

**Delaware’s Chesapeake Bay Watershed Implementation Plan
Public Comments on Phase I and Phase II
and
Responses Provided by the Chesapeake Interagency Workgroup**

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INTRODUCTION

To follow the aggressive schedule and achieve the requirements set by the Environmental Protection Agency's Total Maximum Daily Load for the jurisdictions within the Chesapeake Bay watershed, Delaware's Department of Natural Resources and Environmental Control (DNREC) convened the Chesapeake Bay Interagency Workgroup to assemble the State's Phase I and II Watershed Implementation Plan (WIP). This Workgroup was divided into eight subcommittees to address the issues present in the WIP; they are: Agriculture, Stormwater, Wastewater, Land Use and Comprehensive Plans, Restoration, Public Lands, Funding, and Information Technology. The subcommittees provided recommendations and reviews on the sub-allocating methodologies for the various point and nonpoint sources within the basins, assessments of current data tracking and reporting systems, determined maximum implementation goals and methods to fill program and funding gaps, and assisted with writing and providing information for the Watershed Implementation Plan. A ninth subcommittee focused on Communications was formed toward the end of the Phase I process.

Phase I

Delaware released its Draft Phase I Watershed Implementation Plan for public review on September 1, 2010. DNREC and the Interagency Workgroup members presented the WIP to various stakeholders and interested parties from mid-September to late-October 2010, and received comments and questions through October 31, 2010.

Comments were received from representatives of towns, counties, industries, and individuals that felt directly impacted by the measures Delaware intends to take to reduce its sediment and nutrient inflow into the Chesapeake Bay. Also during this period, EPA reviewed Delaware's WIP and identified what they considered were several serious deficiencies. Delaware's final WIP took both the EPA and public comments input into consideration, and was submitted to EPA on November 29, 2010, and is available at http://www.wr.dnrec.delaware.gov/Information/Pages/Chesapeake_WIP.aspx. Upon review of DE's final Phase I WIP, EPA approved this plan with ongoing oversight. EPA used Delaware's Phase I WIP to establish the Bay-wide TMDL in December 2010.

Phase II

Work on Phase II of the WIP began in 2011. A preliminary draft of Delaware's Phase II WIP was released for public comment November 28, 2011 and several comments were received prior to submitting the draft document to EPA on December 15, 2011. The public comment period on the Draft Phase II plan remained open through March 21, 2012. EPA provided comments from their review of the Phase II WIP in February 2012 as well. DNREC has addressed the many concerns, questions, and comments below, which are separated by the section they reference, and are each followed by a response.

FUNDING

Phase I

1. **Funding – It seems that this the central issue. Even if we could to do everything...how do we pay for it? Unlike Executive Orders, Congressional Legislation is required to undergo fiscal evaluation. As you discussed, there is no projection for the cost of attainment. I believe some measure of the cost, both in NPV and annualized following attainment (long-term O and M) must be identified. Has the EPA speculated on anything regarding this?**

The DNREC and partner agencies plan to work on identifying annual and long-term costs of attainment upon approval and adoption of a “final” implementation plan as well as funding strategies. Several organizations have attempted to estimate the total cost of Bay Cleanup in the last 20 years for the entire Bay watershed, with costs ranging in the tens of billions of dollars bay wide. The Federal government has developed a 2011 Action Plan, which has targeted \$491 million bay wide for fiscal year 2011 for Chesapeake Bay Restoration activities to meet specific goals set in President Obama’s Executive Order.

2. **As I mentioned at the meeting, it would make sense if a revolving fund were set up to assist with projects for the Chesapeake Bay drainage area. Funding could be awarded annually for projects on a competitive basis or prioritized based on effectiveness. It would make sense to approach projects in the watershed as a whole, rather than slicing it up solely by allocation, especially in our case, as all of our runoff passes through another state’s jurisdiction.**

The Department of Natural Resources and Environmental Control and its partners will consider this recommendation as we further develop funding options to achieve our water quality allocations. We currently receive federal grant dollars for implementation of nutrient reducing strategies. We are working to develop a more efficient process to prioritize viable projects for funding.

3. **We are baffled by DNREC’s claim at public meetings that the University of Delaware Water Resources Agency (DRAFT PROGRESS REPORT – August 25) indicates that the socioeconomic value of the Chesapeake Bay Watershed in Delaware, the total value of the natural goods and services in the Delaware portion of the watershed, is \$110 billion when the report we have seen estimates a roughly \$1 billion impact. The recently released report estimates that Delaware’s portion of the Chesapeake Bay Watershed is directly or indirectly responsible for more than 47,000 jobs, contributes roughly \$1 billion in annual economic activity, and provides at least \$3.1 billion annually in natural goods and services – drinking water and irrigation supply, agriculture, wetlands, habitat, forests and recreation. This \$110 billion number seems an extraordinarily large amount. We hope DNREC’s significantly higher \$110 billion citation is an honest mistake and not an attempt to overinflate the value of the natural goods and services in the Delaware portion of the bay watershed just to generate additional support for its efforts to create more programs and more requirements on Delaware’s farmers. (Referencing Presentation)**

The report titled “*Socioeconomic Value of the Chesapeake Bay Watershed in Delaware*” Draft September 1, 2010 prepared for the Delaware DNREC by the University of Delaware Water Resources Agency has concluded that the annual economic contribution from agriculture, water quality, water supply, ecotourism/recreation and climate control benefits is over \$1 billion per year. However the perpetual lifetime value of ecosystem services over 100 years, using 2010 dollars is estimated to be approximately \$110 billion for the same resources.

Phase II

4. **Because of the very large costs of the proposed remedial measures in this WIP, and the ripple effects of influence over other Delaware State programs, high-level executive and legislative inputs to this program are critically important. Without their input, substantial concerns arise related to the potential absence of Delaware's ability to pay for the proposed approaches, and concerns regarding the potential absence of due process, the potential absence of equity, and the potential absence of public recourse for problematic program elements. Without the ability to pay, and appropriate due process, equity and public recourse, the probability of litigation rise substantially.**

Noted – Thank you for your comment. The Department will work with its partners and stakeholders to ensure the costs of the implementation of the measures within the WIP will be born equitably and through due process as appropriate.

5. **No comprehensive evaluation of cost to the citizens of Delaware has been prepared. Not only do we not know which methods are effective, but we do not know how much they will cost collectively on an annual basis or in aggregate.**

Noted. Thank you for your comment. EPA staff are currently evaluating the cost of implementation of Phase I of the WIP. We anticipate this document to be available in mid-2012. We will update that document as appropriate to reflect any additional costs as a result of the Phase II WIP and to ensure a comprehensive cost evaluation. As a cost savings to Delaware tax payers, the Department opted to wait for EPA's assessment of costs instead of spending additional tax dollars to do two assessments – one by EPA and one by the Department. Additionally, where possible, we will provide estimated cost information in the final version of Phase II WIP.

6. **Costs:**

The total cost of compliance based on the programs identified in the WIP has not been quantified. From different sections of the Phase II WIP, some costs are:

	<u>2010 \$ (Estimated)</u>
Eradication of Septic Systems:	\$105 million (Minimum)
	(Actual as listed on Pages 93, 95 and 100 = 10,629 eliminated by 2017 for a cost of \$266 million dollars)
Additional Expenses, Kent	
County Conservation District:	\$8 to \$16 million (Annually)
Additional Expenses, Sussex	
County Conservation District:	\$10 to \$20 million (Annually)

Noted. Thank you for your comment. EPA staff are currently evaluating the cost of implementation of Phase I of the WIP. We anticipate this document to be available in mid-2012. We will update that document as appropriate to reflect any additional costs as a result of the Phase II WIP and to ensure a comprehensive cost evaluation. As a cost savings to Delaware tax payers, the Department opted to wait for EPA's assessment of costs instead of spending additional tax dollars to do two assessments – one by EPA and one by the Department. Additionally, where possible, we will provide estimated cost information in the final version of Phase II WIP.

7. **The funding, Grant and Cost elements described on Pages 268 et. al. is grossly incomplete. The \$33 million listed on Page 270 is clearly insufficient in its estimation of total program cost and shortfall in funding. Ultimately, the citizens and resident of Delaware will bear this burden squarely on their shoulders. It is clear that the cost for implementation will exceed several hundred million dollars.**

An update of costs and sources of funding will be provided in the Final Phase II WIP. A cost assessment by EPA will also be available as a separate document in mid-2012.

MODELING/PROCESS QUESTIONS

Phase I

1. **Can you please describe the process that was used to determine the boundary lines for individual watersheds? For example, in Upper Nanticoke River (NANTF_DE) the layer (or shape file) 10005ELO_4560_4562 SUSSEX. Exactly how were those boundaries determined?**

The watershed boundaries shown in Delaware's WIP come from EPA's watershed model. It is best to ask EPA directly how the boundaries were determined. Watershed boundaries are typically determined by connecting the highest elevations around a particular water feature-surface waters (overland runoff, streams/tributaries) all flow down slope to the receiving water body. EPA has additionally, broken a watershed segment if it crosses state and county boundaries.

2. **Also, why is it assumed that all water within these areas drains to the Chesapeake Bay? There are plenty of isolated wetlands and isolated lowlands, especially in Sussex County, that do not drain into any watershed (and thereby the Chesapeake Bay) at all.**

An isolated wetland or isolated lowland still has a watershed and those lands are connected hydrologically to local surface water features through groundwaters.

3. **Section 2.3.2 states that Pollution Control Strategies for the watersheds are designed by TAT (Tributary Action Teams); however, the section appears to state that only 2 TAT (Tributary Action Teams) have been formed. Are there only 2 TATs or are there more and if so can you please list them? (Page 26)**

DNREC has worked with Tributary Action Teams across the state to develop a local set of recommendations for a pollution control strategy (which in most situations, the Department then develops) to achieve local water quality goals. There have been 9 Tributary Action Teams formed across the State of Delaware (see the color coded map on page 26). Two of those teams have been in the Chesapeake. The Nanticoke Team was formed in 1998 and covers the Nanticoke river watershed and the tributaries draining to it (Gum Branch, Gravelly Branch, Deep Creek, and Broad Creek). The Upper Chesapeake team was formed in 2007 and covers the Chester and Choctank watersheds.

4. **How is the EPA going to coordinate six separate plans? It seems unlikely that six completely different approaches all working toward a similar goal will achieve that goal if there is no framework for coordination. If there is some backdrop for how this is intended to work effectively, it should be included in our plan. We should also identify all of EPA's obligations to us, here in Delaware that are instrumental to the success of our plan. (Funding).**

This question regarding EPA's coordination plan should be directed to EPA for a specific response. We suggest you review Section 7.2 of the Draft Chesapeake Bay TMDL, which discusses EPA's Accountability Framework. One item of this framework is the development and implementation of the Chesapeake Bay TMDL Tracking and Accountability System (BayTAS), which will track and assess progress made by each jurisdiction. Delaware is participating in calls with EPA to provide input on the development of this tool. Delaware will consider referencing this information in the Phase II WIP, as well as any commitments from EPA and other federal, state, and local agencies that are instrumental to the success of our plan.

5. **I recall that the initial basis of the CWA in 1977 was to regulate interstate waters. All of Delaware's Chesapeake Drainage passes through another jurisdiction, just as WV and PA compared to the other states. This is not addressed at all in the WIP and should warrant special consideration. We should also include all of the allocations, not just ours. This is especially important because, if compliance at a State boundary is the metric, Pennsylvania should not be able to lay claim to the Conowingo Dam as their point of compliance. Let's all have a level playing field. If I were Maryland, I would claim that since the accumulation behind the dam is within MD waters, then there should be an excess reserve for the balance of the State....after all – it's an "input/output" model, right?**

The EPA's Watershed Model P5.3 considers all attenuating factors and fate-and-transport processes that are involved when nutrients travel over land from one subwatershed or jurisdiction to another subwatershed or jurisdiction on their way to the main stem of the Bay. The proposed allocation for each jurisdiction has considered and has incorporated all those attenuating factors.

Commenter's suggestion for the need to include other jurisdictions allocations in the WIP may be more applicable and useful for States, such as Maryland, that part of nutrient loads that they deliver to the Bay are coming from other jurisdictions. However, in the case of Delaware, sine all nutrient loads that are delivered to the Chesapeake Bay are generated within the State boundary, inclusion or reference to other States allocations is not necessary.

Finally, regarding commenter's question about PA considering Conowingo Dam as its point of compliance, the following two points are provided which justify PA's position:

The drainage area within Maryland between PA State boundary and Conowingo Dam is very small compared to the size of the entire Susquehanna River watershed at that location. Therefore, considering Conowingo Dam as the point of compliance for PA will not introduce significant amount of error.

Considering 1 above, and from a practical point of view, it is much easier to monitor and track nutrient loads coming from PA to the Chesapeake Bay at Conowingo Dam than at PA State boundary, which does not have appropriate site for measuring flow and nutrient loads.

6. I understand that the EPA has written a WIP for states that do not comply. Is it possible to get a copy of their WIP for review?

EPA will only write a WIP if and when states either choose not to write a WIP of their own or if the jurisdictions WIP does not meet the necessary pollutant reductions or provide adequate reasonable assurance that the load reductions can be achieved. Following the submittal of draft Phase I WIPs to EPA on September 1st, EPA released a set of "backstop allocations" for each jurisdiction. EPA's backstop measures focused on tightening controls on federally permitted point sources of pollution, such as wastewater treatment plants, large animal agriculture operations, and municipal stormwater systems.

The draft Phase I WIP that Delaware submitted to EPA on September 1st did not numerically achieve the loading reductions for nitrogen or phosphorus (the sediment allocations were achieved). Additionally, EPA did not feel that draft Plan provided enough reasonable assurance that 60% of the load reductions could be achieved by 2017 or that 100% could be achieved by 2025. Therefore, EPA instituted in their draft TMDL on September 24th, backstop allocations requiring more stringent limits on Delaware's major wastewater treatment plants, significant retrofit goals for urban stormwater, and considered all animal feeding operations to be regulated.

EPA evaluated DE's Phase I final WIPs after it was submitted on November 29th and determined that the EPA backstop allocations could be removed since the final Phase I Plan was able to achieve the necessary load reductions.

7. I am astonished to learn that the potency of our nutrients is predicated on our C and D soils. No other jurisdiction has C or D soils? Clearly, the travel time through the Atlantic Coastal Plain should be far more than the Western Shore's Piedmont, therefore allowing greater opportunities for natural attenuation. Right?

EPA's Watershed Model Phase 5.3 has considered all attenuating factors and fate-and-transport processes that are involved when nutrients travel over land from a subwatershed or jurisdiction to another subwatershed or jurisdiction on their way to the main stem of the Bay. These factors include, but are not limited to soil type, topography, travel time, etc. The proposed allocations for Delaware has already considered and incorporated all these attenuating factors. Therefore, commenter's concerns are already considered and addressed by the Chesapeake Bay Models.

8. Our point of compliance is at the State line, and we are not afforded any "benefit" for additional travel time through Maryland? Well as previously discussed – this same criterion should apply to PA.

The P5.3 Chesapeake Bay Watershed Model has considered all attenuating factors and fate-and-transport processes when nutrients travel from their point of origination to the tidal waters of the main stem Bay. These factors include, but are not limited to soil type, topography, travel time, etc. The proposed allocations for Delaware has already considered and incorporated all these attenuating factors. Therefore,

nutrient reductions that will occur naturally as nutrients travel from DE and PA to main stem of the Chesapeake Bay are already accounted for and are reflected in each jurisdictions allowance.

9. **As I mentioned in the meeting, it would be appropriate to normalize the contributions by acreage, user, etc. to portray a more comparable metric for comparison.**

Thank you for this suggestion – we may utilize this approach when communicating load reductions goals to stakeholder groups for the implementation of our Phase I Plan and/or during the development of our Phase II Plan.

10. **Maryland has completed an evaluation identifying fundamental flaws in the EPA model. I have attached it for your use – it is very informative.**

Thank you for providing this report.

11. **Page 18 - Over the 33 years since the CWA, there should be trending or comparative analysis by regulation window, growth and water quality. This relates to the juxtaposition between increased regulation and increased impairment. For example, why with enhanced regulation are more rivers, lakes and streams reported as impaired? Has the method changed? Requirements changed? Without normalizing those conditions, a true assessment of progress or lack thereof cannot be established.**

The commenter is asking an excellent question of why the number of impaired waters has increased since inception of CWA and introduction of additional regulations. We offer the following two reasons: As the result of new regulations, States and jurisdictions are monitoring their waters more fully and comprehensively. This additional monitoring has resulted in detecting more impaired waters that would not have been detected if comprehensive monitoring was not implemented.

Increased number of impaired waters indicates that existing regulations are not sufficient to protect our surface and ground waters from increased pollution caused by population growth, development, etc. Therefore, additional pollution control measures, such as the TMDLs, are needed to stop and reverse these declining water quality trends.

12. **Page 132 – Air deposition of Nitrogen. (N₂ makes up 78% of Atmosphere) So how is the airshed (proposed by EPA) to be modified for different compounds and particulates, as some have reflection and others do not.**

The phenomenon of atmospheric deposition is quite complex and atmospheric deposition as a source of nitrogen pollution to the Chesapeake Bay plays an important role in the nutrient management of the Chesapeake region. A significant portion of the nitrogen that reaches Chesapeake Bay comes from atmospheric deposition. Much of the deposition falls onto the land and some portion of it runs off and reaches the Bay the extent of which depends on many factors including the distance to the Bay and type of land cover. Deposition depends on a number of processes including dry and wet deposition, gas-phase and liquid-phase chemistry, and transport and removal.

Dry deposition is a significant pathway of removal of pollutants much more than the wet deposition, as it operates continuously. A number of factors govern the dry deposition of gases or particulates including the chemical properties of depositing species and the nature of the surface itself. Wet deposition includes scavenging due to rain, snow, clouds and fogs. The compounds may undergo change during scavenging and deposition.

Atmospheric reactions modify the physical and chemical properties of pollutants in air, thus changing removal rates and influencing acid deposition rates. Atmospheric nitrate sources can exist in different forms – gas phase, aqueous phase, and aerosol phase. Both NO and NO₂ have low solubility in water. Virtually no NO_x is removed from fresh plumes. HNO₃ formed by gas-phase oxidation of NO₂ is very soluble in water and the principal source of nitrate in precipitation.

Another complexity to the atmospheric deposition is to properly address the long-range transport of pollutants. Gaussian plume models are good for assessment of local atmospheric nitrogen deposition

within distances of 1 to 50 km. They cannot address the effects of long-range transport, and treatment of gas-phase and aerosol-phase chemistry. Therefore, regional-scale Eulerian models are recommended for properly modeling the effects of long-range transport and gas- and aerosol-phase chemistry of deposition. The U.S. Environmental Protection Agency (EPA) has developed and released one such model - Models-3/Community Multi-scale Air Quality Model (CMAQ). Models-3/CMAQ is a three-dimensional grid-based air quality model that can be applied to simulate ozone (O₃) and other photochemical oxidants, particulate matter (PM), and the deposition of pollutants such as acids (i.e., sulfate, nitrate), nitrogen species, and toxic air pollutants. CMAQ can be used to estimate deposition resulting from a number of scenarios including current conditions and future emissions reductions that are expected due to EPA rules, other regional- and local-controls, and other programs.

CMAQ produces gridded output; typical grid sizes are 36, 12, and 4 km. Watersheds do not conform to the grid layout of CMAQ. The linkage between air and water needed for establishing the Total Maximum Daily Load (TMDL) is established by mapping the CMAQ results to the watersheds. This linkage then allows water quality management plans to include the reductions in atmospheric deposition produced by the air regulatory community in their calculation of loadings to the watershed.

If the commenter still has any questions or needs any additional information, please feel free to contact Mr. Ali Mirzakhali, P.E., Director of the Division of Air Quality (302-739-9402 or Ali.Mirzakhali@state.de.us).

- 13. Sediment loading reductions – what is the basis for annualized loadings? Is it based on the Universal Soil Loss Equation? I have found that the USLE consistently over-estimates erosion rates. Remember, soil loss due to construction E&S is a TRANSIENT condition. How is this accounted for?**

Various sources including USLE and literature values are used in the Chesapeake Bay Watershed Model P5.3 to assign initial values for sediment loads for various land use/land covers within the Bay Watershed. However, those assigned initial values were adjusted during the course of model calibration based on sediment values observed during monitoring efforts to reflect actual sediment loads for each watershed.

- 14. There are many references to previous studies, rules of thumb, etc. without engaging the underlying science. Statements like “...studies have shown...” introduces ambiguities and tends to distort the factual basis of those conclusions to the point where the statement becomes the fact, rather than the facts themselves. It is interesting to note that the WIP indicates 4% impervious within the Chesapeake Bay watershed, which is tremendously lower than “what studies have shown.” It would be proper, rather, to augment the conclusion or statement of fact with some qualification as to how that statement applies to this (our) conditions here in Delaware.**

Thank you for this comment. We have tried to correct these statements in our final Phase I Plan and will try to be more conscientious of the use of ambiguous phrases as we write Phase II of our WIP in 2011.

- 15. For the transparency of information evaluation, Delaware’s draft WIP is well-organized and uses a consistent format for each sector that makes finding information easy. Delaware touches on each of the required elements but does not explicitly disclose all the information listed in EPA’s guidance. For the strength of program evaluation, Delaware does not provide sufficient detail to verify its claims or provide assurance that its allocations will be achieved.**

EPA also commented that the level of reasonable assurance provided in our Draft Phase I was insufficient. Delaware’s Interagency Workgroup and supporting Subcommittees have worked closely with EPA staff over the fall to address specific reasonable assurance concerns. In many situations, we needed to provide additional details on our existing or proposed future programs to satisfy these concerns. We believe that all issues have been addressed in the Final Phase I Plan submitted to EPA on November 29th.

- 16. The draft WIP would lower sediment pollution to a level that is 20 percent below the target allocation. However, the draft WIP still permits nitrogen and phosphorous discharges to be 17 and 8 percent, respectively, more than the level allowed by the target allocation.**

The commenter is correct, the Draft Phase I Plan submitted to EPA on September 1st, did not achieve the necessary nitrogen and phosphorus allocations. During the fall, Delaware’s Interagency Workgroup and

supporting Subcommittees have reviewed various scenarios where implementation levels were increased and the Final Phase I Plan submitted to EPA on November 29th was able to numerically achieve all loading allocations.

17. **Delaware's section on air does not discuss the state authorities available to control air emissions. However, the draft WIP states that there is "little left" in Delaware's regulatory arsenal to further reduce nitrogen pollution from regulated sources and that, even if more stringent controls were identified, Delaware would see little impact due to the location of sources and climatic patterns.⁹ As a result, Delaware would like to see EPA tighten federal rules under the Clean Air Act to reduce the air pollutants that reach the state from surrounding states. Because Delaware does not disclose information about its state air program, its claim that there is "little left" is difficult to evaluate. In the final WIP, Delaware should disclose more information that would allow a better evaluation of its program.**

Our position that there is "little left" in our arsenal is based on the fact that Delaware does not have any point sources of air emissions in the Chesapeake drainage. The atmospheric nitrogen that falls in Delaware originates in the states to our west. Due to predominately west to east prevailing winds and climatic patterns, any changes in Delaware's air programs would benefit, not the Chesapeake within Delaware, but lands and waters to our east. Therefore, Delaware has encouraged the federal government to set more stringent controls in order to increase the minimum standard for all states to our west. We will take the suggestion to include more specific details on our air program in Phase II of our WIP, however, as discussed above, it will be for more of a reference for other states as it has little if any relevance to the Chesapeake in Delaware.

18. **One of the key areas of focus for APA has been the use of algae-based technologies to help reduce nutrient loading on wastewater treatment. I am offering the following comments for your consideration and review for inclusion as part of the overall comprehensive strategy you have undertaken:**
The potential use of algae-based technologies to reduce nutrient loads is a recognized technology. The US Department of Energy Aquatic Species Program identified this technology as a viable use of the nutrients inherently present in wastewater treatment facilities. We have demonstrated the ability to significantly reduce nutrient loads at multiple sites. The data summarized below is a compilation of results obtained from four separate sites located across multiple northern and northwestern states and includes both wastewater treatment facilities (up to 8M GPD capacity) and industrial facilities

Thank you for this information. Delaware is interested in further exploring the use of algae-based technologies and made note of this in our Final Phase I WIP.

19. **In this first draft, PA, NY, VA, WV, and DE failed to make the hard choices necessary to meet allocations. Each state should revise its WIP to identify pollution reduction programs sufficient to meet EPA's allocations.**

The commenter is correct, the Draft Phase I Plan submitted to EPA on September 1st, did not achieve the necessary nitrogen and phosphorus allocations. During the fall, Delaware's Interagency Workgroup and supporting Subcommittees have reviewed various scenarios where implementation levels were increased and the Final Phase I Plan submitted to EPA on November 29th was able to numerically achieve all loading allocations. Additionally, EPA also commented that the level of reasonable assurance provided in our Draft Phase I was insufficient. Delaware's Interagency Workgroup and supporting Subcommittees have worked closely with EPA staff over the fall to address specific reasonable assurance concerns. In many situations, we just needed to provide additional details on our existing or proposed future programs to satisfy these concerns. We believe that all issues have been addressed in the Final Phase I Plan submitted to EPA on November 29th.

20. **PA, NY, VA, WV, and DE may not avoid their legal obligation to ensure that pollution in their state does not contribute to the violation of downstream water quality standards by refusing to engage in the WIP process or by offering facially inadequate plans.**

Delaware has been an active partner in this process and remains committed to achieving water quality standards.

21. **EPA Lacks Authority to Approve, Disapprove, or Unilaterally Change Watershed Implementation Plans. Section 303 of the Clean Water Act Does Not Give EPA TMDL Implementation Authority.**

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

22. Section 117 of the Clean Water Act Does Not Authorize EPA Control Over TMDL Implementation.

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

23. An Executive Order Does Not Grant EPA Authority to Approve State WIPs.

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

24. The Concept of “Reasonable Assurance” Does Not Authorize EPA Control Over TMDL Implementation.

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

25. EPA Cannot Require States To Take Specific Implementation Measures.

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

26. Object to State Permits That Do Not Meet the Requirements of the CWA, Including Permits With Effluent Limitations That Are Not Consistent With the Chesapeake Bay TMDL WLAs.

The commenter has pointed out that “the question of whether or not EPA can object to a state permit on the grounds that the permit does not match a wasteload allocation given to that point source by EPA in the final Chesapeake Bay TMDL will depend on whether or not the final Chesapeake Bay TMDL is lawfully established.” This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

27. EPA has no authority to require net improvement offsets for new or increasing discharges. The only way for EPA to carry out this threat is to object to a state-issued permit and then claim that it is inconsistent with the CWA. The CWA requires effluent limitations to ensure discharges do not cause or contribute to the violation of water quality standards. A net improvement requires a source to over-control, beyond what is needed to avoid causing or contributing to a violation. A source may voluntarily over-control, to create an offset. However, nothing in the CWA allows EPA to object to a permit in order to compel a source to control discharges beyond what is necessary to ensure that the specific discharge does not cause or contribute to a violation of a water quality standard.

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

28. Require Finer-scale Wasteload Allocations and Load Allocations in the Chesapeake Bay TMDL Than Those Proposed By Watershed Jurisdictions in Their WIPs. By setting wasteload allocations for individual homes, and by proposing fine-scale load allocations, EPA has overstepped its bounds and is attempting to dictate the implementation of the TMDL. As EPA notes, “there are limitless combinations of loadings.” Draft TMDL, at 6- 18. This statement is an admission that EPA is encroaching on state implementation authority.

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

29. Require Additional Reductions From Point Sources. EPA has revised the point and nonpoint source reductions proposed by Delaware. “EPA is making additional point source reductions and, in some cases nonpoint source reductions, as necessary to achieve Bay TMDL nitrogen, phosphorus, and sediment allocations.” Draft TMDL, at 8-2.

Following the submittal of draft Phase I WIPs to EPA on September 1st, EPA released a set of “backstop allocations” for each jurisdiction. EPA’s backstop measures focused on tightening controls on federally permitted point sources of pollution, such as wastewater treatment plants, large animal agriculture operations, and municipal stormwater systems.

The draft Phase I WIP that Delaware submitted to EPA on September 1st did not numerically achieve the loading reductions for nitrogen or phosphorus (the sediment allocations were achieved). Additionally, EPA did not feel that draft Plan provided enough reasonable assurance that 60% of the load reductions could be achieved by 2017 or that 100% could be achieved by 2025. Therefore, EPA instituted in their draft TMDL on September 24th, backstop allocations requiring more stringent limits on Delaware's major wastewater treatment plants, significant retrofit goals for urban stormwater, and considered all animal feeding operations to be regulated. EPA stated that they would evaluate final WIPs after they are submitted on November 29th to determine if EPA backstop allocations can be replaced with sufficiently improved state commitments.

The Final Plan Delaware submitted numerically achieved the necessary allocations. In addition, Delaware's Interagency Workgroup and supporting Subcommittees have worked closely with EPA staff over the fall to address specific reasonable assurance concerns. In many situations, we just needed to provide additional details on our existing or proposed future programs to satisfy these concerns. We believe that all issues have been addressed in the Final Phase I Plan submitted to EPA on November 29th.

- 30. EPA has prosecutorial discretion to determine what sources it targets for enforcement against actual violations of the CWA. EPA does not have authority to coerce state action through unfounded enforcement measures. Thus, the threat of increased EPA enforcement against actual CWA violations should have no bearing on state TMDL implementation.**

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

- 31. EPA can only give grants to states pursuant to an authorization by Congress. Congress generally spells out the purpose and terms of the grant. EPA has no authority to redirect or withhold certain grants, particularly those that are allocated based on a statutory or regulatory formula such as title VI state revolving loan fund grants and section 106 program implementation grant. Even for other grant monies, EPA cannot arbitrarily choose to withhold state funding because it does not like a state WIP. Congress appropriates money for specific purposes. For example, funding for nonpoint source management programs under section 319 of the CWA is conditioned on a state's development of a nonpoint source management program, not a WIP to implement a federal TMDL.⁸ EPA must implement Congressional appropriations as Congress intends and lacks the authority to redirect appropriated monies to carry out its own agenda.**

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

- 32. EPA's authority to issue federal numeric nutrient standards is limited. Section 303(c)(4) of the Clean Water Act authorizes EPA to issue a new or revised water quality standard in a state only if EPA determines that a new or revised state standard is not consistent with the applicable requirements of the Act, or if EPA determines that a new or revised standard is necessary to meet the requirements of the Act. 33 U.S.C. 1313(c)(4). EPA has approved the water quality standards in the Chesapeake Bay states (some modifications are pending). EPA has no basis to say that federal standards are necessary because it does not agree with a jurisdiction's WIP. Thus, it cannot use this threat to coerce a state into changing its WIP.**

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

- 33. The CWA does not Provide EPA with Authority to Establish the Draft TMDL. As noted above, EPA has backstop authority to establish a TMDL when a state fails to act or establishes an invalid TMDL. See footnote 2 and accompanying text. However, that authority is not limitless. EPA has exceeded those limits by proposing to establish a TMDL without waiting for state action, and by proposing to establish a TMDL that encroaches on state authority.**

This is a legal question. Delaware has been an active partner in this process and remains committed to achieving water quality standards.

- 34. We are concerned that EPA is not allowing into the model the benefits from several on-farm best management practices. These practices largely are supported by the NRCS EQIP program. Practices are not permitted in NRCS and conservation district cost-share programs without valid data to show their effectiveness for conservation and water quality improvements. EPA, however, will not allow some of these practices, recognized by one Obama government agency to be**

effective, to be included in another Obama government agency's program. Even within EPA there is disparity in positions. For instance, EPA enforcement personnel stress the desirability or need to have heavy use area pads, kept clean by the owner, but the TMDL persons in EPA do not accept them as useful and thus do not allow their water quality benefits to be included in the model. University of Delaware research about 15 years ago showed that manure left on the ground outside the chicken house end doors after each flock without pads was a source of poultry farm nitrogen loading and subsequent measurements on other farms found this loading represents the nutrient equivalent up to 10 to 15 tons per acre of litter that was land applied every flock cycle. With the pads, this nutrient level is significantly lower and is closer to zero.

Thank you for this comment. We plan to work with EPA to incorporate several additional practices into the model during future phases of the WIP, including heavy use area protection pads. We agree there are inconsistencies with the acceptance of this particular practice and hope that the Delmarva Poultry Industry can continue to provide needed information and data to help support the inclusion of this practice, and possibly other practices, into the model.

35. While EPA may claim that pads are impervious surfaces that work against water quality, they provide considerable water quality benefits especially with the expectation that they be kept clean on CAFOs. The state of Delaware needs to insist that EPA include in the model all on-farm practices that receive NRCS and conservation district cost-share dollars.

Thank you for this comment. We plan to work with EPA to incorporate several additional practices into the model during future phases of the WIP, including heavy use area protection pads. We agree there are inconsistencies with the acceptance of this particular practice and hope that the Delmarva Poultry Industry can continue to provide needed information and data to help support the inclusion of this practice, and possibly other practices, into the model.

36. If there was an oversupply of chicken manure on the Delmarva Peninsula, this goal would be easier to attain. However, crop farmers without chickens struggle to get litter/manure at an affordable price. Many chicken farmers are adding income to their farms by selling manure. If it becomes more cumbersome or illegal to use organic fertilizers on fields, then more manure might need to be transferred out of the watershed or sent to alternative use facilities.

EPA's continued insistence on the development of more alternative use facilities and technologies fails to recognize the under-used organic fertilizer plant in Sussex County. This facility, offered free of charges to chicken growers throughout Delmarva, has difficulty getting enough litter/manure to operate at full capacity. EPA's efforts could be better spent on helping with transportation costs of the finished Perdue AgriRecycle products than constantly calling for the development of high priced, complex, on-the-farm or centralized alternative use facilities. We already have such a facility in Delaware. Money provided for government grants to research new technologies and the grants/loans available to farmers to install and operate such systems would be more efficiently used by providing transportation assistance to the finished products from the Perdue AgriRecycle plant.

Additionally, the state of Delaware should investigate the use of litter baling to reduce transportation costs and work to make such a practice eligible for EQIP and conservation district cost share. A new technology consisting of baling and plastic wrapping of litter is under development in other parts of America. Bales offer some special advantages for handling litter including the use of open field storage, better opportunities for truck back hauls, and preservation of nutrients, mainly nitrogen. The expected cost of baling litter is about \$5 per ton, which is considerably less than other processing methods. Baling offers more advantages. Many different types of trailers can be used in the transportation of bales precluding the need for clean-up costs, baled litter is much denser than raw litter, nutrients are preserved and this prevents odor problems, bales provide biosecurity protection, and bales can be stored outside at the destination field without cover.

Thank you for this comment. The Agriculture Subcommittee will take this information into consideration and may modify action items related to relocation during the Phase II WIP based on this comment.

Phase II

37. US EPA relies heavily on numerical modeling for a comparison of Delaware's actual program effectiveness with the expected effectiveness based on modeled input parameters. Without an opportunity to test Delaware's program elements against that same model, DNREC cannot be certain that Delaware's program will be effective - or cost-effective.

Delaware provides to EPA several spreadsheets, called "input decks," that contain specially formatted information about the level of implementation for numerous best management practices for both the point

sources and non-point sources (Ex – number of acres of cover crops implemented by county within the Chesapeake drainage in Delaware). These spreadsheets are then fed into the EPA Chesapeake Bay Program’s watershed model to evaluate as a future loading scenario. Therefore, the actions described in Delaware’s WIP that have an approved effectiveness estimate are tested using the EPA model. There are programmatic goals also described in the WIP that are not modeled because the effectiveness is either unknown or cannot be assigned a numeric reduction value.

38. There is no quantification of pollutant reductions by method or technique. It is therefore impossible to discern the effectiveness of each proposed method in terms of reducing the total load from any of the pollutant contributing sectors.

The quantification of pollutant reductions is done using the EPA Chesapeake Bay Program model. The model takes into account all submitted actions and collectively calculations the nutrient and sediment reductions. Effectiveness estimates are known for each modeled BMP and documentation is available on the Chesapeake Bay Program website:

http://www.chesapeakebay.net/about/programs/watershed_implementation_plan_tools/. We will provide at a minimum, the CBP approved effectiveness estimate for each BMP discussed in the WIP.

39. Has anyone placed confidence limits on the model, the proposed practices and corresponding anticipated results? Page 72 raises questions regarding this uncertainty.

The current versions of the Bay watershed and water quality models do not include tools to calculate confidence limits. While this will likely be a challenging task requiring sophisticated technology and resources, modelers at the Bay Program have heard the calls to include these uncertainty analyses and the necessary tools may be included in future updates of the Bay watershed and water quality models. While the current Bay models are not able to calculate confidence limits, their reliability and usefulness is not diminished. This is because the Bay watershed and water quality models are developed and calibrated using extensive hydrologic and water quality data, utilize the state-of-the science modeling technology, and the models are subjected to exhaustive reviews by the modeling, academic, and scientific communities. The above factors provide very high level of confidence on Bay model results.

40. Page 47: Although the WIP requires attainment of 60% reductions by 2017, reductions, growth and other variables are assumed to be linear to 2025.

Correct. The TMDL allocations were based on 2010 land use, which was the most recent land use data available for modeling. Since the watershed is dynamic and always experiencing change – both good and bad for water quality – it is imperative to have an estimate of what the future land use will be like and to establish mechanisms that ensure that nutrient and sediment loads do not increase as land use changes. The EPA has developed a Land Use and Population Change model that predicts future land use and where there will be sewer or populations on septic systems. Additionally, DNREC, in cooperation with the Office of State Planning Coordination, and the University of Delaware have developed a local model using the CommunityViz software and plan to extensively work with local governments in the Chesapeake to estimate future changes in Delaware. Both the EPA and Delaware models will provide valuable information to allow for adaptive management of WIP goals and initiatives. One approach currently under development and the creation of an offset program within Delaware to address any increased nutrient and sediment loads that occur as a result of land use changes.

41. No discussion / contribution or allocation of pollution or sediment was attributed to the materials behind the Conowingo Dam.

Correct. Delaware doesn’t have any jurisdiction over the Conowingo Dam. This question may be more appropriately addressed in Pennsylvania’s Watershed Implementation Plan. This issue does not impact Delaware’s nutrient or sediment allocations.

RESTORATION

Phase I

1. **One approach for restoration included “channelizing” streams. That is counter-intuitive in light of the attenuation perspective. (See Tax-Ditch issue below).**

Restoration of “Channelized” streams was discussed as reconnecting the streams to their flood plains or adjacent wetlands. Other BMPs include:

- Perform one-sided construction
- Minimize clearing widths through forested areas
- Relocate channels around sensitive and significant habitat or wetland areas
- Minimize construction of downstream outlets
- Block off old channels that drain only wetland areas

Another restoration target of “channelizing” streams is not to channelize new streams but to restore natural stream hydrology and connection with floodplains.

2. **I did not see any reference to dredging impacts to water quality.**

You are correct. Dredging will be discussed in the final version of Phase II.

3. **Tax Ditches were not included or discussed in the WIP. In fact, if you account for the required “ROW” allocated for tax-ditches, you might find that Delaware already has sufficient buffer set-asides for attainment. If that is the case, and the EPA model does not account for this, then we have a basis to call their entire modeling exercise into question.**

This statement is not correct, as tax ditches were discussed on several occasions: 1) page 115 in a section on the Drainage Program (10.1.1.2); 2) page 120 contains a discussion on Best Management Practices to improve water quality; 3) page 121 discusses restoration goals for channelized streams; and 4) section 9 (Agriculture) contains extensive discussion on ditches.

4. **Wetlands, buffers, and other filters offer great opportunities for Delaware to achieve significant nutrient reductions. The state has set a goal of increasing forest buffers to more than 3,400 acres and wetlands to more than 5,700 acres, as well as highlighting a goal of more aggressively pursuing ditch, stream and wetland restoration projects. We encourage Delaware to set more ambitious goals for wetland and buffers as it revises the WIP and to implement a highly targeted approach in order to deliver the greatest water quality benefit from these enrollments. In addition, the WIP seems to focus primarily on restoration of forested wetlands. We encourage Delaware to look seriously at opportunities to restore wetlands on agricultural lands, especially as they note that two individuals from Kent soil conservation district have been conducting landowner outreach.**

Wetlands and buffers are both very effective practices for reducing nutrients and sediment. The goals established in the Phase I WIP are already considered very ambitious by members of the agriculture and restoration subcommittees. While these practices are effective, when implemented in the agricultural environment, both require taking cropland out of production and present several other challenges to farmers, including shading of adjacent crops and grazing by introduced wildlife. Therefore, the Delaware WIP has attempted to balance the wetland and buffer goals in several environments. Targeting these practices is an excellent idea and the Phase II WIP will establish goals by County rather than state-wide so those working at the local level, including at the conservation districts, can have a better idea of the level of implementation necessary in their jurisdiction. DNREC has also been working to form partnerships with non-profit organizations, like Ducks Unlimited, and the US Fish and Wildlife Service to promote and implement wetland and stream restoration projects in the Chesapeake.

5. **While the state’s achievements to date in implementing practices that capture and filter nutrients in the agricultural landscape are laudable, we believe Delaware can achieve greater water quality benefits through a highly targeted and strategic approach, which would be very much in line with the stated desire in the WIP to pursue a targeted watershed approach. To be truly effective when it comes to wetlands, buffers, and other water flow management and filtering strategies, however, the targeting must be highly specific – ensuring the right practices are placed in the most effective places within the agricultural landscape. This goes beyond identifying those watersheds with high loading rates of nutrients to evaluating and mapping topography, movement of water over and through the landscape, soils, and land use.**

Such a targeted approach would be highly effective and move beyond today's less refined approaches to wetlands and buffer implementation. With limited resources and high value placed on productive agricultural lands, it is critical to advance strategies that take out of production only those lands that can deliver the greatest nutrient reductions. A highly targeted, scientifically based strategy also addresses the challenge noted in the WIP – that buffers are not popular with producers in the state. By being highly strategic, and only focusing for restoration those lands most needed to deliver significant water quality benefits, the state can better balance production goals with wetland and buffer goals. In addition, there would be great benefit to clearly prioritizing water quality goals in wetland restoration initiatives. Too often wetland programs are driven more by habitat goals than water quality benefits. While advancing wildlife goals is of great importance, the pressure in the State and in the Bay generally to reduce nutrient and sediment loadings necessitates a new strategy that prioritizes water quality benefits. By advancing a strategic approach that takes into account the characteristics of the landscape, nutrient loads, and water movement and prioritizing water quality improvement in funding decisions, wetland and buffer programs and initiatives can deliver far more significant benefits to water quality and play a much larger role in enabling Delaware to achieve its TMDL-mandated nutrient reductions and to do so in a way that 1) removes as little land from production as possible and 2) makes much better use of these very long-lived practices. Absent such an approach, the state will continue to miss critical opportunities to make much more effective and efficient use of wetland and buffer resources and generate far greater benefits.

I would suggest that the author read the Nanticoke Restoration Plan, as this document was endorsed by many non-profits, federal agencies, and state agencies; it targets areas where significant water quality habitat improvements would occur.

http://www.dnrec.delaware.gov/Admin/DelawareWetlands/Documents/Nanticoke_Restoration_Plan_4May09.pdf

Phase II

6. **Table 40 – The Draft WIP includes examples of conservation targets with Highest Priority however, the section fails to provide specific re-establishment goals for wetlands, restoration of channelized streams, riparian and tidal wetland buffers, and upland re-establishment goal.**

Implementation goals for these practices are identified in Table 41, several pages later, of the WIP.

7. **Section 10.1.1.2 – Specific examples of the types of projects where DNREC has incorporated Best Management Practices (BMPs) would be helpful to better understand which BMPs are most effective.**

These are the BMPs that are most effective. All of these practices have significant impacts on habitat and water quality but usually not all practices can be done on any one restoration project:

- Perform one-sided construction
- Minimize clearing widths through forested areas
- Relocate channels around sensitive and/or significant habitat or wetland areas
- Minimize construction of downstream outlets
- Block off old channels that drain only wetland areas

The wetlands database that is discussed in Restoration section indicated that some of the above BMPs have been used in the 14 DNREC wetland and ditch projects where DNREC was primarily responsible for the project. But only two projects in Chesapeake basin and one in the Delaware River basin had all the above BMPs incorporated. There have been 12 other projects where federal agencies had taken the lead on the project where most of these BMPs were incorporated. DNREC was a substantial partner for all of the 12 projects.

8. **Section 10.4.1 – Please provide how much of an increase DNREC expects for wetland restoration annually until 2017 and how the \$1,702/acre model was calculated.**

Presently, DNREC has federal grant dollars to implement best management practices with the Chesapeake Basin of which most of the money is for restoration activities. As indicated in section 10.4.2, "Within the 1st two years of the Chesapeake Bay Program Implementation Grant, the Nanticoke Restoration work was allotted a total of \$181,595 - \$60,000 for contractual assistance, \$10,000 for supplies, and \$111,595 for coordination/other. As of July 31, 2011, \$90,489.67 remains for this task. Approximately \$10,000 will be

used to construct a water control structure on an agriculture operation in the Nanticoke Watershed. That work is planned for this September 2011. Additionally, up to \$5,000 will be used to construct a rain garden at Trap Pond State Park. All other remaining funds will be carried over into the next budget period for other restoration projects”.

The \$1,702/acre model was calculated according to the calculations presented in the Inland Bays Pollution Control Strategy Appendix F. The cost of restoring farmed wetlands is high if extensive earth movement is required. Costs may range from \$1,500/acre to \$3,000/acre. The average cost of actual restoration projects in the Inland Bays watershed have been \$1,702/acre. Capitalized over 15 years, representing a single CREP contract period, the actual cost per acre becomes \$142.57. Annual rental (\$138/acre/year) and maintenance (\$5/acre/year) fees brings the total cost of wetland restoration to \$285.57/acre/year. For nutrient reduction calculations, this BMP is treated as a land use change from agriculture to wetlands and each wetland acre is additionally assumed to treat 2 upland acres of cropland. Using reduction estimates, the above figure equates to \$6.80/lbs TN reduced and \$204/lbs TP.

9. **Table 42 shows the number of potential buffer acreage for lands within Bridgeville is substantially larger than the surrounding towns. An explanation of how these numbers were calculated and why Bridgeville’s numbers are exceptionally high would be helpful.**

The table has been updated and a detailed description of how the numbers were calculated is now included in the document.

<u>Town</u>	<u>Acres</u>	<u>Within 100' Riparian Buffer</u>		<u>% of Buffer Under Canopy</u>
		<u>Total Acres</u>	<u>Canopy Acres</u>	
Bethel	285.09	12.2	6.94	57%
Blades	308.96	15.29	7.51	49%
Bridgeville	2,877.83	284.79	78.15	27%
Delmar	597.89	31.37	5.52	18%
Ellendale	165.68	19.87	8.24	41%
Farmington	46.30	No streams present within municipal boundary.		N/A
Georgetown	2,965.15	324.61	111.3	34%
Greenwood	472.14	44.71	11.11	25%
Harrington	1,682.77	155.51	67.22	43%
Hartly	35.78	1.83	0.08	4%
Laurel	1,729.53	197.92	97.72	49%
Middletown	7,441.07	511.86	129.68	25%
Seaford	3,234.97	206.35	110	53%

10. **Section 10.4.2 – the “Whole Farm Water Management” project could be an example for DNREC to use on other farms. Are there plans to make this a model of what farmers can do? Is DNREC going to seek further funding to implement this project elsewhere?**

Yes, there are plans to make this a model of what farmers can do; the Webber farm has been running farm tours and has received several awards. Yes, DNREC is seeking further funding.

11. **“Delaware will continue to work with EPA to gain guidance on certain questions such as whether practices, such as stream restoration, are considered to be a wetland restoration or a stormwater management measure.”**

My understanding is that stream restoration is to be a stormwater management measure under the Chesapeake Bay TMDL. One of Tom Shueler's "Urban BMP Panels" is currently discussing the existing data on the pollutant reductions performance of stream restoration and in 2012 they expect to establish values to be used in modeling the reductions from stream restoration under the Bay TMDL.

Yes, DNREC has had a discussion with the Bay Program about nutrients and sediment reductions resulting from stream restoration and wetland restoration. The Bay Program is working on the calculations.

AGRICULTURE

Phase I

1. **Page 96- Wetlands Reserve Program-more education/outreach needed for this so we don't send \$35,000 back to the Feds!**
We agree and will work with partners at NRCS to better address the availability of this program.
2. **There are many references to previous studies, rules of thumb, etc. without engaging the underlying science. Statements like "...studies have shown..." introduces ambiguities and tends to distort the factual basis of those conclusions to the point where the statement becomes the fact, rather than the facts themselves. It is interesting to note that the WIP indicates 4% impervious within the Chesapeake Bay watershed, which is tremendously lower than "what studies have shown." It would be proper, rather, to augment the conclusion or statement of fact with some qualification as to how that statement applies to this (our) conditions here in Delaware.**
Thank you for this comment. We have tried to correct these statements in our final Phase I Plan and will try to be more conscientious of the use of ambiguous phrases as we write Phase II of our WIP in 2011.
3. **Contingencies-These should be specific!**
We have attempted to make our contingencies more specific in the Final Phase I WIP that was submitted to EPA on November 29th. It is difficult to know now what specific actions may be necessary in the future.
4. **We are concerned that EPA is not allowing into the model the benefits from several on-farm best management practices. These practices largely are supported by the NRCS EQIP program. Practices are not permitted in NRCS and conservation district cost-share programs without valid data to show their effectiveness for conservation and water quality improvements. EPA, however, will not allow some of these practices, recognized by one Obama government agency to be effective, to be included in another Obama government agency's program. Even within EPA there is disparity in positions. For instance, EPA enforcement personnel stress the desirability or need to have heavy use area pads, kept clean by the owner, but the TMDL persons in EPA do not accept them as useful and thus do not allow their water quality benefits to be included in the model. University of Delaware research about 15 years ago showed that manure left on the ground outside the chicken house end doors after each flock without pads was a source of poultry farm nitrogen loading and subsequent measurements on other farms found this loading represents the nutrient equivalent up to 10 to 15 tons per acre of litter that was land applied every flock cycle. With the pads, this nutrient level is significantly lower and is closer to zero.**
We plan to work with EPA to incorporate several additional practices into the model during future phases of the WIP, including heavy use area protection pads. We agree there are inconsistencies with the acceptance of this particular practice and hope that the Delmarva Poultry Industry can continue to provide needed information and data to help support the inclusion of this practice, and possibly other practices, into the model.
5. **While EPA may claim that pads are impervious surfaces that work against water quality, they provide considerable water quality benefits especially with the expectation that they be kept clean on CAFOs. The state of Delaware needs to insist that EPA include in the model all on-farm practices that receive NRCS and conservation district cost-share dollars.**
Thank you for this comment. We plan to work with EPA to incorporate several additional practices into the model during future phases of the WIP, including heavy use area protection pads. We agree there are inconsistencies with the acceptance of this particular practice and hope that the Delmarva Poultry Industry can continue to provide needed information and data to help support the inclusion of this practice, and possibly other practices, into the model.
6. **Revised CAFO regulations take effect in November, 2010. (referencing presentation)**
DNREC has amended the Chesapeake Bay Watershed Implementation Plan to accurately reflect the CAFO regulatory adoption process.
7. **If there was an oversupply of chicken manure on the Delmarva Peninsula, this goal would be easier to attain. However, crop farmers without chickens struggle to get litter/manure at an affordable price. Many chicken farmers are adding income to their farms by selling manure. If it becomes more cumbersome or illegal to use organic fertilizers on fields, then more manure might need to be transferred out of the watershed or sent to alternative use facilities.**

DNREC supports the effective and efficient use of poultry manure within the Chesapeake Bay Watershed. However, this support is not limited to the use of poultry manure as an organic fertilizer. While this is a viable option, the management of such practices should be conducted within the confines of Delaware's Nutrient Management Regulations. DNREC additionally supports the relocation of poultry manure to areas in demand or need of the organic nutrient value and the alternative uses of that generated within the Chesapeake Bay Watershed.

8. **EPA's continued insistence on the development of more alternative use facilities and technologies fails to recognize the under-used organic fertilizer plant in Sussex County. This facility, offered free of charge to chicken growers throughout Delmarva, has difficulty getting enough litter/manure to operate at full capacity. EPA's efforts could be better spent on helping with transportation costs of the finished Perdue AgriRecycle products than constantly calling for the development of high priced, complex, on-the-farm or centralized alternative use facilities. We already have such a facility in Delaware. Money provided for government grants to research new technologies and the grants/loans available to farmers to install and operate such systems would be more efficiently used by providing transportation assistance to the finished products from the Perdue AgriRecycle plant.**

DNREC will forward your comment to EPA in request of a response.

9. **Additionally, the state of Delaware should investigate the use of litter baling to reduce transportation costs and work to make such a practice eligible for EQIP and conservation district cost share. A new technology consisting of baling and plastic wrapping of litter is under development in other parts of America. Bales offer some special advantages for handling litter including the use of open field storage, better opportunities for truck back hauls, and preservation of nutrients, mainly nitrogen. The expected cost of baling litter is about \$5 per ton which is considerably less than other processing methods. Baling offers more advantages. Many different types of trailers can be used in the transportation of bales precluding the need for clean-up costs, baled litter is much denser than raw litter, nutrients are preserved and this prevents odor problems, bales provide biosecurity protection, and bales can be stored outside at the destination field without cover. (Page. 76, 9.1.1. Delaware's Nutrient Management Program)**

DNREC continues to support the research and review of all expanding or developing nutrient reducing best management practices (BMPs). Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

10. **A laudable goal if the economics of planting additional cover crops and the vagaries of the weather make it plausible for farmers.**

DNREC recognizes an important component of meeting the TMDL recommendations, as they apply to agriculture community, is the expansion of cover crop acreage within the Chesapeake Bay Watershed. Every effort will be made to assure adequate funding is available for the cover crop recommendation.

11. **250 out of 272 CAFOs are in the Chesapeake Bay watershed. As more awareness about the Delaware CAFO program is created, it is likely that more chicken farms will seek permit coverage or change their production area practices to avoid the need for permit coverage. With either scenario, better water stewardship should occur. These improvements will be well underway by the end of 2011.**

DNREC agrees with the statement. The number of DDA Nutrient Management Program staff will be increased to meet the additional permit processing and monitoring workload in the CAFO program. In addition, best management practices guidance is currently being updated to better address water quality concerns.

12. **Through the chicken companies operating in Delaware, a snapshot picture on the number of operating chicken houses and square footage of those houses will be completed by the end of 2010. This will provide much more accurate data on the size of the chicken industry in Delaware and replace what we believe are outdated data. Similarly, this late 2010 data collection effort will show the number of best management practices in operation. We believe, and hope DNREC and EPA will accept, that the contribution of chicken production areas to nitrogen and phosphorous loads to the bay watershed in Delaware are less than estimated. (Page 107, 9.4.3.28. Cover Crops)**

DNREC supports the survey being undertaken by the DPI, Inc. The data collected will allow for a more targeted and systematic approach to achieving the needed load reductions as detailed within the Chesapeake Bay Watershed TMDL.

13. **While this appears to be true, it must not be used against farmers and chicken growers to force them to take actions not necessarily in their best interests or that do not make economic sense for them just because other segments of society are not willing to do their part. We can envision other sectors abdicating their responsibilities with the cries of “we cannot afford it so let’s transfer responsibilities to the lower cost agricultural practices.” This must not be allowed. (Referencing agriculture section of presentation)**

To the best of our ability, DNREC has drafted the Chesapeake Bay Watershed Implementation Plan to account for each sectors load reduction responsibilities in a fair and equitable manner.

14. **Chicken companies that are members of Delmarva Poultry Industry, Inc. (DPI) this autumn are conducting a survey of on-farm environmental practices that will provide the state a better idea of how many Chesapeake Bay Watershed farms have manure structures. Additionally, the state should investigate the use of manure handling systems other than structures; systems that are less expensive to obtain while providing an equal or perhaps better way to prevent the movement of nutrients from litter/manure to the waters of the United States. Bagging litter/manure for on-farm storage is one possibility.**

DNREC supports the survey being undertaken by the DPI, Inc. The data collected will for allow a more targeted and systematic approach to achieving the needed load reductions as detailed within the Chesapeake Bay Watershed TMDL.

15. **The DPI autumn 2010 survey will indicate the number of farms with composters. We believe the results will indicate more composters in use than DNREC believes. Additionally, we believe there needs to be routine grower training on the proper way to use the systems. Such training will ensure that composting is the primary means of handling carcasses and that the units are being used correctly.**

DNREC supports the survey being undertaken by the DPI, Inc. The data collected will for allow a more targeted and systematic approach to achieving the needed load reductions as detailed within the Chesapeake Bay Watershed TMDL.

16. **We are not sure if this applies to chicken farm production areas. If it does, it is a flawed recommendation. Water falling on chicken house roofs is considered “clean” if it does not come into contact with nutrients. Work is underway on chicken farms now to ensure that production areas are kept free of nutrients. Heavy use area pads and their maintenance help with this effort. The growth of plants between chicken houses, offered through the DPI Vegetative Environmental Buffers program, prevents the movement of nutrients to waters of the United States. The movement of clean water should not be a consideration by EPA in the TMDL process. (Page 105, section 9.4.3.20 Loafing Lot Management)**

Best management practices as they apply to Loafing Lot Management do not relate to poultry operations.

17. **Phytase is fed to every meat-chicken in the state of Delaware owned by the integrated chicken companies. Delaware needs to make sure that the EPA model reflects the reductions of phosphorus in chicken manure in Delaware rather than allowing EPA to use an efficiency based on phytase-caused phosphorus reductions throughout the watershed. Delaware’s chicken integrators are national leaders in manure phosphorus reductions and must not be averaged with lower performing practices in several of the other states. (Page 106, section 9.4.3.23 Animal Feed Practices)**

DNREC will continue to work with EPA to assure the Chesapeake Bay Model adequately reflects and represents the nutrient reduction activities of Delaware’s agriculture community. As data becomes available demonstrating a load reduction increase is warranted for phytase utilization, Delaware will collaboratively work with EPA to amend the model.

18. **This practice has attracted interest in Delaware and some houses have been demolished and removed. Delmarva Poultry Industry, Inc. has promoted the program. Since many abandoned chicken houses are on land owned by persons no longer in the chicken business, efforts must be made to make them eligible for some type of cost-share program whether through EQIP, the conservation districts, or some non-agricultural program. Delaware should set a goal of 6 houses per year starting in 2011. (Page 110, Section 9.4.3.35 Poultry House Remediation)**

DNREC continues to support the research and review of all expanding or developing nutrient reducing best management practices (BMPs). Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

- 19. Drainage ditch filters - The development and implementation of cost effective surface water containment or filtering systems in private and public ditches could help stop the movement of nutrients to waters of the United States. This might not be practical on some farms and some rights of way, but should be investigated. Better management of public ditches is needed to prevent the use of herbicides to kill plants in and around the ditches. These plants have the potential to slow the movement of water and nutrients while allowing the plants to use the nutrients.**

DNREC continues to support the research and review of all expanding or developing nutrient reducing best management practices (BMPs). Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

- 20. Expansions of farm irrigation systems – Better plant uptake of nutrients will not only remove nutrients from the soil and water but also help to increase farm income through better yields, but cost-share assistance still could be needed to help with the purchase of the irrigation systems. Some scientists say irrigated production crops will better uptake nutrients than cover crops.**

DNREC continues to support the research and review of all expanding or developing nutrient reducing best management practices (BMPs). Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

- 21. Developing/utilizing technology to precipitate phosphorus out of litter – If the phosphorus contained in the litter/manure can be removed and recovered, the amount of land eligible to use chicken manure will not shrink due to the phosphorus limitations in nutrient management plans. This recovered phosphorus can be recycled into other products. The University of Delaware might be in a position to investigate this concept.**

DNREC continues to support the research and review of all expanding or developing nutrient reducing best management practices (BMPs). Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

- 22. Rethink the sequence of occurrences, timings, intensities, and sizes of the process of “dip outs” that occur in the ditches that comprise the respective Tax Ditch Associations that drain into the Chesapeake Bay. (Page 98, 9.4.3 BMPs)**

Tax Ditch maintenance is under continuous review by DNREC to assure activities, such as dip outs are conducted in an efficient and effective manner. As with all such activities and BMPs, DNREC continues to support the research and review of current and/or expanding nutrient reducing activities. Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

- 23. Aggressively maintain and monitor the “open-space” integrity of the buffers that line the Tax Ditch Associations right-of-ways. (9.4 Strategy to fill gaps)**

Tax Ditch maintenance is under continuous review by DNREC to assure activities, such as open space maintenance, are conducted in an efficient and effective manner. As with all such activities and BMPs, DNREC continues to support the research and review of current and/or expanding nutrient reducing activities. Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

- 24. Expand the width of tax ditch and stream buffers that are adjacent to agriculture production areas. Devise a plan that provides a source of income that will be dedicated to compensating agricultural producers for the loss of income due to the expanded width of tax ditch and stream buffers. An example of a suggested source of such income would be to place a modest surcharge on the purchase of every bag of fertilizer sold for residential use in the state of Delaware.**

Tax Ditch maintenance is under continuous review by DNREC to assure activities, such as open space maintenance, are conducted in an efficient and effective manner. As with all such activities and BMPs, DNREC continues to support the research and review of current and/or expanding nutrient reducing activities. Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

25. Permit the harvest and subsequent utilization of vegetative growth from all buffers that are adjacent to agricultural production areas.

DNREC continues to support the research and review of all expanding or developing nutrient reducing best management practices (BMPs). Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

26. Review and subsequently regulate the impact that the increasing numbers of incidences of domesticated farm animals (sheep, goats, horses, and cattle --- to name just a few examples) have on inadequate grazing acreage relative to the actual numbers of these animals that the acreage in question could actually sustain.

DNREC is not aware that Delaware has an inadequate supply of grazing lands. Our data indicates an abundant supply of grazing lands which not only meets, but exceeds current demands. There may be isolated cases of livestock owners attempting to graze too many animals on too few acres, but in general those animals are also fed stored hay and grain. In addition, if the number of animals is over the statutory threshold, then the acres would be covered by a nutrient management plan.

27. Consistent with EPA's letters to the Principals' Staff Committee of September 11, 2008, November 4, 2009, and April 2, 2010, we strongly encourage the state to provide the necessary details in their WIP for how they will achieve the necessary reductions, particularly from agriculture, which contributes the vast majority of Delaware's sediment, phosphorus and nitrogen loads to the Bay. The recent draft report by the U.S. Department of Agriculture (USDA) highlights that although progress has been made on reducing sediment, nutrient, and pesticide losses from farm fields through conservation practice implementation in the Chesapeake Bay region, a significant amount of conservation treatment remains to be done to reduce nonpoint agricultural sources of pollution. (USDA October 2010. Assessment of the Effects of Conservation Practices on Cultivated Cropland in the Chesapeake Bay Region) Specifically, the report indicates that significant improvement is still needed in nutrient management (proper rate, form, timing, and method of application) throughout the region. About 81 percent of the cultivated cropland acres require additional nutrient management to reduce the loss of nitrogen or phosphorus from fields. The most critical conservation concern identified in the report is loss of nitrogen through subsurface loss pathways, most of which eventually contribute to surface water loads. These conclusions affirm EPA's recommendations that Delaware should consider revising their nutrient management plan (NMP) regulations and identify the resources necessary to increase their NMP and concentrated animal feeding operation inspection programs to ensure compliance with state regulations. See also Water Quality in the Delmarva Peninsula, 1999-2001, USGS Circular 1228.

It is important to note that the study referenced is a regional study. Both the frequency and quality of nutrient management planning throughout the region varies greatly from state to state. Delaware maintains a mature and rigorous nutrient management program. All nutrient handlers and consultants must maintain state certification; thereby ensuring the consistency and quality of Delaware's nutrient management plans (NM Plans). In addition, we believe that approximately 95% of the acres which are statutorily required to have a NM Plan do have an NM Plan. The Nutrient Management Program Certification Regulations were recently (Fall 2010) updated to mirror the manure staging and stockpiling criteria in the new CAFO regulations. We agree that BMPs must be continually assessed as to effectiveness and usefulness. We are currently in the processes of updating all NM BMPs. Please refer to DDA's website to review current BMPs and submit comments.

28. By moving nutrient management from a one-size-fits-all approach based on outdated science to one that is data-driven and farm-specific, we know farmers can reduce nitrogen by 25% or more without decreasing yields. This has been well documented through adaptive management as implemented through the On-Farm Network, both in the Chesapeake Bay and the Midwest (www.bayonfarmnetwork.org and www.isafarmnet.com). Through the On-Farm Network, farmers work in

collaboration with their peers and advisors to evaluate nutrient recommendations and make field-specific improvements with documentable benefits. After participating for two or more years, farmers in seven states have reduced nitrogen use on average by 25% or more, with 80% of participating farmers making changes. (Page 97, 9.4 Strategy to fill gaps)

Nutrient management planning in Delaware has historically been farm specific. The plans are P-based plans written for specific farm conditions including, current soil nutrient levels, crop needs, soil types, and topography to name a few. With that being said, the Nutrient Management Program staff and the Nutrient Management Commission are continually looking for methods to improve nutrient management planning and improve nutrient use efficiencies. Participation in the On-Farm Network may be a viable option for some Delaware producers to improve their nutrient management planning.

29. By adopting a strategically targeted approach to wetlands and buffers that is driven by careful analysis of nutrient loading, hydrology, and other critical landscape characteristics, Delaware could generate much more significant reductions from these practices while removing the least amount of land from production. Studies from the Midwest and Sweden estimate that targeted implementation of specific wetlands can achieve 50% reductions in nitrogen with less than 5% of the agricultural lands taken out of production.¹ Based on these studies, we believe an effective targeting strategy for wetlands and other filters could deliver similar nutrient reductions in the Chesapeake Bay Watershed. In addition to these direct water quality benefits for the Bay itself, creation of these targeted wetlands and filters would provide drinking water benefits, provide flood reduction benefits, provide wildlife habitat, and more.

DNREC continues to support the research and review of all expanding or developing nutrient reducing best management practices (BMPs). Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan.

30. Delaware already invests significantly in nutrient management plans and implementation, as does NRCS in the state. These resources are helping advance clean water goals, but these same dollars could be generating much more significant and durable improvements in nutrient use efficiency and nutrient reductions. The state could realize much more significant reductions and do so in ways that will be sustained by shifting from today's generalized approach to nutrient management to a more data-driven, farm specific strategy. The key to making this change is using tools that enable farmers and their advisors to evaluate how well the current plan and practices are working, identify ways to improve without compromising yields, and continually fine tune to be more efficient and cost-effective. This strategy addresses the persistent disconnect between improving nutrient management and the farmer's bottom line by enabling farmers to adapt and improve their rate, form, timing, and placement of nutrients in ways that are economically beneficial. (Page 97. 9.4.2 Oversight of AFOs and CAFOs)

Nutrient management planning in Delaware has historically been farm specific. The plans are P-based plans written for specific farm conditions including, current soil nutrient levels, crop needs, soil types, and topography to name a few. With that being said, the Nutrient Management Program staff and the Nutrient Management Commission are continually looking for methods to improve nutrient management planning and improve nutrient use efficiencies. Participation in the On-Farm Network may be a viable option for some Delaware producers to improve their nutrient management planning.

31. The On-Farm Network, which advances data-drive adaptive management, overcomes some of the key hurdles to advancing more effective nutrient management – the disconnect between farmers' economic interests and environmental stewardship, a failure to incorporate a viable way to evaluate how well nutrient management plans and recommendations work, and the inability of current recommendations to provide accurate field-specific nutrient recommendations. For example, current N recommendations seldom distinguish between time of application, N sources, method of application or rainfall, all of which are important factors in managing N, and they do not provide farmers with an accessible way to compare the economic impacts of different practices. Through the On-Farm Network, farmers work in collaboration with their peers and advisors to evaluate nutrient recommendations and make field-specific improvements – adaptive management in real time with documentable benefits. Equally important is the innovation of aggregating field data across multiple farms and creating a feedback loop to the farms, individually and in aggregate, to foster improved environmental and economical efficiency. The On-FarmNetwork approach has been documented and is up and running in nine states to date, with farmers reducing their N use on average by one-third after participating for two or more years, with 80% of participating farmers making changes (data available online at <http://www.isafarmnet.com/nitrogen.html>). (Page 97, 9.4 Strategy to fill gaps)

Nutrient management planning in Delaware has historically been farm specific. The plans are P-based plans written for specific farm conditions including, current soil nutrient levels, crop needs, soil types, and topography to name a few. With that being said, the Nutrient Management Program staff and the Nutrient Management Commission are continually looking for methods to improve nutrient management planning and improve nutrient use efficiencies. Participation in the On-Farm Network may be a viable option for some Delaware producers to improve their nutrient management planning.

- 32. In addition to the significant benefits of increasing the impact and accountability of nutrient management efforts and investments, the On-Farm Network and data-driven adaptive management offer critical opportunities to improve the role nutrient management can play in nutrient trading. Adaptive management and the process it introduces for tracking and documenting management and improvements enables farmers not only to go beyond basic nutrient management implementation but to document those nutrient benefits with much more meaningful metrics. This improved documentation and more meaningful metrics open new opportunities for nutrient management to give buyers of nutrient trading credits greater confidence and a new way for farmers to be accountable and show that accountability. With the important role Delaware's WIP places on nutrient trading to help advance cost effective reductions, the improved accountability of the On-Farm Network and adaptive management offer great opportunities to the state.**

Nutrient management planning in Delaware has historically been farm specific. The plans are P-based plans written for specific farm conditions including, current soil nutrient levels, crop needs, soil types, and topography to name a few. With that being said, the Nutrient Management Program staff and the Nutrient Management Commission are continually looking for methods to improve nutrient management planning and improve nutrient use efficiencies. Participation in the On-Farm Network may be a viable option for some Delaware producers to improve their nutrient management planning.

- 33. Revise the guidelines and payment structures the state nutrient management programs to shift from today's generalized approach to one based on evaluation, adaptation, and improvement and advocate for similar changes in federal nutrient management programs as implemented in the state. By shifting today's investments in generalized nutrient management plans to continuous improvement through adaptive management, states can achieve significantly greater nutrient benefits with those same dollars, and at the same time protect farmer yields and profitability. The On-Farm Network provides a ready to expand model for achieving this change on the ground right now.**

Nutrient management planning in Delaware has historically been farm specific. The plans are P-based plans written for specific farm conditions including, current soil nutrient levels, crop needs, soil types, and topography to name a few. With that being said, the Nutrient Management Program staff and the Nutrient Management Commission are continually looking for methods to improve nutrient management planning and improve nutrient use efficiencies. Participation in the On-Farm Network may be a viable option for some Delaware producers to improve their nutrient management planning.

- 34. Play a lead role in working with partners – public and private – to build and maintain the infrastructure to advance adaptive management of nutrients through cost share programs and partner contributions. This infrastructure will coordinate and support the data management and analysis (while protecting farmer confidentiality) and farmer engagement that drives the success of this effective approach.**

DNREC continues to support the research and review of all expanding or developing nutrient reducing best management practices (BMPs). Included within this approach is a systematic process of BMP placement to assure maximum nutrient reducing efficiency. Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan. As with the Plan development process, DNREC will rely heavily on input and guidance from our conservation partners.

- 35. Work with key partners to advance a training program for farm advisors – public and private – to educate these key leaders in how to implement adaptive management programming to achieve success.**

DNREC supports expanded education and training as necessary to implement the nutrient reducing best management practices (BMPs) needed to fulfill Delaware's obligation to meet the recommendations within current and future Phases of the Chesapeake Watershed Implementation Plan. As with the Plan development process, DNREC will rely heavily on input and guidance from our conservation partners.

36. By ensuring that the right filtering practices are placed in the right places in the agricultural landscape, Delaware and its partners can achieve far greater benefits from investments in wetlands, buffers, and other filters and make a stronger, more compelling case for these practices to producers (thereby increasing participation in these voluntary practices). Three critical things the state can do to ensure that filter practices provide a significant component of reductions needed to meet the TMDL are:
- 1) Collaborate with public and private partners to identify the best locations for buffer and wetland placement at both regional and local scales.
 - 2) With this targeting strategy in hand, the state and its partners then can adapt cost-share and market – driven programs to provide the right incentives for landowners to adopt these practices. Delaware’s nutrient trading program provides a particularly useful vehicle for this.
 - 3) Collaborate with public and private partners to improve outreach and education to farmers and other landowners about the financial and other benefits of adopting filter practices.
- DNREC supports expanded education and training as necessary to implement the nutrient reducing best management practices (BMPs) needed to fulfill Delaware’s obligation to meet the recommendations within current and future Phases of the Chesapeake Watershed Implementation Plan. DNREC continues to support the research and review of all expanding or developing nutrient reducing best management practices (BMPs). Included within this approach is a systematic process of BMP placement to assure maximum nutrient reducing efficiency. Those that prove effective, efficient and/or productive will be supported through the inclusion of recommendation within future Phases of the Chesapeake Watershed Implementation Plan. As with the Plan development process, DNREC will rely heavily on input and guidance from our conservation partners.
37. Overarching all of the important ideas and new directions called for in the WIP is a common need that, if left unmet, will severely compromise any chance of success: people. Without enough qualified and trained people to reach out to, educate, assist, and follow up with critical players such as farmers and forest landowners, delivering the needed nutrient and sediment reductions from agriculture will be extremely difficult. The state and its partners, including EPA and USDA, must make technical assistance a top priority and provide enough resources to put the “boots on the ground” needed to achieve real results. Delivering on virtually all of the strategies laid out for agriculture requires more, better, and innovative ways of providing information, technical know-how, and follow-up to farmers to deliver the needed level of engagement, especially in critical watersheds. In addition, people on the ground are vital to ensuring that monitoring and enforcement are meaningful and have a real impact in advancing water quality improvements. These providers of technical expertise, outreach, and follow-up must be well-qualified with knowledge of the local communities, sectors, challenges, and opportunities. In addition to people, the strategy must advance appropriate use of innovative tools in ways that can make a difference on the ground, including online means of providing training, communicating requirements, and building and implementing strategies at the local and watershed levels.
- As with the Plan development process, DNREC will rely heavily on input and guidance from our conservation partners to assure adequate strategies are prepared and technical assistance is provided to meet the recommendations found within current and future Phases of the Chesapeake Watershed Implementation Plan.
38. As a first step in addressing the issue of technical assistance, we recommend that leadership within Delaware’s agriculture, natural resources, and environmental protection agencies, as well as leadership from USDA, convene a working meeting (or series of meetings) of select individuals/organizations to begin to tackle the challenge of meeting the need for education, outreach, implementation assistance, and follow up throughout the Bay watershed. We recommend that the Secretaries of Agriculture, Conservation and Recreation, and Environmental Quality bring together key people for a true working meeting or series of meetings to develop bold new ideas for getting boots on the ground and help develop and advance a vigorous, state-wide strategy for providing adequate technical assistance. This strategy must include identification of priority areas; assessment of existing efforts and resources and identification of critical gaps; identification of the levels and kinds of staffing needs and strategies for filling them; assessment of funding needs; and development of a timeframe for implementation of activities and initiatives. These meetings should include individuals who can speak from the perspective of organizations, such as the Soil and Water Conservation Districts (SWCDs), crop and livestock consultants, and third-party service providers, that are either currently grappling with the issue of outreach and

technical assistance or are potential new partners that are influential in the agricultural community, such as certified crop advisors (CCAs). The meeting needs to bring people together who can provide on-the-ground assistance or bring new funding to the table, offer bold new ideas on how to use existing funding in innovative ways to engage a diversity of third party technical advisors, and help carry through on new ideas.

As with the Plan development process, DNREC will rely heavily on input and guidance from our conservation partners to assure adequate implementation strategies are prepared, technical assistance is provided, and adequate funding is secured to meet the recommendations found within current and future Phases of the Chesapeake Watershed Implementation Plan. The plan development process brought many of the agencies together as DNREC developed the Plan. Our goal is to continue this effort throughout the implementation process.

39. **Second, we recommend that the Secretaries build from this initial set of strategizing meetings to convene and support a workgroup or task force specifically focused on advancing the technical assistance strategy and working with partners in the states and watersheds to implement that strategy. This task force must be empowered to move quickly, especially given the pressure to begin delivering results and implement activities rapidly to meet two-year milestones. This workgroup or task force must reach out to state and local collaborators to take the bold ideas and develop and refine them as appropriate for state and local conditions and needs. This initiative must have ongoing attention and engagement by state and federal agency leaders to maintain momentum, receive sufficient funding and ensure actions become realities.**

As with the Plan development process, DNREC will rely heavily on input and guidance from our conservation partners to assure adequate implementation strategies are prepared, technical assistance is provided, and adequate funding is secured to meet the recommendations found within current and future Phases of the Chesapeake Watershed Implementation Plan. The plan development process brought many of the agencies together as DNREC developed the Plan. Our goal is to continue this effort throughout the implementation process.

40. **In addition to advancing improved nutrient management results through adaptive management, improved nutrient and sediment capture with strategically placed wetlands and buffers, and enhanced collaboration for technical assistance, we urge Delaware to implement a strong framework for ongoing tracking, evaluation, and adaptive management of the strategy overall to ensure the state is meeting two-year milestones and taking advantage of lessons learned and new opportunities for improving the WIP and its specific components. We strongly encourage Delaware to: Develop a stronger program for tracking and evaluating the effectiveness of practice implementation and impact, including identifying key metrics for real-time evaluation of practice effectiveness. For example, metrics for how practices involved in nutrient management are changing management of nutrients; Work with key partners to develop an improved process for tracking practices implemented outside cost share programs and verifying implementation and impact of those practices. This tracking is needed to provide full credit for what Delaware's farmers and agricultural landowners are doing; and Dedicate a funding stream and staffing resources for verification of both voluntary and mandatory practice implementation, including enforcement of mandatory practices and compliance and fulfillment of practices included in cost share contracts to ensure those dollars are being used for real impact.**

We are currently assessing ways to better track BMPs as well as methods to enhance annually reporting of nutrient management planning and BMP implementation. DDA has obligated to more than double its current Nutrient Management Program staff.

41. **Sussex Conservation District describes in its list of staff only one "compliance inspector". How toothless is that? You can pass new regulations all day long but they will be almost worthless without enough enforcement people in the field every day to adequately enforce the regulations we at least already have. SCD should have the power to inspect and require compliance with DelDOT swm and sediment control plans on DelDOT projects. I have seen many times where the DelDOT inspector is so cozy with the Contractor, that silt fences are not properly maintained. The WIP should call for the hiring of more SCD inspectors. (Page 82, 9.1.3 SCD Cost-Share Program)**

The compliance inspector as detailed within the Agriculture Section refers to an employee on staff to assure compliance with Agriculture Cost Share contracts and BMP installations. This employee is different and separate for those within the SCD that focus on storm water regulatory compliance issues.

42. **Sussex County concerned about regulations that will impact the ag community. "During these difficult economic times...consider cost of recommended storm water and wastewater regs. Ensure that recommended changes are feasible, practical, and provide goal of red P and N." Don't want to see EPA take over.**
To the best of our ability, DNREC has drafted the Chesapeake Bay Watershed Implementation Plan to account for each sectors load reduction responsibilities in a fair and equitable manner. Delaware's pledge to meet the Chesapeake Bay TMDLs and providing a commitment to fulfill the obligations of the Chesapeake Watershed Implementation Plan minimizes the potential for EPA intervention.
43. **Why is Sussex listed as having highest impact on Chesapeake Watershed while areas like Wash DC are noted to have less of an impact. Rural nature of Sussex County compared to urban nature of large cities with much impervious surface runoff and more heavy industry seems to support contention that Sussex County should be ranked lower in terms of its impact on the Ches Bay.**
The figure the commenter is referring to was developed by EPA's Watershed Model; for a detailed response, the question should be directed to EPA.
44. **According to the draft WIP, Delaware's CAFO program was updated in Fall 2010 to be consistent with the new federal regulations. However, the draft WIP did not indicate if and when the relevant CAFO permits will be issued or updated to be consistent with both the Bay TMDL and the updated regulations. Delaware should also provide more information regarding its CAFO compliance and enforcement program, including inspection frequency, compliance rates, and enforcement activities and penalties.**
Delaware CAFO operators have ninety days from the effective date (November 11, 2010) of the new CAFO regulation to submit their NOIs. There is an 18 month window for full implementation of the regulations. Nutrient management related enforcement actions (including CAFOs) are discussed at the monthly Nutrient Management Commission meetings and presented in the NM Program's Annual Report and on the DDA website.
45. **Delaware's WIP acknowledges the need to consider future growth of animal waste, but it presumes, we believe wrongly, that an expected decline in the number of farms negates any need to plan reductions around further increases in livestock numbers or in livestock concentration in areas with excess manure.**
DNREC and DDA plan to continue efforts designed to yield nutrient application reductions regardless of animal production numbers. In addition, research into new technologies to reduce and eliminate nutrient runoff in the production areas is on-going.
46. **Though nutrient management plans are required by a large segment of the agriculture community in Maryland, Delaware and elsewhere, and some states report high levels of compliance, releases are still unacceptably high overall. The nutrient management plans are a central linchpin for good environmental management, but USDA's own report on the Chesapeake Bay notes that some plans are inadequate on the fundamentals of timing, rate, form and method of fertilizer application, and USDA and others⁸ have noted that some nutrient management plans in the region are still based on nitrogen and, therefore, sanctioning possible over-application of phosphorus. The Bay states, along with EPA and USDA, must commit to re-evaluating the currently acceptable methods of developing nutrient management plans and assure that deficient plans are corrected expeditiously. In addition, EPA's backstop measures for CAFOs should address manured cropland as well as CAFO production areas.**
It is important to note that the study referenced is a regional study. Both the frequency and quality of nutrient management planning throughout the region varies greatly from state to state. Delaware maintains a mature and rigorous nutrient management program. All nutrient handlers and consultants must maintain state certification; thereby ensuring the consistency and quality of Delaware's nutrient management plans (NM Plans). In addition, we believe that approximately 95% of the acres which are statutorily required to have a NM Plan do have an NM Plan. Nutrient management planning in Delaware has historically been farm specific. The plans are P-based plans written for specific farm conditions including, current soil nutrient levels, crop needs, soil types, and topography to name a few. With that being said, the Nutrient Management Program staff and the Nutrient Management Commission are continually looking for methods to improve nutrient management planning and improve nutrient use

efficiencies. Participation in the On-Farm Network may be a viable option for some Delaware producers to improve their nutrient management planning.

Phase II

- 47. Section 9.2.2 – The draft includes examples of the targeted cover crops programs but does not provide information on whether increasing the incentives or targeting the incentives to certain watersheds actually provided an increase in the participation of the cover crop section.**

We did not provide information on the effectiveness of targeting because it is unknown. We were attempting to keep the dialog open in relation to targeting resources for cover crop practices. The SFY 2013 budget does not reflect a significant increase in cover crop funding. In addition, the Delaware watersheds outside of the Chesapeake Bay drainage area also require implementation of water quality improvement practices. What is not questionable is that an overall increase in cover crop funding could help improve water quality across the entire state.

- 48. Section 9.2.4 – The State does not provide a description on what manure-to-energy technologies and marketable fertilizer products will be used.**

We are open to discussions related to all viable manure to energy initiatives which adhere to state and federal laws. The market is the best driver for future manure to energy initiatives.

- 49. Section 9.3.1.2 – The Society [DNS] encourages the State to rephrase or provide further explanation of their strategy to fill gaps. Phrases such as ‘looking into’ or ‘considering’ do not provide specific information or a road map on how the state will address nutrient reductions.**

Although we can appreciate that specifics can be helpful, it isn't productive to provide specific information before it is relevant. We are currently considering many options to improve water quality and the work will always be in flux dependent on available resources and the technology development. The WIP is not only a vehicle to provide known details and plans it is also a platform to provide information concerning the solution development process. In that regard, we can only convey statements like “investigation the possibility of,” and “will consider.”

- 50. Page 139 discusses nutrient content in fertilizer. DNREC and the Department of Agriculture are to be commended for including this assessment.**

Thank you for the positive feedback and encouragement.

- 51. The Agriculture Section appears to be the most comprehensive component of the WIP. It includes a detailed description of programs and associated costs and resultant reductions of pollutions. On Page 207, the Delaware Department of Agriculture (DDA) should be commended for including data on chicken manure.**

Thank you for the positive feedback. We will attempt to continue to be as transparent and comprehensive as possible.

- 52. The DNREC Watershed Assessment Section estimates the reduction of Nitrogen from cover crops to be approximately 12.4 pounds per Ac per year. The analysis on Page 74 concludes that on a per pound basis, cover crops are far more efficient and cost-effective than stormwater retrofits. However, Table 13 indicates that a disproportionate reduction (67%) is proposed for Developed areas. In the analysis, if \$140 million dollars for cover crops on only 35% of existing Ag-lands, provides a reduction of approximately 964,435 pounds per Ac per year, nearly satisfies the ENTIRE required reduction, why not expand this one program to satisfy the required reductions in lieu of a shotgun approach? The WIP calls for 66,400 acres of cover crops (Page 185) so expansion of this program to facilitate compliance could be viable. Farmers are compensated for implementing cover crops (which provides for additional benefits) which could be subsidized through a variety of other activities within the watershed.**

We agree that cover crops can be a very viable and effective water quality improvement practice, but it is also a voluntary practice. In addition, if only to facilitate “buy-in”, every sector should share in reaching the required reductions.

53. Decision Agriculture - Is there a need for outreach for additional implementation? Is this a discussion item with DE NRCS? (Section 9.6.1.7)

Thank you. This is a decision item for the WIP agricultural working group on both a state and federal level. It is an issue to be discussed at a future Chesapeake Bay Program agricultural working group meeting. Because this is closely tied to the model and generated model results, the state's need to be informed by the outcomes of those discussions prior to moving too far ahead of the federal process.

54. Superb document - in its detail, frankness, policy vision.

- frankness on CAFO numbers (DE vs. EPA); poultry litter quantities Model assumption
- policy vision - in near term, no large-scale BMP offset/trading program (currently no economic rationale)
- Livable Lawns BMP - good idea (voluntary vs. regulatory lawn fertilizer approach)

Thank you for the positive feedback. The lack of a trading program can be attributed to many factors, but primarily two. 1. The WRI model needs to be greatly refined before it can be used to properly assess the agricultural sector. 2. There needs to be a clear policy and perhaps regulatory direction across the watershed before we are comfortable participating in a fully developed trading program for the region.

55. I will be curious on EPA's response to 99% NM as NM+Enhanced (Decision Ag - 2013 forward).

Comment so noted.

56. I hope that "Phosphorous-sorbing" materials BMP may be a tremendous solution to P loads.

It is our hope that this promising BMP meets expectations.

57. After thorough research, I have found that the use of compost should strongly be considered as a new or evolving Best Management Practice BMP in agriculture and turf markets. While reviewing appendix G in the current WIP, I noticed that there is no mention of large scale composting developments or the use of compost to improve soil and increase soil organic matter in agriculture to protect water quality.

Thank you. We agree with this comment and will make the needed revision to Appendix G.

58. 9.7.3 Poultry Litter Treatment: A surface application of *alum*, an acidifier, is added to poultry litter to acidify poultry litter and maintain ammonia in the no-volatile ionized form (ammonium).

The inclusion within the WIP of an alum-only BMP for litter treatment of poultry houses is very troubling. Alum is only one of several litter amendments that are used by the poultry industry for ammonia control. The Delaware NRCS 591 practice standard for "Amendments for Treatment of Agricultural Waste" lists 4 ammonia control products that are acceptable under this practice standard (see attached). All four of those products should be included in Delaware's WIP in order to give poultry farmers the full range of choice. In addition, in the Chesapeake Bay Model, this BMP is written for an inclusion

Thank you for the comments. The inclusion of a BMP in the WIP is not a promise of its use nor is the exclusion of a BMP a prohibition of its use, unless specifically stated to be so. In relation to approved NRCS practice standards, there may be a specific inclusions and exclusions. We will direct your comment to DE-NRCS to be considered for the 591 Standard.

59. In addition, in the Chesapeake Bay Model, this BMP is written for an inclusion rate of 250-lbs/1000 sqft of litter amendment. This inclusion rate far exceeds the manufacturers' recommended application rates for maximum control of ammonia emissions for any of the four products and should be revised.

Thank you for this comment. We will bring this to the attention of the EPA Chesapeake Bay Program staff.

60. Currently, every single poultry grower in the state of Delaware uses ammonia-binding litter amendments on their farms to control ammonia during brooding as part of their good husbandry practices. Sodium bisulfate is used in 100% of the broiler houses in Delaware today illustrating the universal practice of this BMP in Delaware. There is no need for further finding for this practice to be widely used.

Thank you for this comment. We will make any needed adjustments to the WIP based on the agricultural working group review and input concerning your comment.

WASTEWATER

Phase I

1. **Pg. 39, top paragraph- I do have concerns about DNREC allowing wastewater facilities to retain their current permitted limits or increase them given they are currently below their permitted rate now. If the permittees are below their permitted limits, their permits should be lowered.**

The current permitted limits will achieve the State of Delaware's TMDLs in the Nanticoke Watershed. That being said, DNREC is committed to reducing permitted concentrations to 4 mg/L TN and in our Final Phase I WIP, and 1 mg/L TP at the three municipal WWTPs, while continuing to lower the permitted N load at the Invista Plant.

2. **A suggested change to the Chesapeake Bay Watershed Implementation Plan is noted below and would be typical for all PSNs: an average annual concentration of 5 mg/l beneath any permitted wastewater spray irrigation field land application discharge area as verified by monitoring in-field lysimeters, providing that the design percolate concentration does not exceed 5 mg/l on an average annual basis.**

We will take this suggestion under advisement during our revisions to the On-site Regulations.

3. **We also encourage the state to improve its WIP with respect to addressing loads from new septic systems. According to the draft WIP, loads from this source are expected to increase; however, there are no specifics about how these loads will be tracked and offset. We also concur with EPA's comments regarding the need for more specifics about how reductions from existing urban areas will be achieved.**

Loads from new septic systems will need to be offset according to the guidelines of DE's developing offset program. As for reducing loads from existing urban areas, on-sites will be eliminated through expanding sewer districts, retrofitted to advanced technologies, and will be better maintained through new pumpout and inspection requirements.

4. **On the map of the parcels within 1000' of Chesapeake Bay Tidal Areas (for the tighter septic regulations, which I support), it seems to show the upstream limit of Nanticoke River tidal water at Old Furnace Road (Road 46). I used to live for many years on the upstream side of that bridge and I can assure you that tidal waters extend further upstream (north) to a point somewhere between the power line right-of-way (visible on aerial photos) and Route 404. The unprotected lands upstream of Old Furnace Road are certainly under threat of further residential development, when the economy improves. Related to this, why stop the new septic regs at tidal water? I think the new regs should continue upstream as far as the water constantly goes.**

It's a first step; we are targeting systems close to tidal waters. We will, as an adaptive management effort, consider in the near future the need to expand this requirement.

5. **In the final Phase I WIP, Delaware should provide more detailed information on its NPDES permitting, enforcement, and compliance programs and make stronger commitments to implementing pollutant control measures in all sectors to achieve the Bay TMDL.**

Delaware has added many new details and commitments in our final Phase I WIP.

6. **For nearly every sector, the draft WIP states that 100 percent of facilities subject to NPDES permits have those permits but does not provide the specific number of facilities. This information also does not reveal which of these facilities have up-to-date permits and which have expired or administratively continued permits. The draft WIP does not contain any schedules or commitments for updating expired permits, nor does it disclose when all permits will be made consistent with the Bay TMDL.**

Sections 4 and 5 of the WIP identify all NPDES permitted wastewater facilities and include a schedule of when permits expire. There are no permits in the CB area that are currently expired. Permit changes will occur as they expire and are issued.

7. **In the final WIP, Delaware should not only point to programmatic needs but also to personnel and financial gaps and provide a plan for filling those gaps. For example, the wastewater section notes that current staff levels are "insufficient to**

keep up with permit issuance demands” but does not specify what additional staff is needed and how the state may acquire funds for new staff.

This issue has been addressed in the final Phase I WIP.

8. The draft WIP contains some information regarding inspections but not enough to determine whether Delaware is operating an effective, deterrence-based enforcement program in each sector. For example, the WIP states that “all of the major and half of the minor permitted wastewater facilities are inspected/audited on an annual basis.” The WIP also states that compliance and participation rates are 100 percent for wastewater treatment plants and “[n]o additional regulatory or enforcement authorities are needed to meet these rates.” However, the WIP fails to provide information to substantiate these claims, which if true are remarkable. Without providing additional details regarding the number of onsite inspections versus paperwork audits or the inspection protocol, assessing the enforcement program is difficult.

In the final WIP, Delaware should include complete enforcement data, including: the number of physical, onsite inspections per sector; the number of violations and penalty actions and the amount of penalties assessed during the past year; a description of the enforcement activities by local governments with delegated authority; and a detailed picture of enforcement resources. Collectively this information would allow a better understanding of how Delaware’s NPDES permit enforcement program functions.

Language regarding the inspections at the wastewater treatment facilities was clarified to show that the inspections were performed as on-site inspections and not strictly paperwork audits.

Information regarding enforcement at wastewater treatment facilities is covered by the Compliance and Enforcement Response Guide referenced in Section 5.1.2. In addition information pertaining to penalty actions including amount of penalties is reported to the EPA on an annual basis and is considered outside the scope of the WIP.

9. Compared to other states’ submissions, the Delaware draft WIP contains fairly detailed contingencies. For example, wastewater facilities may be required to upgrade to higher levels of nutrient removal, up to the best available technology. However, the weakness in these contingencies is the lack of commitment to implement them; the draft WIP does not specify a timeline or cite resources for implementing these contingencies. In the final WIP, Delaware should establish a timeline for identifying failures of primary controls and implementing contingencies. For example, Delaware could commit to periodic checks of the primary controls that coincide with the two-year milestones.

DE will be assessing progress at a minimum, every two years. Additionally, as we approach 2017, which is when we need to achieve 60% of our reductions, we will consider the need to implement contingencies and other adaptive management approaches.

10. On Site Disposal - Currently, all of our wastewater is being processed at the Bridgeville wastewater treatment and spray irrigation facility. At this time, we have been allocated a capacity of 85,000 gpd to meet our needs. However, the Town of Greenwood has been under a building moratorium for the last 4 years because capacity at the Bridgeville facility has not been available to support the growth opportunities which have come before Greenwood. Therefore, the town would like to construct a new wastewater plant and spray irrigation facility with a projected 20 year demand allocation to reach 200000 gpd. The future ultimate goal with this facility would be 300000 gpd.

DNREC is aware of the situation between the towns of Bridgeville and Greenwood, and can provide technical assistance once the towns reach an agreement and develop a plan for the future.

Phase II

11. Page 47 describes how thousands of existing septic systems (70%) are to be eliminated by 2017. Page 63 states that a minimum of 4,209 systems will be eliminated by 2017. Page 94 lists the potential capital cost for replacing septic with sewer as \$25,000. Accordingly, this equates to a capital cost of more than \$105 million over the next 5 years. The WIP does not address if the elimination will be voluntary or how this cost will be borne.

The costs vary depending on sewer district. Once a new sewer district is established, either by voter referendum, or the expansion of a municipal sewer district, the property owner will be required to connect to the sewer system. The cost of connection will be borne by the property owner. In some cases low-

interest loans or other funds may be available to property owners or service providers to reduce or offset the cost for connections.

We will address the cost and nature of the eliminations in the Final Phase II WIP.

- 12. Page 55 describes how the EPA Model does not account for private, non-POTW wastewater treatment quality from larger systems (Spray Irrigation, etc.) of more than 2,500 gallons per day. Currently, businesses and residences treated in this manner are modeled as individual systems. DNREC has stated to the EPA that this likely overstates wastewater loading.**

Noted. This issue has been identified this as an issue and will be addressed with EPA as the Chesapeake Bay model is updated.

- 13. Page 58: One third of all individual septic systems are to be pumped out and inspected annually. It is unclear if this is inclusive or mutually exclusive of those septic systems that are connected to sewer and or replaced by Advanced Treatment for failing systems. A tabulation of this overall strategy by year and the anticipated reductions would be valuable in order to accurately estimate cost-benefits from these combined practices and to prevent “double counting”.**

Once a home is connected to central sewer, the septic tank is removed; consequently, there will no longer be a tank to pump out. Advanced treatment units utilize septic tanks for pretreatment. These septic tanks still need to be pumped out once every three years.

Thank you for the recommendation. We will work on this as part of our future cost assessment and milestones.

- 14. If 77% of the developed areas within the watershed consist of low-density residential development, and already achieve baseline (Page 73) what total benefit will be derived and at what cost to upgrade to Advanced Treatment? Page 59 states that all homes within the watershed could be required to implement this technology by 2025. This cost could potentially rival the \$25,000 per home estimate to connect to sewer. Therefore, to assess the true cost, the actual number of residences on individual septic systems currently and projected to 2025 should be identified. This actual cost is likely several hundred million dollars (2010 dollars) borne by the taxpayers and residents of Delaware and is understated in the WIP.**

Only existing systems located within 1,000 feet of tidal waters and wetlands in the Chesapeake Bay watershed will be required to upgrade their systems to advance treatment by 2025, as systems fail. This requirement affects 1,432 existing systems. This number may be reduced as sewer districts expand in some of these areas. Any new development in these areas that wish to build individual systems will be required in accordance with the regulations to install advanced treatment units.

- 15. On p. 55, it is good to see recognition of the need for grant funding for WWTF upgrades to assure affordability to City residents. This point should be expounded upon; perhaps there should be a specific subsection that addresses funding gaps, as in the Agricultural and Restoration chapters. Consideration could be given to a program similar to Maryland’s Flush Tax.**

Thank you. Chapter 15 focuses specifically on funding. DNREC will continue to examine and quantify funding needs and potential alternative funding mechanisms.

- 16. On p. 53, options for growth beyond the permitted WWTF loadings include Spray Irrigation and “some sort of Credit Exchange program”. More details are needed on the credit exchange option.**

There are currently no details on a credit exchange program as it is just one potential option to be developed in the future. As a program is developed, details will be shared with affected parties, including municipal leaders.

STORMWATER

Phase I

1. **Again, DeIDOT was discussed in the meeting but is conspicuously absent in the WIP. This is problematic if the impervious cover within the Bay drainage area is 1/3 roads.**

DeIDOT was a member of the Interagency Workgroup and Stormwater Subcommittee. Based on an analysis of the 2007 LULC data from the Office of State Planning Coordination, roads generally account for 30-45% of the impervious cover in the various land-river segments in Delaware that drain to the Chesapeake Bay. However, the total impervious cover is only in the 2-7% range for these same segments, which translates to generally less than 3% of the overall land use in the watershed being associated with roads. In addition, the majority of the road miles within the Delaware portion of the Chesapeake Bay are drained via open channels which further reduce their impact from an urban stormwater perspective. DeIDOT is currently conducting preliminary studies on quantifying the benefits of these open channel systems. In addition, the Final Draft WIP also recommends taking an opportunistic approach to retrofitting some of the existing urbanized areas, such as the proposed Washington Street Stormdrain Upgrade project in Seaford that was recently funded through a Chesapeake Bay water quality improvement grant.

2. **Page 59 – The statement “...maintain existing acreage” – what does this mean?**

“Maintain existing acreage” in this context refers to a goal to perform the necessary routine maintenance on the existing urban BMPs to ensure they function as designed.

3. **Page 61 – What is “Mud Tracker” and how is it different from the NOI? I would tout that the NOI was implemented to address CWA requirements.**

MudTracker is an internal project tracking database that DNREC and its delegated agencies will use to provide input to the Scenario Builder for use in the Chesapeake Bay Phase 5 model. The Phase 5 model is intended to be the vehicle that EPA will use for monitoring the State’s progress toward the 2-YR Milestones and the overall goals of the WIP. MudTracker will track a project throughout its lifespan, including the maintenance phase. The NOI database only covers the active construction phase and does not include all the input parameters needed for Scenario Builder.

4. **Page 58 Individual NPDES Permits for MS4s-Will updating the MS4 permits help bring your nutrient loads down? If so, can these permits be rewritten before the 2011 Phase II deadline?**

It is not expected that nutrient loads will be brought down quickly or immediately since permittees are going to be tasked with implementing a stormwater management plan (some goals are longer term goals). The goals of the new permit focuses on reducing pollutants associated with a TMDL. I believe that the all permits within the Chesapeake (n=1) have a TMDL for nitrogen, phosphorus, and sediment. See p. 59 – “With one full-time staff now allocated to the MS4 program, it is estimated that all existing MS4 permits in Delaware will be renewed by 2013.”

5. **Page 60 Contingencies- Detailed, proposed BAT's should be listed**

The Stormwater section of the WIP presents the case that Delaware employs the current BAT through its stormwater management regulations. The “Contingencies” section thus implies that if the use of this BAT is shown to be inadequate to meet required pollutant reductions under the Chesapeake Bay TMDL for urban stormwater, then the technology must be advanced using as-yet unknown techniques.

6. **Page 61-General Permit Coverage for Industrial Stormwater Runoff- are the "proposed" new regulations on DNREC's list of goals for this year? If not, how long will it take? Does it need approval from the General Assembly?**

We plan to have a draft regulation ready sometime in 2012. I would guess that it would be promulgated sometime in 2013, because it takes a while to get through the public process. We’ve just received bids to begin the process of hiring this task out.

7. **Sediment loading reductions – what is the basis for annualized loadings? Is it based on the Universal Soil Loss Equation? I have found that the USLE consistently over-estimates erosion rates. Remember, soil loss due to construction E&S is a TRANSIENT condition. How is this accounted for?**

Sediment loading rates are explained in the documentation for the Chesapeake Bay Phase 5 model. Construction sites are given a different land-use category than the other urban land-use categories in the model and subsequently have different loading rates. As of the time of this writing, the documentation for land use and sediment simulation used in the model was available at the following link:

http://www.chesapeakebay.net/model_phase5.aspx?menuitem=26169

8. **Implement and aggressively monitor the water quality in those tax ditches and streams that are adjacent to rural strip and block development. Effective monitoring points need to be placed both upstream and downstream of the respective development sites.**

Comment so noted.

9. **The draft WIP cites high permitting and inspection rates for portions of Delaware’s stormwater program. However, the WIP fails to provide sufficient information to verify these rates, and EPA has expressed its skepticism of these rates. The WIP does not disclose the extent of a local government’s delegated authority to conduct inspections, which is important information because stormwater permits are often administered by local authorities. In the final WIP, Delaware should provide more information to substantiate the high levels of permitting and should further specify needs to ensure that its stormwater program will meet the requirements of the Bay TMDL.**

This has been addressed in the Final Draft version of the WIP.

10. **Compliance - The existing stormwater system will be brought in compliance with the current regulations as redevelopment of property with the existing system occurs. All new development will be in compliance with DE regulations.**

Comment so noted.

Phase II

11. **Page 28 Pie-Chart: Based on sediment contributions cited by the EPA Model, and the following contributing sectors:**

Developed* @ (31.6% x 98.95 MM lbs Sed.) / 45,127 Ac = 693 lbs/Ac Sed.

*(ONLY Urban Runoff, NOT TSS from POTW)

Forest @ (6.1% x 98.95 MM lbs Sed.) / 180507 Ac = 33.4 lbs/Ac Sed.

Agriculture @ (62.3% x 98.95 MM lbs Sed.) / 225,634 Ac = 273 lbs/Ac Sed.

This is to say that a “developed” site contributes 2.5 times the sediment load than a farmed field on an average per acre basis. Clearly, once a stabilized site is either paved, sodded, vegetated, etc., the erosion potential and contribution is drastically reduced. This, coupled with the TRANSIENT nature of the loading associated with a construction site would suggest that a factor of 2.5 may be inflated. In addition, there is apparently no accounting for sediment loading from POTWs or contributory bed load resulting from stream migration or other natural processes. This model result may not reflect actual conditions or sources, and therefore sources of other pollutants as well. There is no quantification of acres of active construction within the Chesapeake Bay Watershed of Delaware.

Since this comment is related to modeling assumptions and processes, this comment will be directed to EPA for their consideration.

17. **Page 66: Within the ENTIRE Delaware Chesapeake Bay Watershed, there is only 4% impervious cover. 1/3 of that is roads. Therefore, 451,268 Ac x 0.04 x 1/3 = 6,017 Ac of road impervious surface. DelDOT’s obligation to improving water quality is limited to street sweeping (Page 86).**

The vast majority of the DelDOT road system within the Chesapeake drainage area is drained via vegetated open channels. This results in a disconnection of the impervious area, which is consistent with the goals of the proposed revisions to the Delaware Sediment & Stormwater Regulations (DSSR). DelDOT is attempting to better quantify the benefits of this type of drainage system from both a hydrologic as well as a pollutant reduction standpoint so that these benefits can be better accounted for in the CB model.

Also, see the response to #13 below.

- 18. Page 81 lists that DelDOT has inventoried 9,300 stormwater management structures and 625 miles of stormwater conveyance within the Chesapeake Bay watershed. It is unclear how much of this infrastructure is owned or maintained by DelDOT. It would seem appropriate that this vast, extensive network of drainage would present ample opportunities for DelDOT to implement appropriate BMP retrofits within the watershed.**

See response for #12 above. In addition, it has already been pointed out in the Phase I WIP that urban retrofits are not considered to be a cost effective means to reach the overall goals for the WIP. However, if retrofit opportunities arise they will be considered. DelDOT has significant retrofit/restoration obligations in other parts of the state that are covered by Phase I and Phase II MS4 permits. Stormwater BMP retrofits are very costly, and state resources are limited. Hence, DelDOT intends to focus its retrofit efforts in the more highly urbanized Phase I areas, where they will result in the greatest water quality benefit.

All of the stormwater system inventoried is owned and maintained by DelDOT. All conveyances, structures and outfalls are given full maintenance inspections and are screened for illicit discharges as they are inventoried, and maintenance work orders are generated as necessary.

In addition, all DelDOT-owned BMPs are inspected annually, with both routine and major maintenance performed as necessary to keep them fully functional. Any BMPs found to be functionally deficient are repaired or retrofitted as appropriate.

- 19. Pages 41 and 73 state that Delaware will incorporate post-construction stormwater discharge regulations, whatever they are, when promulgated by the EPA without regard to science, fact or public input. This should be clarified.**

The EPA's post-construction stormwater discharge regulations are issued by Federal rule and are therefore vetted through the Federal public review and comment process.

- 20. How did DNREC arrive at a \$23 per cubic foot of runoff volume as the fee in-lieu?**

The analysis was performed by The Center for Watershed Protection under contract to the DNREC Sediment & Stormwater Program in support of the proposed revisions to the DSSR. The report is available as Article 2.04.1 of the Draft Technical Document that accompanies the proposed revisions.

- 21. Based on past practices in many areas of the country, fee in-lieu programs have not proven to efficient or effective in achieving the desired results. HBADE would encourage that the fee in lieu program be used as a last resort behind actual projects which achieve water quality results as part of an offset and/or trading program.**

The proposed regulatory language is flexible enough to allow alternative offsets with Departmental approval. The fee-in-lieu is provided as the current default if no other alternative is approved prior to the effective date.

- 22. From the tables on Page 131, it appears that proposed development on "C" soil always fails the nutrient loading threshold. The offset component of the WIP (discussion page 131 et. al.) appears to be an afterthought and not addressed until after 2017. Furthermore, what authority does PLUS have to track or regulate loadings? This seems like it should be under the authority of DNREC.**

The graphs are not intended to be all-inclusive, but rather illustrate that under certain combinations of impervious cover and Hydrologic Soil Group (HSG), runoff reduction alone may not meet the TMDL. However, additional stormwater treatment practices would further reduce the pollutant loadings. It is impossible to predict what combinations of land use, soil type, and stormwater BMP implementation will occur in the future. Therefore, the Department has proposed an adaptive management approach related to urban stormwater. Progress will be checked at the Milestone intervals to determine if the performance standards under the proposed revisions to the DSSR are meeting the goals set forth in the WIP.

- 23. Page 27 refers to legacy loads within the groundwater and contribution to surface water pollution over time. If this is the case, how will infiltrative practices reduce overall pollution?**

The legacy loads can largely be attributed to surface application of nutrients that greatly exceed those associated with urban runoff. With the move toward lower nutrient level fertilizer formulations for the

consumer market, it is hoped this legacy load will decline over time such that the suite of runoff reduction stormwater BMPs will function as intended.

24. **Page 42 discusses segregating between types of developed land uses (commercial, residential, etc.) and those developed prior to 1991. Later the WIP states that retrofit would not yield a significant and cost-effective reduction of pollutants, yet this appears to be a source of meaningful reductions elsewhere in the WIP, especially on Table 13.**

The Milestones are established by EPA to serve as a guide for the States to meet the 2017 and 2025 goals. DNREC has commented to EPA that the current Milestones for the Urban sector are unrealistic based on uncertainty in the modeling results. However, in the end, what matters is meeting the Milestones for "All Sources". This is the goal the Department will use to formulate its strategy under the WIP.

25. **Table 13 shows a 67% reduction in Urban Runoff, yet retrofits are not a significant element of the WIP as described on Pages 46, 47 and again only as "targeted" on Page 74 and even discounted on Page 81. The Stormwater Section 7, Page 66, describes the new upcoming regulations and potential reductions through the use of BMPs. It is evident that in order to achieve the required reductions, land use (development) as shown on Table 13 (not retrofits) must occur. Accordingly, if new development, not retrofits, are to constitute the bulk of the 67% reduction, this can be attributed to land conversion from Ag and reductions from BMPs. However, if you add Point Source, Urban Runoff and Septic and include them in "Developed Lands" (Table 13) you have an average of 15.19 pounds TN per Ac as compared to 15.28 pounds TN per Ac for Agricultural uses. Since septic and POTW loading is slated to increase, this suggests that the required reductions for new development (without retrofits) are FAR MORE SIGNIFICANT than indicated.**

See response for #19 above.

26. **Page 72 lists CCR requirements on projects where soil disturbance is greater than 50 Ac. Is this the total aggregate project limits of disturbance? DNREC limits open disturbed areas to 20 Ac.**

The proposed revisions to the DSSR have eliminated the 20 ac. limit on disturbance if an engineered plan is prepared to manage the runoff from the contributing area for the 2-YR storm event based on a "bare earth" condition. A CCR is still required for projects that disturb an aggregate of 50 acres or more whether in phases or at one time.

27. **Page 21 states that "...water runs through the soils, carrying pollutants with it into the groundwater". It is evident that a significant component to reducing pollutant loading is to come from new stormwater regulations, described on page 73. These new methods rely heavily on infiltration practices. This involves potentially infiltrating nutrients into the ground.**

The suite of runoff reduction BMPs proposed under the revisions to the DSSR rely on a treatment train approach, rather than the traditional single BMP approach used in the past. This maximizes the contact time with both vegetation and soil microbes which enhance pollutant reductions prior to reaching groundwater sources. This is deemed to be much more effective than direct discharge of stormwater runoff into wet ponds that are often established at the static water table elevation and potentially lead to direct contact of pollutants to groundwater.

28. **Page 84 presents a requirement for redevelopment projects to reduce their effective imperviousness to 50% of the existing condition. If redevelopment projects represent the significant source for retrofit projects (Page 75), this arbitrary requirement would appear to hinder those projects that consist of nearly 100% impervious cover and where infiltration is undesirable for environmental or other concerns, even if located adjacent to tidal waters. Presumably, these projects would be required to pay the fee in-lieu of compliance which again would make these projects less desirable and disincentivize investment in already urbanized areas with existing infrastructure, which is counter to the State Strategies Maps published by the State Office of Planning Coordination.**

The proposed revisions to the DSSR contain provisions for remediation of Brownfield sites to comply without meeting the runoff reduction requirements. Under the current regulations, there are no such provisions - all redevelopment sites must meet the same requirements as new development sites.

29. **"Regulatory requirements include design standards, along with routine inspections for new development and re-development. If a stormwater BMP that was installed under the existing (and eventually the revised) regulations is deemed to be non-functional, the BMP must be reconstructed to a functional condition. Therefore the data contained in the**

database and reported to the Chesapeake Bay Program will only represent fully functioning practices and Delaware has procedures for ensuring that practices are in compliance.”

This language reaffirms that whoever is liable for a BMP must be prepared to reconstruct it if it malfunctions. This has implications for homebuilders, for homeowners, and for communities. This liability, along with the new tax on homeowners for the purchase of offsets required for the pollutants from their home, are certain to lower the value of new homes when compared to homes constructed prior to the TMDL. Beyond that, it will redefine the concept of a “homeowner” in the Bay watershed.

The requirements for maintenance of stormwater management BMPs have been in place since the original Delaware Sediment & Stormwater Regulations were promulgated in 1991. There is no offset currently proposed for developments that do not meet a specific pollutant reduction. The offset proposed under the revisions to the DSSR are based on volume reductions only.

30. In order to achieve enhanced water quantity and water quality goals, the Sediment and Stormwater Program has identified the need to revise the existing regulations that govern stormwater runoff from urban and suburban lands. These proposed regulations, which are discussed in more detail in the next section, are expected to be promulgated in 2012, and will apply to new development and redevelopment projects. These regulations will emphasize green technologies, which are expected to be adequate for minimizing new stormwater loads in the urban/suburban sector. Additionally, the permitting and compliance processes will be further enhanced.”

2012 looks to be a busy year for Delaware homebuilders, regardless of what the economy will be like. The paragraph following the language above discusses potential sources of errors for the urban sector that will be re-examined. That is good. Another change to the TMDL not mentioned in this draft WIP may result from the release of 4 million tons of sediment from the Conowingo Dam during Tropical Storm Lee in 2011. EPA has not published anything on the matter, but I believe that EPA will have to revisit the Chesapeake Bay modeling assumptions used for the TMDL as a result of that calamity.

Comment so noted; response not necessary.

31. Page 73, 7.1.1.4 Strategy to Fill Gaps: This section discusses the new requirements that will be proposed in the 1st quarter of 2012 for development and redevelopment. The use of LID BMPs for stormwater control will be emphasized. Delaware will be establishing an offset program to help builders meet the new stormwater requirements. The ELGs rule will be adopted when the state construction general permit is revised.

Comment so noted; response not necessary.

32. Page 76, 7.1.1.5 Contingencies: Evidence of the difficulty of this TMDL: “If needed load reductions for the urban and suburban sector cannot be met using current best available technologies (BAT), the technology will need to improve in order to meet any shortfalls.” and “The Department has proposed to use funding through the Chesapeake Bay Regulatory Grant to enhance the inspection and compliance assistance/ enforcement capabilities State-wide as well as within the Chesapeake Bay watershed.”

This text is accurately quoted from the WIP and no response is required.

33. Page 82, 7.1.2.2.3 Gap Analysis: Worth noting – “DNREC’s Sediment and Storm Water Program, DelDOT, and DNREC’s SWDS have determined that additional funding is necessary in order to support heavier implementation and additional enforcement and compliance. With current economic status, the regulatory agencies have not been able to meet full staffing capacity, let alone hire additional staff.”

This text is accurately quoted from the WIP and no response is required.

34. Page 84, 2nd paragraph:

The proposed revisions to the DSSR will increase the required treatment volume to the annualized runoff from the 1-year frequency storm event, which is approximately 2.7” of rainfall in Delaware. This would capture and treat all runoff up to the 99th percentile annual precipitation. For new development, the initial goal would be to employ runoff reduction practices to the maximum extent practicable (MEP) to capture runoff volume such that the effective imperviousness for the site is brought down to 0% thereby reducing pollutant loadings by an equivalent amount. Redevelopment projects would be required to reduce their effective imperviousness to 50% of the existing condition, with a consequential 50% reduction in the existing pollutant load. If site conditions are such that the runoff reduction criteria cannot be met, an offset must be

provided such that equivalent runoff reduction objectives can be met elsewhere in the project watershed. Applicants may employ additional stormwater treatment practices to reduce the offset requirement. This approach is consistent with the recommendations from the National Research Council's report on —Urban Stormwater Management in the United States, as well as recent EPA policy memoranda that recognize stormwater flow and volume management as appropriate surrogates for meeting overall water quality and habitat protection goals and objectives.”

Wow, capturing the 99th percentile storm! Effective imperviousness of 0%! I wonder if Delaware has any idea of what the cost of these requirements may be. Sites that cannot do infiltration will have to have large, expensive ponds with the liability on the property owner for fixing whatever BMPs are used if they should fail. Failure seems to be more likely for infiltration BMPs, which will be the preferred BMPs in Delaware. The redevelopment goal of reducing imperviousness by 50% is likewise ambitious, perhaps too ambitious to be affordable. Requiring a 50% reduction in pollutants in urban areas is a big stretch too. I doubt that these requirements exist anywhere in the U.S. and providing an offset provision only helps if offsets are available for a particular project. Having a fee-in-lieu is a good provision, but the builder will have to meet the above provisions to the extent practicable which may be an expensive proposition. Good technical input will be critical when you are commenting on these requirements when they are proposed next year (I assume that there will be a public comment period). The economic consequences of these new requirements may be drastic for future development in the state. A comment worth making on this section to Delaware might be that the stormwater requirements above are only proposals that the state of Delaware will make and the actual requirements that result after public comment may be quite different.

The runoff reduction requirements under the proposed revisions to the DSSR vary depending on the amount of impervious area and the Hydrologic Soil Group (HSG). Sites that propose the highest amount of impervious area will have the greatest runoff reduction requirement. Sites with soils having the least permeability will have the lowest runoff reduction requirement. This is deemed to be both more equitable and more technically feasible than the “one size fits all” approach being taken by other jurisdictions with no regard to either of these physical factors. Only sites with impervious cover between 55% and 100% depending on the soil type would be required to reduce more than 1”, which is the typical runoff reduction goal for all sites, independent of the impervious cover, in other jurisdictions. In fact, for the typical levels of imperviousness associated residential development the runoff reduction requirement proposed is less than 0.5” for sites with HSG “C” soils.

Also of note, the process for revising the DSSR officially began in October 2007 as the result of recommendations from then Gov. Minner's Task Force on Surface Water Management. This pre-dates the May 2009 Chesapeake Bay Protection and Restoration Executive Order by more than a year-and-a-half. Although adjustments have been made during the development of these revisions to ensure consistency with the Chesapeake Bay TMDL, it is not the driving force for these proposed changes. The need for updating the DSSR was specifically cited in the April 2005 Task Force Report, as was the recommendation to place a greater emphasis on managing stormwater runoff volume. During the 5-year period that has elapsed while the revisions were under development, there have been 8 Regulatory Advisory Committee (RAC) meetings, with representation from the consulting community, home builders, environmental groups and local jurisdictions; 223 individuals have identified themselves as interested parties in this process and are advised of all updates through an email contacts list. There have been 37 subcommittee meetings dealing with specific issues; the Technical Subcommittee conducted 20 of these meetings alone. The Sediment & Stormwater Program (SSP) has received over 700 comments to date; all of which are kept in a database for tracking purposes. Most of the individuals providing these comments have received responses back as well.

The comments were used to refine 3 drafts of the proposed regulations themselves and the SSP has conducted several public workshops to keep the public abreast of the progress and allow for even more public comment, even though this is not a requirement. In short, the proposed revisions to the DSSR originated with public health, safety and welfare concerns associated with urban stormwater, was specifically cited for needing improvement through a public task force and has been developed and refined through continuous public input over a 5 year period.

Questions perhaps worth pursuing with the state: How is road building affected by these requirements? How much of the future impervious surfaces in the state will result from new roads that will be built by the state? Is road building expected to reach an effectiveness of 0%? Are the above requirements binding on federal lands in Delaware?

As one of DNREC's delegated agencies, DelDOT will be implementing the same requirements for their new road construction as is required for any new development. If a project cannot meet the runoff reduction requirement, an offset must be provided. DelDOT has been an integral player in the development of these proposed regulations and is developing its own offset program which it will propose to the Department. Federal projects within the Chesapeake Bay drainage area have their own requirements to fulfill under EPA guidance, but must also acquire an approved Sediment & Stormwater Plan that meets the requirements of the Delaware Sediment & Stormwater Regulations.

- 35. Page 66 / 73: 81% of the developed areas are low-density residential. Therefore, 45,127 Ac x 0.81 = 36,553 Ac of low-density development.**

Correct, the low-density acreage is approximately the value listed and depends on the data set utilized.

- 36. Page 71 describes how BMPs "...deemed to be non-functional..." will need to be reconstructed. What will be the metrics for establishing non-performance? What will be required if a facility was designed and constructed in accordance with earlier requirements and is compliant with those standards? What if technical challenges disallow significant alteration of design approach? It is conceivable that some degree of culpability lies with the regulatory agency that reviewed and or inspected the facility during design and original construction, provided an adequate maintenance program was followed.**

The identified phrase was intended to mean facilities that fail due to lack of maintenance or as the result of an event beyond its design capabilities. Although we are always looking for upgrades in a retrofit situation, as a minimum a failed facility would have to be reconstructed in accordance with its original design. If it is determined that the failure occurred because the design was flawed, the responsibility lies with the designer. If it is determined that the failure was due to faulty construction, the responsibility lies with the contractor. Generally, review agencies are not culpable for such failures unless it can be shown that an individual was grossly negligent in carrying out his/her duties.

- 37. Page 85 – Section 7.2.1.6 The Acres / facilities values reported needs to be coordinated.**

Thank you for identifying this inconsistency. The text has been modified accordingly.

- 38. Page 135, first bullet: While the second bullet on the page makes note that some policies can work against the goal of placing new development into the existing urban areas, the 1st bullet does not mention that the 50% reduction requirement for both impervious area and for pollutants for new redevelopment projects may be close to an insurmountable barrier for such projects. Commercial projects must still make a profit and it is possible that some projects may not be affordable under the new stormwater requirements that are expected to be proposed, even with help from provisions for offsite mitigation and fee-in-lieu alternatives.**

The existing Sediment & Stormwater Regulations stipulate that redevelopment projects must meet the same requirements as new development projects. This acts as a disincentive for potential redevelopment projects. The proposed revisions to the regulations relax the requirements for redevelopment compared to those for new development. The runoff reduction requirement for redevelopment is half that for a similar new development based on the existing impervious cover. Compliance can be accomplished through physical reduction of impervious cover, implementation of runoff reduction practices or a combination thereof. If the minimum reduction cannot be accomplished on-site, an offset provision is available. The offset requirement can be further reduced by employing stormwater treatment practices that reduce pollutant concentrations. In addition, there is a new provision for Brownfield redevelopment projects that allow compliance under an approved remediation plan that would preclude having to meet the runoff reduction requirements. These options for compliance under the proposed Sediment & Stormwater Regulations will lower the costs for redevelopment compared to new development, which is not the case under the existing regulations.

LANDUSE

Phase II

39. **As stated in the WIP, the State controls approximately 10% of all lands within Delaware’s Chesapeake Bay Watershed. This is exclusive of lands owned, leased or facilities similarly operated associated with DelDOT and other State operations. It is evident that the State, not private landowners or businesses, is accountable for these adverse impacts to the Bay Watershed. Furthermore there is no accountability for regulators or other State Agencies that fail to comply with the requirements of the WIP. The Phase II WIP only documents penalties for private businesses or citizens for violations.**

The publicly owned lands within the watershed are either forested, open space or agricultural. The Department along with Department of Agriculture is conducting an evaluation of lands under state control to identify existing practices in place to reduce nutrients as well as identify opportunities for implementation of additional activities. Restoration and agricultural best-management practices are among the most cost-effective means of reducing nutrient pollution. DNREC already has developed restoration priorities within the Nanticoke watershed. Agriculture leases on state lands have also been reviewed and will require implementation of cover crops and other practices in the future.

Also, it is envisioned that DelDOT or any other government agency also will be required to offset new loadings under the statewide nutrient offset regulation being developed.

“Penalties” are currently only assigned to permitted facilities for violations to permit conditions or to residents or business for violations to state laws. The Chesapeake Bay WIP does not assign any new penalties for any resident or business specifically associated with this plan.

40. **The WIP relies on Tax-parcel data and ownership provided by the EPA. Since all land records management is a function of County Government, why did DNREC rely on data from the EPA? Based on this EPA-supplied data set, no Post Office in Delaware is located within its Chesapeake Bay Watershed.**

The state provides data to EPA. This data is obtained by from the counties as well as other sources. The US Postal Service is required by the President’s Executive Order to comply with the TMDL and develop a plan for its facilities. Specifically the Post Offices located within the watershed in Delaware are very small facilities located in urban areas.

41. **Page 48 discusses total loading contribution by sector and how it is related to land use. Moreover, that the total load per acre will not change as a result of the development of an offset program. However, Page 130 present that an offset program for “residual loads” will not be developed until AFTER 2017, after 60% reduction are required. In addition, Page 73 describes the “legacy loads” as coming from 77% low density development of the 81% residential (34,748 Ac of the 36,553 Ac residential) and already meets baseline conditions. This means that of the 45,127 Ac of developed areas in the watershed, only 10,379 Ac are responsible for the majority of urbanized pollution. Of this, a significant portion if from roads. This would suggest that urban retrofits would be of significant value in reducing its impact. In fact, the argument against retrofits on page 74 states that only 0.06% of the Delaware portion of the Chesapeake Drainage Area would potentially be treated with a goal of 25% or 1,500 acres treated by urban stormwater retrofits. This is a flawed analysis. While it may be true that the area treated would consist of only 0.06%, the key consideration is the quantification of the reduced loading, and costs for that reduction.**

Comparisons of required and anticipated loading reductions by contribution sector and cost based on EFFECTIVENESS and TOTAL POLLUTANTS removed rather than area is necessary in order to understand the real potential cost/benefit for reductions. This will better prioritize a more focused effort, rather than by utilizing the “shotgun” approach.

The cost and benefits of stormwater retrofits have been considered. While it is not our primary strategy, the Department is not opposed to stormwater retrofits for nutrient reductions and has been working with local governments to identify potential opportunities and funding mechanisms. Additionally, the Start Action Notice for a statewide nutrient offset regulation expects that program to be developed by the end of 2013, not 2017. However a market based trading program may not be developed and implemented until after 2017. The offset program will be used to address new and increasing loads above the TMDL baseline levels (2009).

42. Page 135 presents a strategy to encourage growth in higher-density municipalities rather than large-lot, low-density development on septic. However, Kent County's strategy has been to encourage large-lot low density septic. Moreover, 77% of this type of residential land use already meets baseline. Coupled with the requirements for Advanced Treatment (by 2025) this practice should meet the TMDL objective. If development is required, in part, to meet the TMDL and subsidize other programs outlined in this WIP, then a cogent and consistent approach needs to be adopted. The continued fracture between State goals and local decision-making and management will ensure inconsistent practices obscure the regulatory process. This may be why DNREC will require "model TMDL language" to be adopted in municipalities' Comprehensive Plans.

More than 80 percent of Kent County's development this century has occurred within its designated growth zone on sewer (Cabinet Committee on State Planning Issues, Report to the Governor and the 146th General Assembly, October 2010).

For a watershed, from a water quality standpoint, higher density development is proven to be preferable to low-density development ("Protecting Water Resources with Higher-Density Development," US EPA, January 2006). We understand there are local issues regarding density; however, incorporated municipalities that provide wastewater treatment and other services more cost-effectively to citizens and taxpayers are supported through the state's Clean Water Council, DelDOT policies, and other funding programs.

We will be recommending, not requiring, language specifically addressing TMDLs in local government comprehensive plans.

43. Page 89 lists the Office of State Planning Coordination Preliminary Land Use Service (PLUS) review as a "...preventative program to ensure that any sort of land use activity is carefully examined." This is not the original intent of PLUS, unless it has been recently changes by statute. In addition, Page 90 describes the process whereby "...planners and applicants can interact in a constructive dialogue to formulate an ideal plan of land use action." In addition, the process is predicated on "...a significant measure of consistency, enforceability, and authority to meet water quality goals..."

In reality, the purpose of PLUS is advisory and does not necessarily reflect the purposes identified above. As stated on the OSPC website: The Preliminary Land Use Service (PLUS), outlined in Chapter 92 of Title 29 of the Delaware Code, provides for state agency review of major land use change proposals prior to submission to local governments.

Moreover:

About the PLUS Process

The PLUS process involves reviews by all applicable state agencies at the start of the land development process, adding value and knowledge to the process without taking over the authority of local governments to make land use decisions. Land use change proposals are submitted to state agencies through the Office of State Planning Coordination and are the subject of monthly PLUS meetings, hosted by the Office, at which applicants meet with state agency resource experts to discuss their plans and identify possible problems, and solutions.

This new, up-front process has a three-fold purpose:

- To identify and mitigate potential impacts of development which may affect areas beyond local boundaries;*
- To fully integrate state and local land use plans; and*
- To bring state agency staff together with developers, and local officials, early in the process.*

It benefits applicants in several ways:

- It allows for a faster review when a proposal is included in a certified comprehensive plan;*
- It provides rewards for development that follows Livable Delaware standards; and*
- It promotes the sharing of ideas and resources among state, county and local governments.*

Applicants are able to fully explain their projects to a group of planners representing all state agencies and to interact with those planners in a constructive dialogue. The streamlined process shortens state response time to more closely coordinate with local time lines. State comments are received in time to be of use and more completely reflect state and local land use plans and regulations.

Nothing in the lengthy description offered for the Preliminary Land Use Source implies that it is anything other than an advisory, constructive examination of development proposals. DNREC and other state agencies do point out regulatory requirements where they exist.

44. **Page 102 describes the desire to buffer municipalities, yet fails to describe how these buffers would change based on annexation.**

The potential area that can be buffered, as identified in the Restoration Chapter of the WIP and based on current data sets, would be done on a voluntary basis as opportunities are identified. The analysis that was performed can periodically be updated to account for future annexations.

45. **Page 141 does not provide for any rationale, benefit or otherwise regarding nutrient reductions for Buffers.**

There is discussion of buffers on page 146. Comment noted. The section will be modified in the final draft of Phase II.

46. **Page 141 describes Buffers required by the Inland Bays Pollution Control Strategies. There is no discussion regarding the legality of these buffers and potential for them to not be allowed by the Courts. In a similar fashion, requiring buffers in the Chesapeake Bay lands may also be illegal. There is no discussion regarding nutrient loading reduction for buffers.**

When the WIP II was released to the public, the Delaware Supreme Court had not ruled. The buffer discussion in the phase II of the WIP will be modified. See question 12 for nutrient reduction calculations. This section will be modified for the final Phase II WIP.

47. **Page 130, 8.3.2. Targeting and offsetting Nutrient and Sediment Loads from Future Growth:**

“EPA has directed Chesapeake jurisdictions to either a) set aside currently unused pounds of Nitrogen and Phosphorous for future use or b) offset any new or increased loads as they occur in the future. In Delaware’s Phase One Watershed Implementation Plan, the State opted to offset future loads. The development community in Delaware favors this and has officially endorsed an offset or trading program, believing it to be a more cost-effective means of complying with other requirements such as stormwater and wastewater.

EPA definition of offset: Compensating for the loading of a pollutant of concern from a point or nonpoint source with a reduction in the loading from a different source or sources, in a manner consistent with meeting water quality standards.

Delaware recognizes that in order to accommodate new or increased loadings of nitrogen, phosphorous, or sediment in this watershed, a mechanism that allows for quantifiable and accountable offsets of that new or increased load is necessary.

The State intends to offset future nutrient loads from lands proposed for development through a combination of

- a) Revised statewide stormwater regulations that are focused on water quantity but also achieve Chesapeake TMDL goals under a variety of development scenarios;
- b) A stormwater in-lieu fee to be applied if site constraints prevent the achievement of water quantity/quality goals on a specific parcel; and
- c) Providing an option that enables the offsetting of residual nutrient loads (including from onsite wastewater disposal) on another site within the same basin.

Because there are only four point sources in Delaware’s portion of the watershed, with three of those four sources operating at levels significantly below their NPDES permit limitations, the Department has determined there is no immediate need to generate the large volume of credits required to enable treatment-plant startups or expansions. For the short term (through 2017), Delaware does not intend to develop the type of larger-scale, market-oriented credit-exchange program that aggregates best-management practices for trading.”

Delaware’s plan seems flexible and reasonable, given that any choice to meet the offsets for the new growth requirement will be difficult. In addition, in the future there may be an opportunity for Delaware builders to participate in a Bay-wide water quality trading program if such a program can be formulated and get past the many challenges that await such an effort. Much more about the effectiveness of the Delaware plan will become known when the Phase III WIPs must be drafted in 2017. Delaware is planning a phased-in plan (see Section 8.3.2.2 Phased Approach which begins on page 132).

Something that Delaware may not have taken into account: Though the state only has one MS4 within the Chesapeake Bay watershed, the new national stormwater rule to be proposed and finalized in 2012 may greatly increase the number of MS4s in the state. If that proposal incorporates smaller communities into the MS4 program, a number of those new MS4s in Delaware may be within the Chesapeake Bay watershed. It is likely that EPA will insist on goals for the retrofit of impervious pavements in all MS4 permits, making the need for trading much greater than what seems to be the case in the state now. In other words, trading will be critical to lower the cost of meeting the reduction of impervious pavements in small communities, if the new stormwater rule makes many small communities into MS4s and requires impervious pavement reductions.

Delaware will closely track the national stormwater rule and any implications it may have on the creation of new MS4s within the State. Turning the small communities within the Chesapeake into MS4 areas is considered a contingency in Delaware's viewpoint.

48. Page 137, bullets 1 - 3: Delaware will be working with the Corps to develop wetlands mitigation banks and an in-lieu fee program. That should be encouraged by home builders. Likewise, the activities in the other bullets, the development of local stormwater utilities and reductions on residential fertilizer, are plans you should consider endorsing when there is an opportunity. Such activities benefit the state, home builders, and water quality.

Comment noted. Thank you for your comments.

49. 11. Page 141, last bullet on the page: While buffers make a lot of land unusable for development or for other commercial uses, EPA is pushing many states to mandate buffers along streams and wetlands. Delaware's requirement of 100 ft buffers along primary streams and 60 ft buffers on secondary waters, with some flexibility to reduce buffer size, seems a reasonable approach compared to what many states have adopted. If Delaware's builders think that they can live with the requirement, you might consider endorsing this concept.

Buffers are among the most effective practices to reduce nutrient pollution. DNREC, through its proposed nutrient offset program, will be exploring opportunities to install buffers as a voluntary, creditable practice.

50. Page 25 at the top of the page includes the statement that "[t]he County does however allow for single lot subdivisions and minor lot subdivision of 10 lots or less within all rural portions of the County". It is a minor point, but that is not entirely correct. Minor subdivisions were created in 1994 and are defined as 5 lots or less. A significant number of lots within the watershed are strip lots created essentially without County oversight prior to 1994. Expiration of those subdivisions is not the issue so much as a distinct lack of market demand and the presence of less than ideal soils.

We have clarified the text.

51. Page 37, Item ii. We very much appreciate an effort to better coordinate the comprehensive planning process, however, it seems an unfair generalization to suggest that it has been the local jurisdictions only that are reluctant to cooperate. Perhaps the statement regarding better cooperation could remain without suggesting fault?

We have modified the text.

52. Page 39. Just a point of clarification, Kent County is pursuing a stormwater service area program which I don't believe meets the definition of a utility. I think the end result will still be to protect water quality as well as help homeowners; I just don't want anyone to misunderstand what we are doing.

Thank you for this comment.

53. There are many graphs and charts which contain numerical codes in the left hand column. I am assuming each code refers to a specific area of the watershed. It would be helpful if you would let me know which one of those codes include Bethel. This information would help with my understanding of the charts.

Figures 3 and 4 in Section 2 of the WIP are maps showing the land river segments referenced in the tables throughout the document.

54. There are many abbreviations in the draft, such as TN and LULC, plus others. Maybe a listing of these acronyms and what they stand for would be very helpful...maybe an index.

Please see the table of acronyms and abbreviations at the end of the WIP.

55. **8.2.3.4 Bethel.** The first paragraph refers to Bethel being situated on the Captain John Smith Historic Water Trail. In order to be more informative, it might be very useful to further explain a little more about Bethel, such as "It is also located on the Western Sussex County Historic Byway. In about 1972 the whole town of Bethel was placed on the National Historic Register in view of its rich history in the maritime industry during the 1800's.

Thank you for the historic information – we will include this text in the WIP.

56. **Throughout the document please refer the City of Seaford as a City instead of a Town.**

Thank you – that mistake has been corrected.

57. **Section 8.2.3.5 of the Phase II draft refers to Blades sewer allocation and its affect on limiting growth. It is worth noting in the document that the City of Seaford and Sussex County have a sewer district agreement that provides for the accommodation of increased flows beyond the stated 120,000 gpd figure stated. This would allow the Town of Blades and or Sussex County to continue to accommodate growth and to eliminate failing septic systems to meet the goals of the WIP. We also participate regularly in collaboration with both “sister” governmental entities to plan for and address development pressures and growth concerns.**

Thank you – the text has been modified accordingly.

58. **Section 8.2.3.13 references the City’s comprehensive plan update slated for 2019. It further states that.....Seaford will consider working with OSP, UD, and DNREC to develop a Master Plan for the Seaford Sewer District that focus on resource protection.... The City of Seaford is very interested in planning and cooperating with the listed entities. We are however concerned that this process not be used as a mechanism to unduly add regulation and additional requirements that would serve to add costs the residents, businesses and potential job creators within the City. We request that we be made aware of these initiatives and have any opportunity to participate in the decision making process before implementation of any new regulations or requirements.**

Any Master Planning initiatives will be dependent on the participation of the respective local government. The partners agencies listed will reach out to the City representatives well in advance on any efforts beginning and will request that the community help design the process so that multiple objectives can be met – not just water quality goals of this WIP. We are very sensitive to potential financial impacts; the CommunityViz software includes functions for calculating costs of various scenarios so that they may be considered up front prior to making firm decisions on changes to comprehensive plans and ordinances.

59. **Section 8.4 references the implementation of a “Nutrient Budget Protocol”. We requested and received an electronic copy of the Nutrient Loading Assessment Protocol, provided by DNREC. In reviewing the user guide several questions and concerns arise:**

*** Will the analysis of projects thru the protocol become mandatory for all PLUS submittals? Will projects that do not reduce the levels of N, P and sediment to the target values calculated by the protocol be denied?**

The exact nature of how the Protocol will be used has not yet been determined, but will likely be tied to our developing offset program.

*** The protocol does not appear to address industrial developments (residential and commercial are only referenced in the document) are industrial sites exempt from the requirements?**

Thank you for pointing this out, as industrial developments have not been included up to this point. We will consider the possibility of including industrial lands in future revisions.

*** Who will provide technical direction and address any needed modifications or variances to the protocol that may be necessary to tailor the output to meet site specific conditions.**

Tetra Tech has assisted DNREC with modifying the Protocol and will be providing training to staff and interested individuals during the Summer of 2012. After that point, DNREC staff will be available to provide technical direction and assistance.

*** Will DNREC provide adequate training to local jurisdictions, the development and engineering community prior to the scheduled implementation in 2012?**

Yes, prior to any potential requirement to use the Protocol, numerous training opportunities will be offered to local governments, development, and engineering professions.

60. **Section 8.4 (ii) states that DNREC will include TMDL language in the comprehensive plan update for Seaford. The document goes on to state that if the requirements are not complied with; plan certification will be withheld. This is concerning, as compliance laws and regulations for development should be separate from the comprehensive plan and could have undesired consequences.**
This particular statement refers to DNRECs intent to work with local governments to ensure that comprehensive plans – and the new ordinances identified in plans as being needed - have an adequate environmental and water quality focus.
61. **On p. 124, the "excess capacity of 1 mgd" statement is not consistent with the proposed Nitrogen and Phosphorus loads presented in Tables 16 and 17 on p. 53. GMB calculates the rerated capacity to be 1.33 mgd, or 0.33mgd of excess capacity, not 1 mgd.**
Thank you – the text has been modified accordingly.
62. **The WIP should address means for strengthening the engagement with local partners, e.g. City/Towns.**
Thank you for this comment. Having cooperative and collaborative partnerships with local governments is one of our top priorities.
63. **On p.75, Seaford is targeted for stormwater retrofits based upon location of "highest impact" (p. 140) within the watershed. The Division of Watershed Stewardship is identified as the lead agency for a 5 acre retrofit project. Seaford would like to participate cooperatively in that project.**
Thank you – we gladly welcome the City's participation in identifying and implementing future stormwater retrofit opportunities.
64. **On p. 124, Dunkin Donuts is cited as having a failing septic system; this needs to be updated to reflect the connection of Dunkin Donuts to the City sewer in 2008.**
Thank you – the text has been modified accordingly.
65. **On p. 125 and 139, a Master Plan is prescribed for Bridgeville, Seaford and Laurel that will focus on green growth and adequate facilities. It is unclear what entity would produce such a plan. Seaford (along with Bridgeville and Laurel) would like "a seat at the table" to assure that local priorities are not compromised.**
Any Master Planning initiatives will be dependent on the participation of the respective local government. The partners agencies listed will reach out to the City representatives well in advance on any efforts beginning and will request that the community help design the process so that multiple objectives can be met – not just water quality goals of this WIP.
66. **P. 137 introduces the Nutrient Budget Protocol and allows for local governments to administer an offset program for stormwater impacts. More work is needed to improve user friendliness of the Nutrient Budget Protocol spreadsheet.**
Comment noted – the Protocol is an evolving tool and we understand the need to have it be clear and understandable and welcome specific suggestions.
67. **On p.141, it is suggested that creation of a Stormwater Utility for Seaford-Laurel-Bridgeville would be a cost-effective method for achieving TMDL targets. This appears to be a broad statement without substance to back it up. Further, on p. 146, the designation of Seaford-Laurel-Bridgeville as an MS4 urban area is suggested as a contingency plan if strategies from other sectors are unsuccessful. It is worrisome that the Office of State Planning, throughout Section 8 Land Use, would be pushing towards MS4 permits, while in Section 7, the Stormwater agencies are focused on collection of data.**
An economic analysis of stormwater utilities has not been included in the WIP and this type of information should be considered before creating new utilities. Utilities however, may provide the needed maintenance and retrofit opportunities to existing aging stormwater infrastructure and negate the need for future permitting through the MS4 program. Turning the small communities within the Chesapeake into MS4 areas is considered a contingency - as in plan B - in Delaware's viewpoint.

68. On p. 145, the importance of urban tree canopy is recognized, yet no recognition is given to recent efforts by the DE Center for Horticulture which planted 300 or so trees that were planted in Seaford.

We are pleased to hear about the City's partnership with the Center for Horticulture. We are currently working with the Delaware Forest Service to ensure reporting of any urban tree planting projects that they are involved with. Additionally, we would like to work with the municipalities to identify all of the BMPs, including urban tree canopies, that are being implemented but may not be tracked and reported in any existing database systems. A new database can be created for the City to annual report this information, which can then be transmitted to the Chesapeake Bay Program for inclusion in model progress runs.

GENERAL

Phase II

1. **It would be helpful for stakeholders if DNREC were to include specific goals, percentages or nutrient reduction expected, etc. at the end of each section. For instance, in Section 4, an Executive Summary or conclusion of the section should provide goals or expected nutrient reduction achievements through stormwater to help clarify where these reductions will be coming from.**

The quantification of pollutant reductions is done using the EPA Chesapeake Bay Program model. The model takes into account all submitted actions and collectively calculations the nutrient and sediment reductions. Effectiveness estimates are known for each modeled BMP and documentation is available on the Chesapeake Bay Program website:

http://www.chesapeakebay.net/about/programs/watershed_implementation_plan_tools/. We will provide at a minimum, the CBP approved effectiveness estimate for each BMP discussed in the WIP.

2. **It is not clear that the Delaware Governor's office or Delaware State Legislature were consulted, or had significant input into the WIP Phase II. If these entities were consulted, the WIP Phase II plan document does not reflect a clear description of the outcomes of those consultations. At its heart, a complex and multifaceted needs of a WIP require a legislative and political process that does not appear to exist at this time.**

The Governor's Office and the General Assembly are certainly aware of both the Phase I and Phase II WIPs. However, no action has been requested of the Governor nor the General Assembly. Delaware agencies have prepared each phase of the WIP by acting within their respective authorities. The promulgation of any regulation must strictly follow agency regulatory development processes which are based on State law.

3. **Delaware's WIP does not appear to be in alignment with the approach used in other Chesapeake Bay Watershed states – raising concerns about equity.**

Delaware's WIP was done utilizing an approach and in a format appropriate for Delaware. EPA has established WIP guidance and outlined the essential elements of WIPs and we believe we met those expectations.

4. **The plan in its current form is likely to face unnecessary judicial action. The following approach is suggested as a parallel track to address these deficiencies while staying within the context of the US EPA mandate for TMDL compliance:**

- **Organize an expert committee (including representatives from outside government) to review WIP program roll-out options and evaluate cost effectiveness and the technical merits for each alternative as proposed in the current Phase II WIP. Test these options against the current numerical model used by the US EPA.**
- **Based on cost-effectiveness considerations, develop a roll-out of the WIP approach that can be paid-for using sustainable and equitable contributions from all of the affected parties.**

Thank you for the suggestion and we will consider the merits of creating an expert committee to review WIP roll-out options and agree that a variety of funding approaches to support WIP work in equitable fashion is ideal.

5. **Similar to DNREC's earlier effort, the proposals for attainment described within the Phase II WIP does not expressly quantify how the required reductions will be achieved by each specified measure (or in aggregate), nor does it attempt to quantify or aggregate costs to the public. Instead, the Phase II WIP identifies partial annual costs for identified agricultural practices.**

The quantification of pollutant reductions is done using the EPA Chesapeake Bay Program model. The model takes into account all submitted actions and collectively calculations the nutrient and sediment reductions. Effectiveness estimates are known for each modeled BMP and documentation is available on the Chesapeake Bay Program website:

http://www.chesapeakebay.net/about/programs/watershed_implementation_plan_tools/. We will provide at a minimum, the CBP approved effectiveness estimate for each BMP discussed in the WIP.

Regarding the costs of actions, work is underway by EPA to summarize costs and members of Delaware's Interagency Workgroup are participating in that process. More complete cost estimates are expected in 2012.

6. **Much effort was made to detail the "Communications" Plan for discussing the merits of the Chesapeake Bay TMDL's and subsequent implementation. However, very little public participation during the process and in formulating the plan has occurred. It is not clear if the Delaware Legislature or Governor's Office was informed or consulted. As with the conception and preparation of the Phase I WIP, these programs were conceived principally by regulators without the benefit of direct public participation (refer to Appendix B of the original WIP). No such documentation has been provided or offered with this Draft Phase II WIP. Moreover, this Draft represents the culmination of a second year of regulatory efforts with only a 14-day period allotted for public review and comment.**

Delaware has made a concerted effort to involve the public in the development of both the Phase I and Phase II WIP documents. The state has spent more than a year seeking public comments and input, including hosting multiple public forums, conducting extensive outreach to industry and local government, establishing numerous stakeholder groups, and providing frequent email updates to interested groups and individuals.

Targeted stakeholder outreach occurred when representatives of DNREC, DDA, and the Delaware Office of State Planning Coordination attended meetings and made presentations to numerous groups - including the Delmarva Poultry Industry, Delaware Nutrient Management Commission, Delaware Onsite Wastewater Recycling Association, and The Homebuilders Association of Delaware, among others. Most importantly, extensive outreach was completed in each municipality and county within the watershed, and in some cases multiple meetings were held with staff and elected officials. At these meetings, local governments provided input and comments on the contents of the WIP and reviewed their role in achieving the TMDL water quality goals. In addition, the WIP has been reviewed by stakeholder groups and revised to provide more details regarding how implementation will occur at the local level. Delaware was the only jurisdiction to share a preliminary Phase II draft with the public prior to submitting it to EPA on Dec. 15, 2011.

Following the initial rounds of public outreach, the state published its Draft Phase II plan on December 15, 2011 and continued to accept comments on the draft plan through March 21, 2012. Public comments were accepted at the public forum held March 7, 2012 in Farmington. At the forum, the public viewed subcommittee project posters, a powerpoint and were provided with WIP brochures and materials. Attendees met one-on-one with subcommittee members to review goals and strategies, ask questions, and learn what progress has been made and what needs to be completed to meet Delaware's implementation goals.

For the list of WIP outreach completed, see Section 14—Education, Outreach and Volunteerism.

Lastly, for clarification, the WIP is not a regulatory effort. The WIP is a plan that discusses numerous ongoing and proposed initiatives, including regulatory initiatives that must go through the regulatory development process that includes ample opportunity for public involvement and comment. Two of these regulatory initiatives - Delaware's Concentrated Animal Feed Operations (CAFO) Regulations that control the discharge of pollutants from designated poultry and livestock operations were adopted Nov.10, 2012 and proposed revisions Delaware's Sediment and Stormwater Regulations were presented at a public hearing on March 1, 2012.

7. **In addition to the requirements promulgated by Executive Order 13508 regarding the Chesapeake Bay, there is no mention of Sea Level Rise in the WIP, which is not in compliance with DNREC Policy.**

The impacts of sea level rise on each source sector will be discussed in our Final Phase II WIP.

8. **No discussion regarding dredge disposal areas within the watershed, either in use by Federal agencies or the State of Delaware.**

A discussion on the planned Nanticoke dredging will be included in our Public Lands Chapter prior to submitting the Final Phase II WIP.

9. The Canal Zone (Federal Lands managed by the State of Delaware) is not included in the overall assessment and contribution of pollutants.

Pollutant loads from the Canal Zone are included in the total loads from the both the C&DOH_MD and C&DOH_DE 303(d) Modeled Segments. While the federal lands layer in use by the Chesapeake Bay Program has not identified this area as being federally owned, the Public Lands Subcommittee, has identified this zone as publicly owned and managed lands and will be assessing the zone for potential implementation of additional best management practices.

10. Table 13 on Page 47 presents a Total Nitrogen Allocation by Sector for every two years. Accordingly, for Forest, the 180,507 acres has an allocation of 322,148 lbs. This averaged out to 1.78 pounds of Nitrogen per acre. By 2025, according to the WIP and Table 13, another 50,582 acres of forested lands will be required.

Correct, the additional forest lands represent the implementation of various best management practices in both the urban and agriculture sectors including tree planting, forest buffers, and wetland restoration.

11. Table 13: The aggregate of loading across all defined sectors indicates an overall reduction of Nitrogen of 13% MORE than required by the WIP.

The 2025 loading values shown in the Draft Phase II WIP's Table 13 represent the values allocated by the 2010 TMDL and Delaware's Final Phase I WIP. Since completing Phase I, EPA modified the model and provided Phase II WIP Planning Targets (shown in Table 5). The Phase II WIP Planning Targets require less overall reduction of nitrogen. Delaware will communicate with EPA to determine if it is appropriate to update Table 13 with the Phase II Planning Targets for 2025 prior to submitting the Final Phase II WIP.

12. Page 11 cites that "...draft legislation has reauthorized the Chesapeake Bay Program..." This should be interpreted as NO Congressional authority has been granted for this program reauthorization and should be stated as such in the report.

The text has been modified accordingly.

13. Page 11 states that "...stakeholders have been encouraged to participate in the process as soon as possible in order to quickly reach consensus on proposed actions." Clearly, DNREC's insular committees comprised principally of regulators did not involve members of the public or stakeholders.

Delaware has spent more than a year seeking public comments and input to help develop Delaware's WIP, including hosting multiple public forums, conducting extensive outreach to industry and local government, establishing numerous stakeholder groups, and providing frequent email updates for interested groups and individuals.

Following the initial rounds of public outreach, the state published its Draft Phase II plan on December 15, 2011 and will continue to accept comments on the draft plan through March 21. In addition, written comments will be accepted at a Public Forum scheduled for March 7, 2012 in Farmington. For the list of WIP outreach completed, see Section 14—Education, Outreach and Volunteerism. This list will continue to be supplemented since outreach efforts are on-going.

14. Page 12 states that "...nutrient and sediment pollution have been of high concern...already causing irreparable damage." If this is the case, why are we doing anything since it is irreparable?

The text has been modified accordingly.

15. Page 73 also states that projects will be required to meet the State TMDLs for a particular watershed. It is unclear at this time if adhering to the individual State-TMDLs, which are sub-watershed based, will satisfy the requirements of the Chesapeake Bay TMDL, which is an aggregate requirement. Are the State TMDL's going to be revised to reflect contributions by watershed to produce consistency with the Chesapeake Bay TMDL? Clearly, specifics regarding land use, future changes and growth areas need to be determined. Has DNREC "reverse engineered" these elements?

The Chesapeake TMDL has provided Delaware with a State-wide allocation of nitrogen, phosphorus, and sediment. The Phase I and Phase II WIP processes divide this load among the various sub-watersheds and source sectors. Once the Phase II WIP has been finalized, a comparison between required TMDL reductions on a sub-watershed scale can be completed. The more stringent reductions will supersede. With regard to sediment, the State of Delaware has not developed sediment TMDLs, so the allocations determined by the Chesapeake WIP will be followed.

16. Why does the WIP rely on 2000 Census information instead of 2010 data?

Some analyses were done prior to the 2010 census data becoming available. Future master planning projects with local governments will rely on the latest census data available.

17. Page 236 includes a description on the weak Federal air emission program by detailing that more than half of Delaware's Nitrogen Allocation is from airborne deposition of NOx compounds from sources beyond Delaware's borders. Delaware should also claim credit for adopting more stringent emission standards (October 2010).

We have included in the WIP Air Chapter additional details about Delaware's local, regional, and national involvement in reducing NOx emissions to Chesapeake Watershed. Additionally, Delaware is working to quantify the benefits that these programs and regulations may have generated beyond the base used by the EPA and in turn create an offset bank.

18. The proposed surface water sampling monitoring stations and proposed groundwater program (Pages 239 through 241) needs to be revisited. There are no identified program goals or hypotheses related to the program. The incorporation of statistical design in the program and overall design of experiment could be improved which would yield more meaningful results relating to the interaction of surface and groundwater.

The Department's Surface Water Monitoring Plan describes the extent and goals of the General Assessment Monitoring Network. Additionally, statistics are discussed in the 305b and 303d Assessment and Listing methodologies that are developed every two years as part of the reporting requirements of the Clean Water Act. All of these documents are currently available online at: <http://www.dnrec.delaware.gov/swc/wa/Pages/WatershedAssessment.aspx>. Two Delaware sites are part of the more than 100+ site Chesapeake Bay non-tidal monitoring network, which is monitored according to a Chesapeake Bay Program Non-tidal Monitoring Protocol, dated November 18, 2008. Extensive surface and ground water monitoring and analyses have been conducted throughout the entire Chesapeake Bay Watershed for more than three decades by several State and Federal Agencies. The findings and results of those studies are incorporated in the Chesapeake Bay Watershed Model and further collaborated based on observed surface and ground water monitoring results.

19. The reception by the public at outreach activities as detailed on Page 247 is indicative of the overall approach taken by the EPA and DNREC with regard to this program and its objectives. It is clear that DNREC placed greater effort for developing a "communications plan" than for actually engaging the public and involving them in the process for the Phase I and Phase II WIPs.

Delaware has spent more than a year seeking public comments and input to help develop Delaware's WIP, including hosting multiple public forums, conducting extensive outreach to industry and local government, establishing numerous stakeholder groups, and providing frequent email updates for interested groups and individuals.

Following the initial rounds of public outreach, the state published its Draft Phase II plan on December 15, 2011 and continued to accept comments on the draft plan through March 21, 2012. In addition, written comments were accepted at a public forum on March 7, 2012 in Farmington. For the list of WIP outreach completed, see Section 14—Education, Outreach and Volunteerism.

20. Projected growth data discussed on Page 46 refers to anticipated steady growth between 2010 and 2025. It is questionable how housing, economics, job growth, retiree demographics and projections can support this assertion, unless an over-inflation of anticipated growth was used as a placeholder to artificially set aside nutrient allocations or provide a margin of

“safety” for unknown future conditions. If this subsequent strategy is the case, then it should be so stated. In addition, although 60% of the total reductions are required by 2017, the WIP states that anticipated reductions will be linear over time (Page 47). If these reductions are linear over time, then more drastic reductions need to come from some other sector to offset this shortfall and still remain compliant with the required 60% reductions by 2017. Moreover attainment becomes more challenging when reductions from retrofits and or redevelopment opportunities are scarce.

The nutrient loads provided in Tables 13-15 for 2025 are the result of scenario input decks – spreadsheets describing anticipated levels of best management practice implementation – and model results. The 2017 values were estimated and will be replaced with 2017 input deck and model results prior to finalizing the Phase II WIP. EPA is primarily concerned with Delaware achieving the State-wide allocation by 2025. Loads from the various sectors – currently predicted based on WIP actions – can and most likely will be different than what is displayed in these tables; an adaptive management approach has been encouraged by EPA. One of the mechanisms to deal with changing land use and potential future growth is an offset program, which Delaware is in the process of developing.

21. Table 13: The 2,950,920 pounds per year allocation shown is the same 2025 allocation in the Phase I WIP and does not reflect the revised allocation.

Correct. The tables in this section will be updated prior to submitting the Final Phase II WIP.