 should say "can be used…	Thank you for your comment, we will address in the final editing.
WV DEP	9. Maybe this is an accepted convention, but I noticed "impervious" is used as a noun in a few places in the document. Consider "impervious surface" or "impervious areas" instead? E.g., the first design example title just says "impervious," but the first sentence under it says "impervious areas." The examples are very helpful; thank you!	Thank you for your comment, we will address in the final editing.
WV DEP	10. Section 6.1 under Credit Duration, maybe it should be worded more generally, since someone might not have used the testing described in 5.1.3.	The expert panel believes the sampling guidance is not overly burdensome however, there might be some confusion in the description of soil testing. We clarified the idea of having cone penetrometers run at the time of initial soil sampling, which would allow future comparison using penetrometer data. If

		this doesn't address your concern can you provide further clarification and an example of what you mean with this comment?
WV DEP	11. I'm not sure why this sentence is under "non-conforming projects" since I thought "conforming" in this case would mean the methods in 5.1.2 and 5.1.3. "The new protocols (simple and computational methods described in Sections 5.1.2 and 5.1.3) can be applied to projects that have been installed less than 5 years ago to receive credit." I also wonder why the panel decided on the previous 5 years as the grace period?	Agree, this language should be removed. The panel felt that projects that have been installed within 5 years that met the qualifying conditions should be given credit but must meet the 5 year verification that is required. It is unlikely that projects installed for longer periods will have followed the inspection guidelines.
WV DEP	12. Under "Periodic BMP Inspections," again, it seems to be assumed someone followed the testing procedures in 5.1.3 when implementing the project.	Yes, we will make this more clear as it is spelled out under the Credit Duration section that the procedures in 5.1.3 must be followed to demonstrate recompaction hasn't occurred to maintain the credit after 5 years.
WV DEP	13. Appendix C. #9 I don't understand the answer – I thought the question was asking something different. #15 – I think it should say<u>cumulative</u>. #19 no answer given	Thanks for pointing out this mistake as the current answer is not in response to the proper question. This will be addressed in the final editing, pointing the reader to Section 4 and Section 5 where he/she can find details about characteristics pre- and post-implementation of the practices. Correct, it should say "cumulative" instead of "annual." This will be addressed in the final editing.
PA DEP	Pennsylvania encourages the use of impervious disconnection and green infrastructure as a means to reduce stormwater runoff volume and improve water quality. Overall, the *Recommendations of the Expert Panel to Define Removal Rates for Disconnecting Existing Impervious Area Runoff from Stormwater Drainage Systems (*Impervious Disconnection Expert	Thanks for the suggestion, we will add.

	Panel Report) is a well written evaluation. However, we do have a few comments in regard to the Expert Panel recommendations: • Pennsylvania recommends the following language be used in the Expert Panel report: "The statements and procedures outlined in this Expert Panel Report are intended to supplement existing jurisdictional requirements. Nothing in the Expert Panel Report shall affect jurisdictional regulatory and other legal requirements."	
PA DEP	The Expert Panel report includes a significant level of detail about analysis and testing of the soil and compost. The recommended frequency of initial and subsequent soil analyses, while beneficial for larger sites with a greater amount of impervious surface to be treated, is not practical for a smaller site with a lower impervious: pervious ratio. A tiered approach would be more practicable for those implementing impervious disconnection with amended soils on smaller sites.	Thank you for the comment we will submit the following language to the panel for their concurrence. Soil texture analysis add: "For pervious areas less than 0.25 acres for an impervious to pervious ratio of 2 or less, soil samples can be limited to two." And for bulk density samples add: "For pervious areas less than 0.25 acres for an impervious to pervious ratio of 2 or less, only one bulk density sample is needed."
PA DEP	• In the qualifying conditions, the Expert Panel recommends the practice is not used for sites with greater than 10% slope, while Pennsylvania's Stormwater BMP Manual suggests that soil restoration should not be used on sites with greater than 30% slope and rooftop disconnect areas should have a maximum slope of 5%. The divide between the two recommendations is concerning from the practical application standpoint.	Many of the qualifying conditions were adopted from the Urban Filter Strip expert panel. The 30% maximum you suggest for soil amendments is likely close to what may be suggested by an expert panel looking at soil amendments alone (no impervious disconnection). Your recommendation of 5% maximum slope for rooftop disconnection areas is analogous to this protocol. Since the maximum 5% you're suggesting is more stringent than the 10% suggested by the panel, this should not be an issue. Also, the suggested language you provided in the first comment would apply here.

PA DEP	○ The section regarding soil test samples on page 27 should remove "pre-amendment" if it is to be used for both the pre-amendment and also for the field verification after the five or two year credit duration concludes.	Thanks for the suggestion. We clarified only the need for penetrometer measurements during verification. This means the "pre-amendment" label should remain.
PA DEP	○ Two year credit durations for "heavily used areas" is impractical from a reporting and verification standpoint. One credit duration (five years) should be recommended in order to minimize confusion and complexity.	We are making it clear that we are only talking about penetrometer testing. Though potentially onerous, the instances where a heavily used area would be selected for impervious cover disconnection are likely limited. For example, sports fields tend to be design to shed water rather than collect it. Though potentially limited, the panel felt the potential for recompaction through heavy traffic was a likely outcome in these areas. The panel did not completely exclude this situation since the potential benefit in these areas, at least initially, may be great.
PA DEP	○ The Expert Panel should recommend that the soil tests be taken as per the sampling procedures and protocol of the laboratory analyzing the samples. The procedures found on page 27, while informative, is superfluous to the report. Thank you for the opportunity to comment.	Thank you for the suggestion. We completely agree that laboratory protocols should be followed. The guidance in this report is intended to provide general information on how to characterize the site and is not intended to be prescriptive on exactly how to collect soil samples or bulk density samples. Additionally, laboratory procedures are often developed to answer specific questions about agronomic activities (i.e. how much N or P is recommended for a healthy lawn) rather than trying to characterize a site for hydraulics so the panel felt some guidance was in order. Suggested addition: "Each laboratory has standard sampling procedures, which should be followed; however, the following guidance is given to insure the site is properly characterized."

HRPDC	The Hampton Roads Planning District Commission (HRPDC) staff appreciates the opportunity to comment on the draft of the *Recommendations of the Expert Panel to Define Removal Rates for Disconnecting Existing Impervious Area Runoff from Stormwater Drainage Systems*. We request that the expert panel provide recommendations to use the methods outlined in Section 5 of the draft report to extend crediting to pervious area restoration using soil amendments. Section 7 of the draft report identifies this issue as a future research need. The current Panel is well suited to address pervious area restoration, as they have already reviewed the literature describing the use of soil amendments for reducing runoff through increased infiltration. Pervious area restoration may be outside of the original charge of the panel but some latitude should be given to use experts' time efficiently and not repeat the review of research unnecessarily. It is our understanding that the impervious disconnection credit will be available when the Phase 6 CBP model is released next year. Taking some additional time to develop the pervious area restoration protocols will not delay the availability of the impervious disconnection credit. The HRPDC appreciates your consideration.	While some members of the current panel may have relevant expertise to evaluate the effect of treating/amending soils of a pervious area, a separate BMP panel is needed under the BMP Protocol. The questions and answers are outside the scope of the current panel, which has spent the time and resources that were provided to it to fulfill its given Charge. Looking at soil amendments and practices that treat disconnected impervious areas allowed this panel to expand on the work of the Retrofit expert panel, specifically the adjustor curves which were derived based on literature for treatment of impervious surfaces. Amending or treating pervious soils will not be able to rely on the adjustor curves and would need to develop other methods to determine the nutrient and sediment reductions. Thus, the issues, time and resources necessary to complete that analysis demand a new panel.
MDE	General Comments: MDE is concerned that the recommendations of the expert panel are not accurately reflected in the document's title and introductory section. The original charge of this expert panel was to "…define and develop nutrient and sediment load reduction recommendations for ... disconnection of impervious area runoff from stormwater drainage systems." Further, the panel's recommendations are for the disconnection of impervious cover	The initial charge of the panel was to 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. The Panel considered and modified these approaches based on available science and their best professional judgment.

	to a pervious area and should not apply to pervious area restoration alone. However, Sections 4, 5, and 6 of the report explicitly establish protocols for pervious area restoration credits despite the panel's recommendation for additional research and their development being outside the panel's charge. MDE understands that several types of impervious cover disconnection have been addressed by the various expert panels and are outside the scope of the current report. In fact, the panel recognized this in the September 2015 while discussing narrowing its focus to determining nutrient and sediment removal rates for impervious cover disconnection to pervious area restoration (e.g., soil amendments, soil decompaction). MDE agrees with the panel's recommendation that pervious area restoration protocols need more in depth vetting from experts in the field of soil amendments. Because the report itself recognizes the limited research in this field, MDE recommends that the CBP take advantage of experts in national subject matter experts in academia that have extensive experience on this topic. In the interim, MDE recommends stopping the current recommendations until this research is completed.	The panel was specifically requested to evaluate: • Impervious disconnection to pervious areas amended with compost and/or vegetative plantings. • The potential to retrofit existing drainage networks on a site to achieve full or partial impervious disconnection. • Modeling to determine the degree of disconnection based on a disconnection benchmark established by the Panel. • The existing retrofit adjustor curves and their suitability to assess the sediment and nutrient reduction potential for this new category of stormwater retrofit or whether some other methodology is preferable. The panel report does not provide a protocol for pervious area restoration alone. This was not in the panel charge. The protocols developed by the panel explicitly provide estimates of runoff reduction per area of impervious area introduced which enable the use of the runoff adjuster curves so that nutrient and sediment loading reductions can be determined. The panel recommended that a future panel use the methods developed in this report for soil restoration as a stand-alone practice however, a method would have to be developed that relates runoff reduction to sediment and nutrient load reduction.

		Using soil decompaction and addition of soil amendments to reduce runoff has been well documented in literature. Due to the discrepancy in soil amendment type, amount, depth of incorporation, impervious area being disconnected, quantity and timing of monitored storm events (or rainfall simulation), and differences in reported metrics between published sources, the panel was not able to simply use an average (or median) of study results. The method developed allows for rainfall standardization (1 inch of rainfall used in the NRCS Runoff Curve Number method) and a conservative and reproducible approach to estimate runoff reduction benefit in a large number of situations. Though limited research in the field was available that specifically quantified the effect of soil amendments, as with most expert panels, the panel felt there was enough evidence and appropriate modeling tools to develop protocols.
MDE	Specific Comments: The following comments are specific to the pervious area restoration protocols. Comments 1 – 5 are significant and MDE is requesting that a stop be placed on the BMP until they are addressed. 1. The report seems tightly tied to ideas about hydrologic soil group (HSG) and runoff curve number (RCN) hydrology. These are commonly used design tools, and MDE agrees that linking the pervious area restoration practice to a consistent RCN framework would facilitate adoption and implementation. However, in relying on HSG to identify credits and priorities for impervious area disconnection, the panel seems to have disregarded some of the core assumptions behind curve number hydrology. Hydrologic soil group is defined as the combination of infiltration rate and	The use of the RCN method was largely chosen (over more rigorous rainfall runoff models) due to the prevalence in State stormwater manuals (i.e. allowing for some common concepts/terminology between this protocol and the CN tables developed by MDE). This was a point of much early discussion and the panel felt, though the RCN method was severely limited in capturing differences in rainfall intensity, for example, the popularity, practitioner familiarity, and overlap with standard stormwater procedures outweighed these limitations. The panel also thoroughly discussed the use of HSG as the basis for soil modification, though most felt, as you suggested, the HSG should not be changed based on soil amendments as that would be inconsistent with standard CN practice. The panel opted for the Chong and Teng relationship to avoid the HSG reference terminology. We still suggest this approach be

	depth to the shallowest confining layer. For example, a soil profile with a surface infiltration rate of 5 inches per hour (or higher) would still be considered as HSG D if the depth to shallowest confining layer is less than 20 inches. The focus on thin layers of any soil amendment without considering the full definition of HSG is inconsistent with standard CN practice.	used with HSG C and D soils, though this is only used for general characterization upfront and is not used in the protocols. As described in subsequent responses to comments, the panel thoroughly discussed and accounted for the issue of variable depths to confining layers in the protocols developed. Further the effective saturated hydraulic conductivity of this layer diminishes substantially with increased hydraulic loading. See response below for additional clarification.
MDE	2. The panel's recommendations focus on using shallow soil amendments to enhance infiltration from redirected impervious area, without considering the underlying soil profile, or the seasonal variation of soil moisture. For approximately 50% of the year, soils (even in significantly compacted soils) remain very close to field capacity and are quickly saturated by the small, intense storms encountered in the region. This effect is amplified significantly for compacted soils with a thin (2 to 4 inches) surface layer of decompacted amended soil. These saturated layers convey surface runoff and drain laterally with very little infiltration into the shallow (~4 inches) restrictive layer.	Great points all the way around. Though not detailed in the report, the panel analyzed 20+ years of rainfall data from Regan National Airport to look at rainfall patterns and the associated antecedent moisture conditions (AMC) (also known as antecedent runoff conditions) based on a 5-day antecedent rainfall (SCS, 1972 as referenced by Chow, Maidment and Mays, 1988) and found that ~80% of rain events occur when the AMC fits the "dry" category. As the panel wanted to be conservative, a "normal" AMC was used. Additionally, when developing the "infiltration depth" table (Table 10 in the draft report), we assumed initial soil moisture was at field capacity conditions. This assumption sets a deeper infiltration depth than may be practical with the sole purpose of conservatively weighting soil underlying the amended zone. No effort was given to estimating lateral water movement, as this would be considered runoff in the panel protocols (albeit filtered runoff). This protocol considers a 1 inch rainstorm, the results of which correlate very well with long-term estimated annual runoff for a given CN value (see Figure E-1 in the draft report).

		Additionally, ~90% of rain events at Regan National Airport were 1" or smaller and the panel agreed the trend may hold for the majority of the Chesapeake Bay watershed. Impervious disconnection to amended pervious may function even better in the ~90% of events less than 1 inch.
MDE	3. The computations and assumptions underlying the proposed crediting calculations are not sufficiently documented to allow an extensive review. Some of the examples embedded in Appendix E seem extremely optimistic. For example, an estimated "infiltration depth" of 9.74 inches is claimed for incorporating a 1 inch layer of compost into 3 inches of a compacted sandy clay. This implausible result disregards the underlying soil profile, and forces the runoff volume to conform to a derived estimated runoff. The chain of assumptions and intermediate computations, which is critical to the method proposed, is poorly documented. Given the significance of soil compaction in urban soils, this needs a more rigorous independent peer review.	We agree that 9.74 inches of **water treated** is VERY optimistic; however, 9.74 inches of infiltration depth is different than the depth of water treated. The paragraph you are referring to was intended to highlight the iterative nature of the calculation and to why we needed to develop a table that went through these iterations to come up with a conservative estimate of infiltration depth (L_f) (Table 10 in the draft report). This infiltration depth is NOT what we would be claiming credit for, it is simply a set depth to evaluate the "effective saturated hydraulic conductivity" using equation 5.1.3.1 in the draft report. This, in turn, is used to calculate a new CN value. The larger the infiltration depth value, the potentially more heavily the underlying soil would be weighted For the example you are highlighting, with an infiltration depth of 9.74 inches (Table 10 bumps that up to 14), the effective saturated hydraulic conductivity would be based on ~4 inches of "amended" soil with the remainder (9.74 – 4 = 5.74 OR 14 – 4 = 10) existing soil. Again, the infiltration depth is ONLY used for estimating an effective saturated hydraulic conductivity for subsequent calculations and is NOT used as a creditable runoff reduction depth. Table 10 is conservative in almost all cases (see further discussion in Appendix E Part 4 of the draft report – after the paragraph you reference). Conservative, in this case, means

		we weight underlying soil more heavily than simulations show it should be weighted.
MDE	4. The proposed method relies heavily on the regression between Ksat and CN as reported in Chong & Teng (1986). This critical reliance is questionable because infiltration rate and capacity are measurements in length/time. However, the CN equation is absent any element of time. Any relationship of Ksat to CN must introduce or infer an element of time like rainfall rate or intensity. MDE is concerned that because no such element is provided, the method is questionable at best.	We completely agree with your assessment of the unit discrepancy. In this instance, we're using Ksat as a soil characteristic and a "predictor" of infiltration potential. This use is similar to the empirical nature of the CN method where HSG and land cover are used to predict runoff potential even though the units of HSG and land cover are not equivalent to inches of runoff. Additionally, neither the Chong and Teng method nor the general CN method takes into account a host of other factors impacting runoff like slope, initial infiltration rate, macro pores, etc. The panel also thought it was important to leave the door open for more detailed rainfall-runoff modeling approaches (see Step 4 of Section 5.1.3) if desired.
MDE	5. Reliance on the Chong & Teng reference also should be justified in the context of the literature review guidelines identified in the minutes of the panel's September 15, 2015 conference call. The relationship between CN and infiltration capacity are dependent on storm duration, depth, and distribution, which are all features of local climate. There are distinct differences in climate and rainfall patterns between the Island of Oahu and the Chesapeake Bay watershed. MDE would find it helpful for the panel to explain why data from simulated rainfall experiments on one igneous soil on the Island of Oahu are "consistent with what is found in the CB Watershed?" The Chong & Teng paper is also based on a number of assumptions that should be clarified to justify its use in this context. Most significantly, event curve numbers are	The CN approach, by its nature, is a lumped model (i.e. simply rainfall and runoff with no time component). This method is used across the country (and internationally), and although many better rainfall-runoff models exist, this method is persistent in stormwater manuals (i.e. the MD manual) and working with those constraints was important to the panel for consistency and simplicity. The CN method was developed, in part, using sprinkle infiltrometers in watersheds representing 20 states across the country (MD, NY, and VA were represented). Due to development methods, the sprinkle infiltrometers used by Dangler in Hawaii were appropriately done. Rainfall patterns in the states used for CN development are, arguably, very different, as Arizona, Texas, and Oregon were included, so the CN model must not have been extremely sensitive to those

	computed for individual simulated rainfall experiments on a single soil series. In standard CN practice, a set of event CNs derived from a range of storm depths can be used to estimate the standard watershed or catchment CN. However, Chong and Teng estimate the event CN by relaxing the standard CN assumption that the initial abstraction (I_a) = 0.2S. While a number of alternate relationships between Ia and S have been considered, the resulting "curve number" values resulting from these alternate formulations cannot be meaningfully used interchangeably in standard CN calculations. The CN values being fit in their regression (and reproduced as eq. 5.1.3.2) are predicting non-standard CN values that are not comparable to standard NRCS curve numbers found in the familiar landuse-HSG lookup tables used by practitioners. Again, MDE would find it extremely helpful and important for the panel to explain its heavy reliance on this non-standard relationship for soils and Curve Numbers in the Chesapeake Bay watershed.	rainfall discrepancies. Woodward, Hawkins, Hjelmfelt, Mullem, and Quan (Curve Number Method: Origins, Applications, and Limitations, 2002) also makes the note that regional variations may be limited. Additionally, Christianson, Hutchinson, and Brown (2015/2016) found the Chong and Teng approach, developed over 10 different soils, to work decently with infiltrometer data from Illinois (over predicted CN by 3 points). Since the Chong and Teng approach uses the Ksat soil characteristic as a predictor in an empirical model we would expect a similar result given similar Ksat values. In other words, the Chong and Teng study used methods that should be applicable to all regions of the US. The Expert Panel therefore felt the climatic differences between the Island of Oahu and the Chesapeake Bay Area did not factor into the findings. We can make that clear in the literature review. Ultimately, it boils down to this method being conservative (i.e. estimating more runoff than is likely), simple, and reproducible. Other methods discussed like the VA method, based on a thesis by Holman-Dodds (2006), was not reproducible by the panel and would likely exclude many situations the panel thought would benefit from soil amendments. Additionally, other methods have been used to tie soil physical characteristics and rainfall patterns to CN (see chapters 4 and 5 of Soil Conservation Service Curve Number (SCS-CN) Methodology by Mishra and Singh in 2003), but all require substantial information/measurements or continuous simulation to make estimates. The CN look-up tables are forgone in this instance for simplicity. Though the panel started with this approach, they were dropped when no logical tie could be made between HSG/land cover and the addition of soil amendments. Though

		a non-standard CN value is being used, we are comparing differences in runoff volume using a consistent method. Consistency is brought by using the same method for estimating before/after runoff volumes based on quantifiable changes to the soil. Further, the direct comparison of these CN values with look-up table values is not expected.
MDE	6. There are numerous qualifying conditions that are less stringent than design criteria found in MDE's Design Manual for impervious area disconnects (i.e. – 10% slope max, allowing runoff from impervious cover length greater than 75 ft, a maximum drainage area limit) or are not specified (e.g., allowing impervious area to pervious area ratio of 15:1).	The qualifying conditions are for disconnection to amended soils which is a different practice than in the MDE design manual. The Panel report refers IC disconnection to un-amended soils to the Urban Filter strip panel. Also as per PADEP's request we will add the following language. *"The statements and procedures outlined in this Expert Panel Report are intended to supplement existing jurisdictional requirements. Nothing in the Expert Panel Report shall affect jurisdictional regulatory and other legal requirements."*
MDE	7. In Section 5 (see page 22) the panel proposes a default rate for planning purposes and "non-conforming projects." However, it is not clear what is considered a "non-conforming project?" Is this a soil amendment project that is less than 3 inches? Or is this for an existing condition with impervious disconnects without amendments? Likewise, it is not clear why a jurisdiction go through the trouble of implementing soil amendments with such a small credit (0.1 inches).	Great point. "Non-conforming" will be defined better. In Section 5.1.1 of the draft report, the default rate is restricted to the addition of 1 inch of compost incorporated to 3 inches into the native soil and an impervious to pervious ratio of 1 or lower. We agree, a jurisdiction should go through the more rigorous approach to determine credit, however as with most expert panel reports, we were obliged to provide a default credit however small, for projects that couldn't meet the qualifying conditions. Again, the panel was looking at the worst case scenario when defining the default rate.
MDE	8. Section 5.1.2 describes a simple method for calculating impervious area disconnection coupled with soil amendments. The simple method is to be used where "site specific soil samples are unavailable." It is unclear why site specific soil samples would be unavailable in situations where	Thank you for the comment. This was another point of discussion within the panel and the simplified methods were developed in response to the request for a default rate – these were a necessary mid-step. We agree, the absolute best approach would be to go through the full computation method, which would also give the highest credit. For planning

	soils are to be amended. Therefore, proper application of this method is questionable.	purposes, and to quickly compare the potential benefit from this practice to another type of retrofit, these curves work well.
MDE	9. Section 5.2.1 (see page 32) describes a protocol for online facilities. The examples provided include using BMP retrofits such as dry swales, linear bioretention, and wet swale conversion. The protocol describes how to determine credit based on runoff depth treated from the impervious area draining to the practice. However, this section is outside the scope of the remainder of this document as there is no mention of how these practices relate to impervious disconnections or to soil amendments. In addition, there are already approved expert panels that describe how to determine credit for these practices. MDE recommends this section should be deleted.	The Panel charge was to evaluate "the potential to retrofit existing drainage networks on a site to achieve full or partial impervious disconnection. While we couldn't find new BMPs, we felt it necessary to show how existing runoff reduction practices within the conveyenace system can be used for disconnection. We have made this clear throughout this section indicated by the highlighted language "*the purpose of including them here is to provide additional details and examples beyond the information provided in the Retrofit Panel Report to show how they can be utilized as part of impervious disconnection."* and *Step 1. Estimate the Runoff Volume (Rv) for the drainage area, which should include any additional disconnected impervious cover draining to the facility. This step is important to ensure that the additional runoff generated from impervious disconnection can be safely conveyed in the drainage network (Step 3) and that minimum residence time is achieved (Step 4).* The panel decided to include these practices and conferred with T. Schueler who felt the Expert Panel Report should provide more detailed examples of how runoff reduction practices within the conveyance system can be used for disconnection of impervious cover.
MDE	10. Also in Section 5.2.1 (see page 33), there is a practice, "extending the flow path of an existing ditch", described as a runoff reduction practice. However, the description states that the credit is minimal because of a lack of storage volume	Thanks for the suggestion. We will remove this practice from the list.

	and filtering. MDE recommends removing this practice as runoff reduction unless specific design criteria are provided for retrofitting to an acceptable practice.	
VA DEQ	I do not have any substantial comments related to the Impervious Disconnection BMP. However, given the extensive qualifying conditions that must be met and information that must be submitted to determine credit eligibility, it would be useful if the panel could create a checklist and/or certification document for localities to use when seeking credit.	Thank you for the suggestion. We will work on developing a checklist
DC DOEE	This email is to inform you that the District Department of Energy and Environment has reviewed the report from the BMP expert panel for Impervious Disconnection and we do not have any comments. Comments were due to you by COB June 21, 2016. Thank you for the opportunity to review the report.	Thank you for your review.