COUNTY AND SECTOR WORKGROUP RECOMMENDATIONS FOR PENNSYLVANIA'S PHASE 3 CHESAPEAKE BAY WATERSHED IMPLEMENTATION PLAN

This document contains recommendations for Pennsylvania's Phase 3 WIP developed by the county planning teams from the four pilot counties and by each of the Phase 3 WIP workgroups, except for the Communications and Engagement Workgroup. The document is organized as follows.

I. Workgroup Recommendations for Priority Initiatives for Nutrient Reductions

In the development of the priority initiatives described in Section 2 (State Actions), the Sector Workgroups provided recommendations which have either been included, modified, or not included in the Phase 3 WIP. These recommendations are summarized below by workgroup.

A. Agriculture

The Agriculture Workgroup made several recommendations for programmatic, regulatory, and legislative changes that are addressed in Section 2, VI, A, (Phase 3 WIP Priority Initiative State Numeric Commitments, Agriculture). The Workgroup highlights the following as challenges that need to be overcome, as well as additional recommendations:

Challenges:

- **Financial:** The estimated costs for achievement of many of the benchmarks recommended by the Workgroup are high and are considerably greater than public and private sources of funding currently available for implementation by farmers. This challenge has been aggravated by a prolonged period of economic losses recently experienced by Pennsylvania's farmers. As a result, they are not capable under current economic conditions to feasibly finance conservation enhancement measures on their farms without a high level of coordinated additional financial assistance.

- **Technical:** Regardless of the willingness of the agricultural community to carry out the conservation measures recommended by the Workgroup, most farmers do not have the technical capability to design and implement the level of planning and technical assistance that establishes those conservation practices recognized in the Bay Model to reduce nutrient and sediment pollution. The Workgroup has estimated that at least 160 additional personnel are needed to assist farmers to effectively overcome this challenge (see Section 5 of the Phase 3 WIP). However, due to a lack of available data, the Workgroup believes this estimate is conservative, and additional personnel will likely be needed.

- **Cultural:** About 33,600 Pennsylvania farms are estimated to be operating in the Bay Watershed. Agriculture within Pennsylvania's Bay Watershed is widely diverse, with significant differences among farm operators in size, types of commodities produced, degree of mechanization and incorporation of technology, religious beliefs, and willingness to accept and use innovative ideas purported to "improve" profitability or environmental effectiveness of their farm operations. Given the unpredictability of outcomes arising from changing management of operations, many farmers may still be skeptical of incurring real costs or financing real debt in response to projections by others that environmental or operational efficiency will be improved. Substantial time and

effort will still need to be committed in education and demonstration to farmers that investment in conservation measures is economically viable and will improve the quality and function of their farms.

- **Feasibility, Coordination and Acceptance in Reporting, Data Collection and Verification:** The Workgroup remains concerned with the absence of a comprehensive system for data collection and reporting of agricultural conservation practices. Additionally, there is concern over the ability to provide verification of reported practices that is acceptable to the agricultural community, EPA, and the Bay partnership so that Pennsylvania is receiving full credit for all conservation practices implemented. The Workgroup believes that characterizations of Pennsylvania's "lack of progress" in reducing nutrient and sediment pollution is largely reflective of deficiencies in the Commonwealth's current methods and opportunities for collecting, reporting, and verifying data. Development of a user-friendly process that encourages farmers to voluntarily and confidentially report conservation measures will not only improve accuracy in measuring Pennsylvania's "progress" toward attaining the TMDL, it will send an encouraging message to farmers that participation in reporting will have meaning and ensure Pennsylvania agriculture gets due credit for conservation measures that farmers implement now and in the future.

Recommendations:

1. **Discourage Imposition of Legal Mandates on Stakeholders and Landowners**

Development of strategies for feasible and effective execution of plans for water quality improvement under the Phase 3 WIP will likely be very challenging. The processes to reach consensus on ideas and recommendations that balance relative interests and concerns to accomplish the multitude of objectives that Pennsylvania intends to accomplish are likely to be frustrating, especially for local stakeholders who will be expected to collectively make local decisions on land use activities in furtherance of the Phase 3 WIP. Given the challenge and frustration likely to arise from engagement in local decision making, some individuals involved have already advocated a politically and financially expedient "solution" to accomplish objectives through proliferation of local ordinances that legally mandate landowners to perform, or prohibit landowners from performing, land uses in furtherance of water quality objectives. The Workgroup is deeply concerned with any meaningful attempt to apply or condone this type of approach to attain Chesapeake Bay TMDL objectives. The Workgroup recommends measures that clearly identify this type of approach as inappropriate in attempting to meet Phase 3 WIP goals. More specific to the local WIP development process, the Workgroup recommends the establishment of rules that inhibit any attempt in whole or part to accomplish water quality improvement objectives substantially through local ordinance regulation of land use.

2. Financial and Tax Incentives for Landowner Participation in Changing or Preserving Land Use

Potential facets of program activity under the Phase 3 WIP, such as enhanced development of stream buffers, will likely have the practical effect of imposing more permanent restrictions or requirements on private landowners. Many landowners have been traditionally frustrated with governmental actions that impose significant restrictions on land use options without adequate compensation, while continuing to require the landowner to pay taxes on the areas of land so restricted. The Workgroup believes that programs and activities that exclusively or predominantly restrict land use options for water quality improvement must include features that provide financial and tax incentives to those landowners who voluntarily participate. We recommend that participating landowners be given adequate compensation for those portions of their lands that become use restricted due to implementation of a BMP performed pursuant to the Phase 3 WIP, and that such portions be fully excluded from property and related taxes for the life of that practice.

3. Funding for Industry-Based Programs to Enhance Farm Conservation

Regional producer cooperatives and businesses that regionally purchase or process agricultural products may provide a meaningful opportunity for development of effective and integrated programs that provide technical and financial assistance to farmers marketing products through the cooperative or in planning and performance of conservation measures on their farms. These industry-based programs allow farmers to obtain needed financial and technical assistance on a higher level than what many can obtain individually. A prime example of such a program is the Turkey Hill Clean Water Partnership project – a cooperative effort of Turkey Hill Dairy, Maryland & Virginia Milk Producers Cooperative Association (MDVA) and the Alliance for the Chesapeake Bay (Alliance). These three partners have worked collaboratively to provide Pennsylvania cooperative farmers with technical and financial assistance in review and updating of erosion and sedimentation and nutrient management plans, and where needed, provide financial support to improve management practices to levels that meet standards required under state law.

The Workgroup believes that propagation of projects such as that engaged by Turkey Hill, MDVA and the Alliance will not only help farmers in the Bay watershed with the quality of assistance not readily available to them but will also do so through a more human and harmonious process that is considerate of the financial and practical challenges that farmers are currently facing. The Workgroup supports and recommends a commitment of significant funds by the Commonwealth in Phase 3 WIP implementation that provides incentives for development of similar industry-driven programs that technically and financially assist farmers in enhancing conservation measures on farming operations.

4. Development of a Pragmatic, Accurate and Comprehensive System to Identify, Document, Verify and Duly Credit Performance of Conservation Measures in the Bay Model

Credible evidence has shown that methodologies in place to identify, document, manage and verify agricultural conservation measures being performed are insufficient to report and credit many practices currently being performed in the Bay Model.

Over the last several years, several methodologies and protocols have been established to capture both cost-shared and non-cost-shared agricultural practices in Pennsylvania. These include the methods developed by DEP to track cost share programs, NRCS reporting of NRCS-funded practices to DEP, cropland transect surveys administered by Capital Resource Conservation & Development Area Council and conducted by conservation districts, PracticeKeeper software, the 2016 Penn State farmer survey and the accepted self-reporting methodology developed through that effort, the NRCS remote sensing pilot project, and others. However, protocols put in place for one methodology often conflict or overlap with protocols established for other methodologies. Barriers have been created among methodologies that preclude reliable information and data reported to be shared and captured in any form with other methodologies. Many conservation measures that are performed on farms that should be receiving credit in the Bay Model for nutrient reduction are not being duly credited because of the conflicts and barriers among the current data collection, reporting and verification systems.

It is also critically important that any system used to document agricultural conservation measures be widely acceptable to farmers and, to the highest degree feasible, establish a reporting mechanism that farmers can easily understand and perform. This system would encourage voluntary and willing participation of farmers in identifying activities performed on their farms. The Workgroup strongly believes that widespread participation by farmers to self-report information and data about their farming activities is a key element to fully and accurately capture and credit performance of conservation measures on farms. No system will attain the level of confidence and participation among farmers needed without full assurance that the information and data provided will remain confidential (see Recommendation 5 below).

The Commonwealth should appreciate the need and importance for developing a coordinated, pragmatic, and comprehensive system for collection, reporting and verification of data on performance of conservation practices, and for management of such data to ensure that Pennsylvania is being given due credit for practices being performed. The Workgroup is seriously concerned, however, with the lack of progress being shown so far in development of this system. No specific proposal for this system has been publicly offered. No other information has been offered publicly to describe efforts being made among public and private sectors to create this system or revise current systems to eliminate conflicts and barriers inhibiting collection and coordination of data in a form that is creditable in the Bay Model.

If no serious effort is being made, the Workgroup recommends that the DEP convene a task force of representatives from public and private sectors who are interested in development of an effective and coordinated data collection and verification system that is practical and responsive to the needs and concerns of farmers identified above. Sources of information, such as the findings and ideas that emerged from the BMP Verification Meeting held August 30, 2018, should be provided to this task force for review and consideration, as well as information on systems for reporting, tracking and verification of conservation measures developed by other states. Thoughtful consideration should be given by this task force for extensive use and incorporation of the methodology employed by Penn State in the 2016 voluntary producer survey of non-cost-shared agricultural best management practices, as it has gained common acceptance among farmers as a practical and effective approach in capturing and crediting agricultural BMPs.

5. Confidentiality in Reporting Practices

Resolution of this issue in a manner acceptable to EPA, those who will be responsible for completing and documenting practices creditable in the Bay Model, and the public is a critical component to the Phase 3 WIP. Due credit in the Bay Model for BMPs implemented will not occur unless those activities are “properly reported” and “verified.” Current protocols for “proper” reporting and verification” of BMPs seriously inhibit the ability or willingness of landowners performing them to voluntarily report those practices.

Accepted and feasible protocols for self-reporting by farmers or their agricultural consultants that qualify for pollution reduction credit in the Model will provide greater accuracy in evaluating Pennsylvania’s progress toward its overall attainment of TMDL goals. These protocols will provide data to more clearly identify areas of emphasis and prioritization for future activities and programs.

Current provisions of law would, however, deem any information provided through self-reporting or other similar reporting means as “public information” and subject to access by any request. The scope of access to information provided under the state’s “right-to-know” laws have a chilling effect on farmers’ willingness to report, especially considering the authority provided in statute for citizens to initiate legal actions to enforce claimed violations of environmental laws.

Protocols for reporting and verification of self-reported information not financed by government sources through the PSU survey provided effective protections in confidentiality of source and content of individual farm information reported, while attaining due credit in the Model. However, administration of those protocols was not simple or inexpensive. Most state agencies are not legally provided similar ability to protect the source and content of information from public access. The Workgroup recommends revisions to state laws governing public access to information that would extend confidentiality and full exclusion from public access for any farm specific information reported, including any information reported during any data collection

initiatives established by the Commonwealth related to the performance of nutrient and sediment reduction activities.

6. Increased Technical Assistance in Design and Implementation of Agricultural BMPs

To achieve the agricultural BMP implementation needed to meet Pennsylvania's TMDL obligations, there will need to be an extensive expansion to our current technical assistance workforce and support tools. The agricultural industry relies on the expertise of both private and public sector entities to provide the technical and programmatic support needed to implement and maintain BMPs that effectively reduce nutrient and sediment loadings from farms and provide for a sustainable and economically thriving agricultural industry. The selection and design of these BMPs are very site specific and require significant staffing and support to provide this direction. Likewise, to accomplish the compliance benchmarks recommended, substantially more technically qualified personnel are needed, both to review and determine the degree which individual farms are meeting their environmental obligations and to assist farmers in meeting their obligations in an economically sensible way.

The need for increased technical staff may be partially reduced with a streamlining of the permitting process for performance of certain environmental protection and restoration BMPs such as riparian and streambank improvements. The permitting process currently used in authorizing implementation of these practices can be complicated, time-consuming, and expensive. Accelerating and streamlining the process for permit approval of riparian and streambank improvement activities are important to allow faster installation of BMPs and a reduction in technical assistance time needed to implement these practices.

Regardless of streamlining efforts that are made, the Commonwealth needs to act promptly in developing a sufficient pool of technical personnel that can readily assist farmers in planning and implementation of conservation measures. Failure to accomplish this objective will seriously impede the timeliness and effectiveness of Pennsylvania's progress toward TMDL reduction goals. The Commonwealth should give achievement of this objective a high priority.

The Workgroup recommends levels of investment that will significantly increase number of available technical and oversight staff to assist farmers in effective BMP implementation and documentation, as well as a streamlining of the process for permit approval of stream protection and restoration BMPs that facilitate achievement of the goals of this plan.

a. Technical Assistance Training

State and federal resources should be prioritized for the development of an aggressive program focused on the recruitment, training, and education of new technical assistance providers to assist farm operators in design and implementation of viable measures for

nutrient and sediment management and pollution control on farms. This initiative will need to involve universities in the region as well as trade schools, business schools, high schools, and vocational technical schools. Also key to this effort will be the involvement of outreach, communications and marketing professionals who can develop the recruiting materials needed to support this effort.

b. Technical Assistance Specialists

In order to provide effective and efficient response to more intricate and complex issues related to management of nonpoint pollution, the Commonwealth needs to develop a corps of personnel with advanced expertise in specialized areas of conservation management who are available on a regional or statewide basis to assist other technical staff in the specification and design of systems most likely to be feasible and effective. These technical specialists need to be organized and assigned areas of coverage such that there is complete coverage for all farmers within the watershed to address their complex technical assistance needs. This organization of technical teams or specialists can be achieved through the "Center for Agriculture Environmental Excellence described in Recommendation 7 below.

c. Regional Financial Assistance Support

The Commonwealth must also develop and train a corps of personnel with expertise in agricultural economics and working knowledge of financing area-wide and farm scale water quality plans and systems. These staff will work in multi-county or regional areas of the Bay watershed and would be organized and assigned coverage through the "Center for Agriculture Environmental Excellence" described in Recommendation 7 below. These staff can provide support to the county-based WIP implementation teams as well as other regional and area-based work teams.

7. Establishment of the Center for Agriculture Environmental Excellence

For Pennsylvania to have a reasonable chance of success toward attainment of the TMDL, there must be a minimum level of coordination among governmental agencies and stakeholders that will facilitate cohesion of state and local ideas, programs, and projects. The Workgroup recommends the establishment of a "Center for Agriculture Environmental Excellence" (CAgEE) program, modeled after programs such as the Dirt and Gravel Road Program, to provide high level coordination and outreach relating to agricultural program implementation such as: practice design standards, regulatory obligations, technical assistance, data collection, progress assessment, project prioritization, and financial assistance. This Center would support the efforts of the Chesapeake Bay Program but would also provide input to the state and federal regulatory programs relating to agriculture. The Center could also serve as clearinghouse for the sharing of ideas, proposals and projects for effective conservation management, financing and assistance on a countywide, inter-county, regional and watershed-wide basis. The Center should be administered by an entity outside of a state agency structure to allow for the comprehensive collection of data from the various

entities and farms involved in environmental work throughout the watershed and the state.

8. Advance Soil Health Initiatives

While implementation of programs and activities that will ensure recognition and crediting for pollution reduction in the Bay Model must be a primary objective in Pennsylvania's Phase 3 WIP, it need not be the only objective. Recommendations offered earlier for conservation activities related to "soil health" were specific to measures recognized for pollution reduction crediting in the Bay Model but do not encompass the entirety of effective soil health initiatives that may be implemented on individual farms. Farmers who have engaged in more advanced soil health initiatives devised and tailored specifically for land and soil conditions on their farms have had impressive results in minimizing stormwater and nutrient runoff throughout the entirety of the farm's land area. These initiatives have provided corresponding benefits to the farmer in improvement of soil quality and retention of nutrients that would otherwise need to be replaced through farm inputs. Despite the relative infancy in establishment of programs for advanced soil health management and despite absence of recognition of advanced soil health management in the Bay Model, we believe there is great potential for programs for advanced soil health management to improve water quality and provide widespread economic benefits to farmers who participate in these programs. The Workgroup recommends establishment and commitment of funding for administration of initiatives to facilitate advanced soil health management on farms. The Workgroup also recommends the Bay Program Office establish in the Bay Model a creditable BMP for implementation of advanced soil health strategies or plans on farms.

9. Innovative Regulatory Incentives for Attainment of Priority Agricultural BMP Implementation Initiatives

One regulatory approach that has been employed to encourage area-wide implementation of priority environmental practices is to provide a temporary exemption of regulated parties from meeting new state regulatory obligations if they demonstrate those priority practices are being performed. This type of incentive program is most relevant where farmers require more time than that provided in state law to meet new or additional regulatory obligations. As priorities become more clearly identified in Pennsylvania's Phase 3 WIP, this approach may be effective in encouraging greater commitment of financial and technical resources for implementation of those "non-compulsory" priority environmental practices that more effectively move Pennsylvania toward attainment of benchmarked practices and corresponding nutrient reductions identified in Pennsylvania's Phase 3 WIP. The Workgroup recommends consideration and implementation of this approach in administration of future regulatory actions.

Current federal and state water quality permit and design requirements may hamper, delay, and increase costs of implementation of structural best management practices that provide more flexible and environmentally effective options in management of nutrients and sediment for representation in the Bay Model. The Workgroup

recommends changes to current regulatory standards that will facilitate installation and use of these structural BMPs on farms and streamline the timing and permit procedures for governmental review and approval.

10. Establishment of Pennsylvania Conservation Stewardship (PACS) Program with Qualified Third-Party Review and Tracking of Creditable Agricultural Conservation Measures Currently Performed

Accomplishing the tasks of verifying those operations among Pennsylvania's 33,600 Bay watershed farms in compliance with state law and tracking additional conservation measures being performed that can be given due credit in the Bay Model will likely require staffing resources in addition to those typically available through state and federal agencies. Development of a pool of third-party reviewers from the private sector with sufficient training and expertise may provide substantial help and support in increasing the number of farms evaluated and verified as meeting Bay nutrient and sediment reduction standards and in collaborating with farmers on a more positive and personal basis in achievement of required and advanced conservation measures on farms. The Department of Agriculture, DEP, and SCC are developing a new and voluntary program, known as the Pennsylvania Agricultural Conservation Stewardship (PACS) Program. This program's objective is to recognize and reward Pennsylvania's agricultural producers who volunteer to participate and document with proper verification the performance of practices that demonstrate their farms are meeting required state standards for erosion and sedimentation and nutrient management, as well as all recommended Phase 3 WIP practices that are applicable to their operations. This will include certain additional conservation measures that PACS will encourage farmers to perform and will recognize those farmers when performed. Farmers successfully participating in this program will be provided a PACS program certification which will remain valid provided the farmer continues to sufficiently demonstrate the minimum criteria for PACS certification are being met.

The PACS program will focus on engaging qualified third-party personnel in performing environmental assessments of farms to determine if the operation meets the minimum criteria necessary for recognition. Commitment of resources for recruiting, training and authorization of qualified and supportive third-party individuals will be a key measure in this program's success. Qualified third-party personnel who can practically work with farmers to achieve and affirm legal compliance and additional conservation measures will help significantly to move the needle toward Pennsylvania's TMDL goal. The Workgroup supports and recommends a significant commitment of public resources for acquisition and training of qualified third-party personnel.

11. Re-evaluation of Existing Funding Sources and Their Uses

The annualized costs for attainment of benchmarks of agricultural BMPs recommended in this plan (at present value) is estimated to be $354 million, based on the Bay Program's model run for 2025. This is a highly challenging figure for the agricultural sector to finance under current sources and criteria for expenditures of available funds.

Yet compared with environmental effects of improvement and pollution control measures that other sectors can implement, agricultural environmental improvement measures still provide a much better environmental return in nutrient pollution reductions. A recent study and evaluation by Penn State's Center for Nutrient Solutions on conservation measures performed in several Pennsylvania watersheds empirically confirm that basic agricultural conservation practices historically believed to improve water quality are very effective in reducing nutrient pollution. Given the relative costs and benefits of agricultural practices versus other measures to achieve TMDL goals, the Workgroup believes and recommends an extensive and comprehensive re-evaluation of existing environmental funding sources and criteria for project funding, for the purpose of redirecting significant sums and uses of funding under existing point source and nonpoint source programs to uses consistent with agricultural environmental improvement measures identified and supported in Pennsylvania's Phase 3 WIP.

d. Block Grant Funding to Conservation Districts for Agricultural BMPs

The fluidity associated with designing and funding agricultural BMPs creates a need to be able to rapidly repurpose or reallocate funding. Historical state funding mechanisms allocating funding to specific farms for very specific BMPs has been found to not be a practical approach to funding agricultural BMPs to the extent needed to meet Pennsylvania's BMP implementation goals. It is recommended a new funding scenario be initiated where state BMP implementation dollars would be allocated to participating conservation districts through a block grant system. Under this system the state would provide an annual, predetermined funding allocation to each conservation district based on a set of metrics and would set parameters on the district's authority to utilize these funds. The conservation district would be given reasonable discretion to determine and prioritize the proportionate amounts of disbursement of funds to assist farm conservation practices and local conservation measures. Reasonable levels of support for critical but often underfunded tasks like grant administration, management and farmer education and outreach could be considered as part of this flexibility. County conservation districts should strongly consider pursuing public/private partnerships to enhance the cost-effective delivery of such funds. Through this approach, counties will be enabled to respond quickly to farmers having an identified need to improve environmental quality on their farms. Counties will also be enabled under this program to tailor and coordinate conservation measures that address conditions and characteristics that are unique to each county and will facilitate and encourage timelier BMP implementation.

12. Enhanced Nutrient Management Planning for Biosolids

Recently there have been increased volumes of municipal biosolids being moved and land applied onto Pennsylvania's agricultural lands, including those agricultural lands in the Chesapeake Bay Watershed. While providing nutrient benefits to those farms that use biosolids, the increased presence of biosolids is adding to the nutrient management challenge that already exists on Pennsylvania's lands. Current regulatory standards require generators of biosolids perform nitrogen-based nutrient management planning

and implementation when land applying biosolids on agricultural land. The Workgroup believes and recommends that required management planning and implementation should be expanded to also include management of phosphorus consistent with the nutrient management planning standards established for animal manure.

13. Expanded Coordination of Joint MS4 and Nonpoint Source Nutrient Pollution Reduction Actions and Offsetting

The current geography of MS4-regulated areas provides little meaningful opportunity for regulated municipalities to meet their permit obligations within their regulated urbanized area. The Workgroup believes that greater effort should be made to develop strategies that will allow and encourage MS4-regulated communities to meet their permitting obligations through cooperative and integrated deployment of nutrient reduction practices on farms outside their borders, thereby reducing pollution footprint in the Bay watershed well beyond the municipality's immediate borders.

14. Coordinated Stream Restoration Measures

The Workgroup believes that increased forested and grassed buffer efforts may also provide substantial opportunity for enhanced nutrient reduction benefit when coordinated with localized streambank restoration. The Workgroup recommends increased effort be made to evaluate the feasibility of state and local administrative programs for assessing and implementing where appropriate coordinated streambank restoration projects to compliment local forested and grassed buffer development, with engagement of necessary technical personnel in performance of that evaluation.

15. Increased and Extensive Focus in Legacy Sediment Programs

Franklin and Marshall College's (F&M's) continued analyses of the numerous earthen dams created over a century ago in several southern-tier Pennsylvania Bay Watershed counties offer Pennsylvania a profound means to improve local water quality and get due nutrient reduction credit toward attaining TMDL goals. The degree to which deterioration of these dams and release of retained sediments can collectively contribute to nutrient and sediment pollution in the Bay, particularly in Lancaster County, should provide significant project opportunities for both Lancaster County and other southern-tier counties. F&M's improvements in technology and principles of analysis relative to discovery and measure of trapped nutrients and sediment in earthen dams, risk of likelihood of individual dam breaches, and relative degree of occurrence of sediments behind individual dams should be widely accepted among academic peers. Projects for removal of legacy sediment and local stream restoration in areas neighboring the removed dams have shown to provide significantly lower costs with much lower impact in acreage in land affected, relative to more traditional land conservation practices to improve water quality. Co-benefits associated with wetland creation are an important consideration and the Workgroup strongly recommends aggressive pursuit of legacy sediment reduction and restoration projects as an integral component of Pennsylvania's Phase 3 WIP. The Workgroup also recommends a much

stronger support and backing by Pennsylvania in attaining due recognition of legacy sediment restoration projects, specific to Pennsylvania, as creditable BMP in the Chesapeake Bay Model.

B. Forestry

To reach the nutrient reduction goals established in the Forestry priority initiatives, the state, partners, and farmers will have to overcome some challenges.

1. Awareness: The power of trees and forests to reduce pollution is not always obvious. Education and outreach efforts will help to communicate the economic, environmental, human health, and water quality benefits of planting trees and conserving forests.

2. Commitment and Leadership: State and local leaders have invested tremendous time and energy in developing a watershed restoration plan. It will be critical to support the planning effort with resources needed for implementation.

3. Staff & Training: State and partner organizations lack the staff to support full implementation of the Forestry BMPs. Innovation and partnerships will be keys to success.

4. Cultural: Trees and natural areas are often viewed as "messy," or vacant lands that have little or no value. Adding trees to farms and communities will require shifts in how we view our landscapes. For example, riparian forests could be planted with trees and shrubs that provide food or other products for personal use or minimal economic return.

5. Timing: Current funding options take several years to get trees in the ground. Identifying more-efficient means for funding can speed-up implementation and better meet landowner needs.

6. Finances: Planting meadows and riparian buffers can be expensive and time consuming for individual property owners. Streamlining funding will be critical for success.

7. Tracking: Communicating progress, success, and lessons-learned is critical to implementing the plan. Efforts are underway to improve communications and provide web-based tools for planning, tracking, and analyzing BMP use.

8. Scale: To reach these goals, agency staff and partners will have to assist, and monitor, thousands of individual property owners, farmers, and municipal organizations.

To reach these goals, the state, local partners, and farmers will need additional support. The Phase 3 WIP Forestry Workgroup offers the following recommendations for how to provide that support.

1. Technical Assistance for riparian buffers, tree canopy and lawn to trees and meadows will need to significantly increase. To meet WIP goals by 2025, dozens of foresters and natural resource professionals are needed to support partner NGOs, agencies, and Conservation Districts.

2. Financial Assistance for BMP Design and Implementation. Significant funding is needed to support the implementation of Forestry BMPs.

    a) It will cost over $60 million/year to fund recommended forestry BMPs through 2025.

    b) Easy access to this funding is needed to encourage BMP implementation.

C. Stormwater

To facilitate implementation of the priority initiatives identified to achieve nutrient reductions, the Phase 3 WIP Stormwater Workgroup identified the following challenges and barriers and recommendations to address them:

1. Education: The public has limited understanding of the impacts of urban development on water quality. Stormwater practices, such as rain gardens and wet stormwater ponds, can be viewed as “messy” and “unkept.” Partnerships with local environmental groups and educational support from DEP will help raise awareness and support for stormwater programs.

2. Technical Materials and Training: DEP should expand online resources for MS4s. DEP should also provide listening sessions, training, and train-the-trainer events across the state to improve program understanding, and to better understand the constraints encountered by MS4s. Some of that work could be done by the proposed DEP “outreach” staff.

3. Timing: MS4 permits have been around a long time but have been implemented more slowly in many communities. The 2018 MS4 permit was more aggressively delivered, but improvements will take time. Training should be provided to permittees by DEP on the future permit requirements statewide for 2023, with emphasis on changes relative to the 2018 permit.

4. Finances: DEP can expect to continue to struggle with limited staff resources, as will local governments. Local governments should however press for cost savings through collaborative efforts and should develop reliable sources of revenue such as from stormwater fee systems.

5. Tracking: The BMPs proposed in MS4 Pollutant Reduction Plans must in many cases have their planning refined, then they need to be designed and constructed. MS4s need to an effective way to plan and track that work to ensure that the BMPs are operational within 5 years after permit issuance.

6. Scale: The issuance of permits to separate municipalities is a major obstacle to compliance with the MS4 permit in Pennsylvania. It is difficult and expensive for small municipalities to maintain sufficient staff expertise, and difficult and expensive to locate, install and maintain BMPs within those same municipalities. The Workgroup recommends that DEP require a regional MS4 permit.

7. Resources: To reach these goals, the state, local partners, and local governments will need additional support including:

    a. Compliance (Permitting, Compliance Assurance, Inspection, Enforcement). Compliance by Pennsylvania municipalities is improving but still has a long way to go and will require additional DEP staff to do the work.

    b. Technical Assistance for BMP Planning Revisions. DEP should provide an additional three staff persons for in-the-field "Outreach" assistance statewide.

    c. Financial Management for MS4s: MS4s need to support both Minimum Control Measure and PRP costs. Publicly-owned sites for BMP installation will be used up. Implementing the most cost-effective projects on priority locations will likely require working with private, state, and federal landowners to acquire access (generally easements), and jurisdictions will increasingly need to knock on doors and account for related costs.

    d. If the MS4 regulated area is not expanded to cover the entire developed area DEP should provide the staff to validate Chapter 102 BMP operability in the non-regulated area.

The Stormwater Workgroup also developed the following recommendations. ***DEP will consider the Stormwater Workgroup's recommendations concerning the MS4 permit during the development of the general permit*** *(i.e., PAG-13)* ***for the next MS4 permit term*** *(i.e., 2023 to 2028)* ***along with other public comments. However, DEP cannot commit to changing the terms and conditions of the MS4 permit prior to engaging in the normal public participation process for reissuing general permits.***

1. Meet Current MS4 Permit Requirements

Action: MS4 permittees implement Pollutant Reduction Plans (PRPs) required by current MS4 permits

Municipalities with MS4 permits are required to prepare PRPs. PRPs include an estimate of the stormwater pollutant load and propose the installation of specific BMPs such as forest buffers, basins, or stream restorations. Most PRPs plan for a 10% sediment load reduction with assumed corresponding Phosphorus and Nitrogen reductions of 5% and 3%. The BMPs must be operational within five years after approval of the PRP.

2. MS4 Regulation of all Developed Lands in Lieu of or in Addition to UA

Action: The 2018-2023 MS4 permit uses federal Bureau of the Census "urbanized area" (UA) to trigger MS4 regulation of municipalities and to establish the area regulated under the permit. The regulated area should be expanded to include all developed lands.

The UA includes land that is not developed (39% of the UA is not developed), and the UA fails to include some land that is developed (only 34% of the developed land is in the UA). By failing to regulate so much developed land and by regulating so much undeveloped land, the use of "urbanized area" substantially misdirects the MS4 program in the Chesapeake Bay drainage area in Pennsylvania. If the developed land in small municipalities becomes regulated it will be important to shift from permitting municipalities separately to a County or Regional basis to help those municipalities comply. See below:

3. County or Regional MS4 Permitting

Action: Change the next MS4 permit to regulate on a County or Regional basis instead of regulating separate municipalities

Pennsylvania leads the nation with over 1,100 municipalities and other entities designated as regulated small MS4s. The NPDES permit process and compliance is therefore a significant challenge, especially for smaller units of Pennsylvania government. The approach would need to include substantial flexibility; for example, the regional entity would need the ability to continue the role of municipal stormwater authorities, and/or assign roles to their County Conservation District and/or other mechanisms. The regional entity would also need technical support from DEP.

4. New Riparian Forest Buffers

Action: Plant trees and shrubs alongside streams, to be installed voluntarily in developed areas in addition to what is implemented by MS4 permittees under PRPs and TMDL Plans.

5. Improved Municipal Stormwater Ordinances

Action: MS4 communities update their ordinances in accordance with the 2018 MS4 permit.

The current PAG-13 General Permit eliminates an authorization to discharge pool water and residential vehicle wash water containing cleaning agents to streams. Municipal MS4s have until 2022 to update their ordinance to reflect those and other changes.

6. Industrial Stormwater NPDES Permit Requirements

Action: Industrial Stormwater dischargers implement measures to reduce nutrient pollution as required by a new general permit proposed to be implemented in 2021.

Industrial Stormwater permits currently require the owner of the facility to control the discharge of pollutants associated with the industrial activity. Over 1,000 industrial facilities in Pennsylvania's portion of the Chesapeake Bay watershed have such permits. To date those dischargers have not been required to reduce their discharge of nutrients. The new permit could add the nutrient control requirement, as well as a sediment requirement for discharges to locally-impaired waters. The effect of the permit change was estimated as a reduction of 250 acres of impervious surfaces.

7. Emphasis on Green Infrastructure (GI)

Action: The 2018-2023 MS4 permit allows MS4 permittees to use any BMP(s) it chooses to meet sediment pollutant load reduction objectives. Some of those BMPs capture nitrogen relatively well and some do not. The structure of the permit should be changed to encourage the use of BMPs which most effectively capture nitrogen.

To accomplish this the permit could be changed to require sediment control only for those areas which drain to sediment-impaired local waters. A separate permit requirement could require a degree of *nitrogen* control for the entire MS4 area that drains to the Bay. The effect would be, where there are local sediment impairments, to promote the use of BMPs which most efficiently capture both sediment and nutrients. Where there are no local sediment impairments, the permittee would be incentivized to use BMPs which most effectively capture nitrogen.

8. Orphan BMPs

Action: It is common for Chapter 102 (development-required) BMPs to fall into disrepair. Methods to improve their function should be implemented.

Ideas to consider: The Chapter 102 permitting process be revised to create an option that would credit the upgrade of older BMPs toward the required pollutant reductions for a proposed development site. DEP should perform a legal review of state law that

controls the creation and operation of Homeowner Associations (HOAs) to see if there is a legal ability to require HOAs to take responsibility for orphan BMPs in their area.

9. Private Property Easements

Action: MS4s relied heavily on BMP installations on publicly-owned property in 2018 permit PRPs. The use of privately-owned property was encouraged, but realities of expense and future control caused it be a less-desired option. The limited amount of publicly-owned land however suggests that permittees will, in the future, need to rely more on private land. Methods to promote use of private land should be implemented.

Ideas to consider: Pay private landowners for a permanent BMP project easement. Create a special PENNVEST financing program to provide low/no-interest funding. A second method of paying the landowner would be through a reduction in County or local taxes similar to the Clean and Green program.

10. MS4 Outreach

Action: The MS4 program has matured significantly in Pennsylvania since the original PAG-13 General Permit was issued in 2003; however, the program is complex and it is clear that the regulated community needs help.

Ideas to consider: DEP provide training on asset management and fiscal sustainability for stormwater management systems; Develop educational materials geared toward local elected officials; Promote collaboration with funding, if possible, and highlight success stories; Improve technical capabilities of permittees and their consultants and continue providing foundational training on basic MS4 compliance; Streamline government assistance to municipalities (e.g., have a one stop shop for local governments for grants, technical assistance and partnering opportunities); Develop guidelines for the selection of BMPs based on cost per pound of reduction and other factors.

11. Non-MS4 Data Collection

Action: If MS4 regulation is not expanded to include all developed lands, other means should be found to promote BMP function in non-regulated areas, and the reporting of that BMP function for credit in the Chesapeake Bay program model.

The means to accomplish this could include Outreach staff, questionnaires to municipalities, and/or use of aerial data.

12. Chapter 102 Program Improvements

Action: The Chapter 102 permit program should be adjusted to ensure that new development does not increase pollutant load relative to what was discharged before

the development. As it stands, Pennsylvania is losing ground in the Chesapeake Bay model due to net increases in pollutant loads as a result of land use changes.

The current approach for evaluating the water quality impacts of earth disturbance projects greater than or equal to one acre does not require a pre- to post-water quality analysis which is required under the regulations (§ 102.8(g)(2)) and under the PAG-02 General Permit for discharges to impaired waters. In particular, when forested or hay/pasture lands are converted to impervious surfaces, there are no BMPs that are capable of reducing pollutants loads following construction to pre-construction levels, although vegetated BMPs with infiltration provide the greatest benefit.

13. Improve Chapter 102 BMP Inventory

Action: DEP should improve its method of collecting Chapter 102 permitting data because the current method may be inaccurate and the BMPs are often not verified as functional over time.

Ideas to consider: Having BMPs entered into a common database by county conservation districts (CCDs) upon the final inspection of a project site, following receipt of a Notice of Termination (NOT); NOTs are often not submitted by permittees; provide incentives for the submission of NOTs such as the avoidance of fees; Have CCDs or other partners conduct Chapter 102 BMP inspections at a routine frequency (e.g., 5 years) following approval of NOTs; and consider permitting mechanisms that would require long-term BMP reporting by owners.

14. Enforce Stormwater Management Act (Act 167)

Action: DEP should enforce the requirements of Act 167.

Act 167 is the primary means by which stormwater management is planned for and implemented in non-MS4 municipalities. There remain many counties across Pennsylvania that have not developed a stormwater management plan although the requirement has been in effect since 1978. Most counties that have developed plans have often not completed the 5-year review/revision required by the Act.

D. Wastewater

The Phase 3 WIP Wastewater Workgroup developed four priority initiatives for consideration. Those recommendations that will result in direct nutrient reductions are incorporated into the priority initiatives for nutrient reduction as part of Section 2, State Actions. These initiatives or recommendations may be explored further if feasible:

1. Operation and Maintenance Reimbursement Program
2. Non-Significant (Non-Sig) Sewage Nutrient Reduction
3. Regional Nutrient Trading Program

1. Operation and Maintenance Reimbursement Program

Maryland recently developed a Wastewater Treatment Facility Operation and Maintenance reimbursement program. Facilities that achieve better than ENR concentrations for nutrients in their discharge are reimbursed for the additional operation and maintenance costs it took to treat below ENR limits. The Phase 3 WIP Wastewater Workgroup recommends that the plant optimization program be coupled with an operation and maintenance reimbursement program.

Unfortunately, costs to optimize facilities have not been developed as part of this effort. Costs are plant specific and require an evaluation of each plant's operational and design data which was beyond the scope of this analysis. These costs should be developed in concert with the optimization program.

2. Non-Significant (Non-Sig) Sewage Nutrient Reduction

Although the non-significant sewage category includes all sewage facilities with flows less 0.400 mgd, it is not practical to assume all sizes of facilities can realistically achieve nutrient reductions even if the facility is designed to achieve nutrient reduction. Operation staff time on site and operation staff expertise are additional factors that affect the ability of a facility to perform. Smaller facilities do not always have full-time staff with the capabilities to operate a nutrient reduction facility. A facility must perform effective process control and system monitoring to consistently achieve nutrient reduction.

Prior to any upgrade or major capital improvement that includes the biological treatment component, non-significant sewage facilities will be required to perform a nutrient reduction alternative evaluation. The evaluation should compare the costs and ability to implement a nutrient reduction project to achieve BNR reduction levels. The evaluation will be submitted to DEP for review and consideration prior to moving forward with a project. Requiring Non-significant facilities sewage to upgrade to achieve BNR standards is not feasible, given that over half of these facilities actual flow falls under the 0.075 mgd cutoff and costs for upgrading these types of facilities vary greatly. Additionally, these facilities will be included in the proposed optimization program where feasible.

3. Regional Nutrient Trading Program

The Phase 3 WIP Wastewater Workgroup recommends that DEP expand the Nutrient Trading program to better facilitate trading between sectors, regionally and potentially with other states. Sectors that fall short of the load reduction goals could be offset through reductions in the wastewater sector. These wastewater sector reductions should be funded through a dedicated fund to offset costs of facility optimization or capital improvements.

II. Workgroup Recommendations to Support Successful Implementation

A. Local Area Goals Workgroup

The Phase 3 WIP Local Area Goals Workgroup defined the scale for the local planning goals and the tiered approach for the development of the action plans to address these planning goals. In addition, they developed the supporting documents that will be used by the county planning teams to develop the Countywide Action Plans (CAPs.) These documents include:

- Pennsylvania's Community Clean Water Planning Guide (background and planning resources)
- Pennsylvania's Community Clean Water Technical Toolbox (county specific data and technical resources)
- Phase 3 WIP Planning and Progress Template
- Phase 3 WIP Programmatic Recommendations Template
- Countywide Action Plan Narrative Template

Below are the Workgroup's recommendations regarding the implementation of the planning process moving forward to complete the CAPs for the remaining 43 counties in the watershed.

1. Moving Forward: Local Area Goals Workgroup Recommendations

Pennsylvania's Community Clean Water Planning Guide and Technical Toolbox are just part of the solution. The Local Area Goals Workgroup identified the need for continued engagement and support as more counties begin work on their Community Clean Water Action Plans. The Workgroup made recommendations to the Phase 3 WIP Steering Committee regarding staff needs to provide ongoing support for county efforts and to provide technical assistance necessary during both plan development and implementation. The Steering Committee accepted all the Workgroup's recommendations on March 8, 2019.

Recommended staff needs to support county clean water planning and implementation include:

- **Internal Coordinators** (Clean Water Regional Coordinators): Employees of DEP. Internal coordinators would serve as the point of contact and provide WIP coordinator for DEP and all other state agencies for external and technical coordinators. Internal coordinators would be responsible for:
    - managing external coordinators, facilitator, and technical contract staff.
    - oversight and management of technical contracts.
    - facilitate state resources for local planning and implementation.

- assisting with the permitting and grant process for external coordinators.
- help in coordination with the verification process.
- management and oversight of annual reporting and 2-year milestone tracking.

- **External Coordinators** (Community Clean Water Coordinators): DEP contractors reporting to the DEP Internal Coordinators. Serve as the point of contact to their assigned county(ies). Provide regular progress updates to Internal Coordinators. They would support county efforts to develop and implement Community Clean Water Action Plans by:
  - facilitating planning team efforts and coordinating regular meetings.
  - seeking financial resources to support county efforts (grants, partnerships, etc.).
  - helping counties with permitting of plan related projects.
  - developing and updating county plans and progress as needed.
  - submitting annual reports.
  - coordinating verification process within their designated county(ies).

- **Technical Coordinator** (Clean Water Technical Assistance Coordinator): A DEP contractor reporting to the DEP Internal Coordinator. The Technical Coordinator would:
  - be responsible for providing information and facilitation of planning tools through the planning and implementation process.
  - assist with reporting and tracking of milestones and annual progress.
  - assist in model runs for plan development and during annual milestone updates.

- **Facilitation Coordinator** (Clean Water Facilitation Coordinator): A DEP contractor reporting to the DEP Internal Coordinator. The Facilitation Coordinator would provide:
  - facilitation services.
  - organizational support.
  - process design work.
  - project synthesis and implementation expertise.
  - clear communication tools for Phase 3 WIP development and implementation of local engagement strategies.
  - expertise in synthesizing individual perspectives into a collective, implementable final product.

- **Outreach Contractor** (Clean Water Outreach Coordinator): A DEP contractor reporting to the DEP Chesapeake Bay Office, in coordination with WIP Communications and Engagement Workgroup and DEP Communications Office. The Outreach contractor would:
    - develop outreach materials and communication tools for public dissemination and education on Phase 3 WIP and local water quality.

2. Schedule for Completion of Remaining Countywide Action Plans

Full implementation of the Phase 3 WIP will require significant staff and financial resources. Recognizing this, the Local Area Goals Workgroup recommended a staged approach to help the remaining counties develop and implement their Community Clean Water Action Plans.

This staged approach allows an incremental process to scaling of resources and coordination of planning efforts. The staged approach rolls out in two phases over 18 months. Phase 1 uses the additional time to focus efforts on the eight higher-loading Tier 1 & 2 counties (54% of Pennsylvania's nitrogen and 42% of Pennsylvania's phosphorus loads). This approach allows for additional outreach to Tier 3 and 4 counties before their planning starts.

Staged Approach, Phase 1*,* would focus on planning and long-term implementation of Pennsylvania's Phase 3 WIP. It would include continuation of the pilot process in the four pilot counties as they transition into implementation of their Countywide Action Plans.

Phase 1 would also begin the planning process for the four remaining Tier 2 counties. Tier 2 counties would be given 6 to 8 months to build countywide coalitions and develop Countywide Action Plans. The Tier 2 counties would begin the implementation phase immediately after plan development.

Staged Approach, Phase 2, would focus on planning and long-term implementation of Phase 3 WIP for the remaining thirty-five Tier 3 and 4 counties (46% of Pennsylvania's nitrogen and 58% of Pennsylvania's phosphorus loads).

During Phase 2, support staff would be provided on a regionalized basis for Tier 3 and 4 counties. The regionalized planning efforts would group counties together, leveraging existing regional partnerships where feasible. Each county would still be required to submit an individual Countywide Action Plan and would be encouraged to work together with other counties during the planning effort.

Phase 2 would begin after the completion of the planning process for Phase 1 counties. All Tier 3 and 4 counties would be given 6 to 8 months for planning and would immediately switch to the implementation phase once planning is complete.

Counties with Minimal Loadings: There are currently seven counties with less than 200,000 pounds of nitrogen per county: Wyoming, Elk, Indiana, Wayne, McKean, Jefferson, and Carbon. One staff member would work with these counties to implement the Phase 3 WIP Workgroup recommendations.

Staff Resource Needs: Resources for Phase 1 would need to be in place by July 2019 in order to complete Phase 1 by February 2020. Those resources include:

- 8 full-time, permanent contracted external coordinator positions (1 external coordinator per county), $800,000 ($100,000 per external coordinator)
- 3 full-time, permanent internal coordinator positions at DEP, $300,000 ($100,000 per internal coordinator)
- 2 full-time, contracted technical coordinator positions (ex. SRBC), $180,000 ($90,000 per technical coordinator)
- 1 full-time, contracted facilitation coordinator, $100,000
- 1 full-time, contracted outreach coordinator, $100,000
- **Total: 15 coordinators, $1,480,000**

Resources for Phase 2 would need to be in place by February 2020 in order to complete Phase 2 by January 2021. Those resource include:

- 13 full-time, permanent contracted external coordinator positions (1 external coordinator per regionalized county planning effort), $1,300,000 ($100,000 per external coordinator)
- 7 full-time, permanent internal coordinator positions at DEP, $700,000 ($100,000 per internal coordinator)
- 8 full-time, contracted technical coordinator positions (ex. SRBC), $720,000 ($90,000 per technical coordinator)
- **Total: 28 coordinators, $2,720,000**

Total resources needed for the Staged Approach would include:

- 21 full-time, permanent contracted external coordinator positions (1 external coordinator per regionalized county planning effort), $2,100,000 ($100,000 per external coordinator)
- 10 full-time internal coordinator positions at DEP, $1,000,000 ($100,000 per internal coordinator)
- 10 full-time, contracted technical coordinator positions (ex. SRBC), $900,000 ($90,000 per technical coordinator)
- 1 full-time, contracted facilitation coordinator, $100,000
- 1 full-time, contracted outreach coordinator, $100,000
- **Total: 43 coordinators, $4,200,000**

Staged Approach Pro's	Staged Approach Con's
● all county planning complete in 18 months ● counties have more time to complete planning process (6-8 months) ● implementation begins sooner in higher loading counties ● counties get more one-on-one support ● Phase 1 counties have less competition for limited state and partner resources ● more time for outreach to Tier 3 and 4 counties ● more time to scale up funding and resources ● more time for coalition building ● recognizes unique variations in nutrient loads for individual counties	● longer timeframe of 18 months to full watershed implementation

NOTE: The staffing resources and costs outlined in this document are associated ONLY with completion of the planning process and staff support needed for implementation of those plans, and do NOT include the costs and resources needed to install Best Management Practices (BMPs).

3. Challenges and Resource Needs

There are various challenges and resource needs to address in order to allow for both continuation of the pilot counties and the forward planning and implementation process for the remaining counties in the Chesapeake Bay Watershed. The challenges and resource needs identified by the Local Area Goals Workgroup are defined below.

- **Engagement.** Engaging, educating, and supporting county stakeholders with the WIP process has proven to be a challenge and consuming of staff resources needed to provide understanding and acceptance of the WIP process. It is anticipated that the implementation phase will require a continued level of staff resource support.

- **Staffing Resources.** Current staffing resources cannot provide the education, engagement, and support to successfully complete planning and implementation in the remaining counties unless additional requested staffing resources are met.

- **Competing Priorities.** The WIP is a voluntary process:
  - Resources within each county are stretched
  - Countywide planning leaders struggle with how to begin implementation given current limitations
  - WIP is a competing priority and county stakeholders may give it a lower priority because it is voluntary
  - Extensive state resources needed to assist with plan development and implementation in each county

- **Time.** Sufficient time is needed for the planning process for each county:
  - Aggressive completion timeline for the remaining 39 counties; four pilot counties took 6-8 months to complete their plans.
  - New challenges exist with exploring a regionalized approach across Tier 3 and 4 counties

- **Training and Support.** The need for additional staffing support increases training, oversight, and coordination of all staff resources

- **Implementation Support.** Pilot counties need to transition from planning to long term implementation, which may require continuation of the pilot process and will require continued, permanent resource support
  - Requires state-county partnership support throughout the planning process and implementation
  - May require a pilot implementation phase similar to the pilot planning process
  - There are currently no established processes or guidelines for how the county begins the implementation phase
  - Partner support is necessary to help counties meet their challenges to implementation

- **Funding.** Significant funding is needed for additional staffing to support the planning and implementation process

B. Funding Workgroup

The Funding Workgroup's mission statement is to "develop a comprehensive, fiscally-responsible and sustainable funding strategy to support full implementation of the Phase 3 WIP and local water quality." To accomplish this, the Workgroup compiled information on available funding sources. They also solicited input from several different individuals and groups involved in the financing of different strategies and programs that can facilitate the implementation of the same goals across Pennsylvania and the Chesapeake Bay watershed.

A summary of the results is below, along with the recommendations for legislative or administrative actions. These funding recommendations are broken down into three categories and summarized in Table A3.1, Funding Workgroup Phase 3 WIP Financing Ideas.

1. Funding Mechanisms Considered

Successful water quality protection and restoration financing strategies are rooted in local context and tend to knit together a mix of financing mechanisms that connect implementation needs with the most appropriate funding source. The Funding Workgroup considered a wide array of established and proven mechanisms in developing the list of potential financing options included in this document as well as some new and innovative approaches. Perhaps the most challenging part of this process was evaluating how these mechanisms can be constructed to either enable the flow of new funds to this effort or to modify existing programs to facilitate redeployment of funding streams from private, philanthropic, and public entities to Phase 3 WIP implementation in the Commonwealth.

In general, no one mechanism had inherent strengths or weaknesses; the utility of any given mechanism is dependent upon the context in which it will be used. As a result, the Funding Workgroup evaluated options and mechanisms by surveying what is already in place and what could be introduced. In that context, the financing mechanisms considered fall into the following broad categories:

- Cost Saving Approaches
- Revenue and Cash Flow Management
- Engagement of the Private Sector

2. Cost Saving Approaches

There are a number of ways to reduce the overall cost of water quality programs. These approaches guide, or force in command-and-control scenarios, the investment of resources in water quality protection and restoration practices rather than establish new revenue streams. **Planning processes and regulation** are routinely used to limit the water quality impacts that can occur in a given area or from a particular activity. The enforcement or enhancement of existing regulations, codes, and ordinances can shift costs to the private sector or be used to incentivize going above and beyond what is required. In addition, looking to **coordinate with other local priorities,** like capital improvement, parks and recreation, green infrastructure, transportation improvement and other types of existing plans may offer opportunities to achieve water quality goals within other existing projects. This “dig once” concept can reduce implementation costs by capitalizing on a construction activity already occurring. Identifying opportunities to **streamline resources**, like existing grant, cost-share, and technical assistance programming, is another way to create efficiencies that can reduce administrative costs for sponsoring agencies and make these resources more accessible to applicants. While these approaches do not generate dedicated funding that can be redeployed by

the State or local government, they are an approach to shifting costs to regulated entities, thereby relieving some of the burden for the public sector to pay for BMP implementation.

3. Revenue and Cash Flow Management

These opportunities range from general funds and grants, to bonds and loan programs, to dedicated revenue streams like fee systems and taxes. While **general funds** offer a certain flexibility over other sources and can be used for both capital and operations and maintenance needs, these funds are not applied to a specific purpose leaving water quality needs to compete with essential services like public safety and education. Grants can be used for planning, design, and installation of water quality projects and can prove particularly effective for pilot projects that demonstrate practices, engage the community, and build program momentum; however, **grant funding** can be just as competitive as general funds, offers a finite funding timeline, and cannot sustain water quality projects and programs over time. **Bonds, loans, and revolving funds** offer access to the resources needed for capital projects with large upfront costs for communities that are able to demonstrate strong fiscal capacity and the ability to repay over time. All of these approaches represent mechanism to deploy resources to water quality restoration activities. In contrast, taxes and fees are mechanisms for raising funds that can in turn be used to capitalize grant, loan, and funding programs. **Taxes and fees** can create steady, dedicated streams of revenue for water quality programs. Taxes, such as an additional percentage added to a property tax in a particular district or the sales tax of a particular product, can be less administratively burdensome or more politically palatable than fees. Fee systems, like utilities, impact fees and other surcharges, can be structured to more directly connect the scale of the fee collected to those who have the greatest impact on water quality.

4. Engaging the Private Sector

Often broadly referred to as Public-Private Partnerships, or P3s, these mechanisms operate as contractual arrangements between a public agency (federal, state, or local) and a private sector entity to deliver a service or facility benefitting the public. Through the agreement, the skills and assets of each sector, as well as the risks and potential rewards, are shared by both the public and private entities. P3s have the advantage of leveraging public funds but are voluntary. In the water quality arena, these agreements offer some combination of access to private land and/or financing, and they can be as simple as local cost-share or fee credit/rebate programs that encourage property owners to implement BMPs on private parcels, to large-scale, performance-based contracts between jurisdictions and private sector service providers that improve efficiencies and reduce costs, to impact investing that directly engages private capital looking for social benefits in addition to a return on investment.

5. Recommendations for a Financing Strategy for the Phase 3 WIP

The recommendations for a financing strategy for the Phase 3 WIP fall into three broad categories:

1. improved administrative steps that make existing programs work more cost effectively,
2. innovative approaches that streamline the process for farmers and other landowners that will make compliance easier and more achievable, and
3. new sources of revenue to help fill the funding gap.

All three categories are critical to achieve local water quality improvement and restoring the Chesapeake Bay.

a. Category 1 – Improve Existing Programs

Increasing existing funding and making it easier to apply and get funding was the first area the team focused on, knowing that many landowners find it difficult to navigate existing grant programs. In surveying potential opportunities, the Funding Workgroup looked for programs that could be better utilized. For example, doubling or tripling the popular REAP tax-credit program at the Department of Agriculture would provide another $10 to $20 million to farmers to install BMPs on their farms. Expanding Growing Greener funding, with a streamlined application process at the county level, will encourage on-farm improvements with less effort, less wait and less red tape. Making PENNVEST watershed funding, through grants and loans, easier to access and packaged to fit individual farmer needs and financial situations will lower the barrier for farmers applying for these existing funds. Providing technical assistance at the county level in a one-stop shop process for farmers will simplify the sometimes bewildering process of getting a project funded and installed on the ground.

Better reporting of what BMPs are actually installed on farms and other lands would help the state track what is really put on the ground, and better inform EPA of how we are meeting our Bay obligations. The Workgroup agrees with a recommendation of the Agriculture Workgroup to make a change in the state's Right to Know Law that would make it possible for farmers to share their BMP data with DEP to get credit for practices implemented without exposing them to unwanted public review.

b. Category 2 – Use Innovative Approaches

Second, creative approaches that don't require new funding were identified by the group. These include those that link participation in certain programs to compliance with existing regulations. For example, incentivizing landowners in the Clean and Green tax abatement program to comply with existing agricultural requirements for those enrolled in the Agricultural Use, or actively farmed, part of the program. This would not be a new requirement, just better enforcement of existing requirements. Similarly, landowners enrolled in the popular Farmland Preservation Program should meet basic agricultural compliance requirements. An exciting program piloted by

Turkey Hill Farms requires their milk producers to meet agricultural requirements as part of their long-term contract, and then gives producers a modest bonus payment for meeting requirements. In return, Turkey Hill can proudly market its products as Bay friendly. Other integrators and retail companies are looking to adopt this approach, which lets the market incentivize compliance.

Encouraging state agencies and local government agencies to lead by example was identified by the group as another way to achieve results with less funding. Many agencies already provide technical assistance through staff as well as grant funding, but installing improvements on state, federal or locally owned property can speak volumes. Possibilities include state parks, local parks, college campuses, prison grounds, and more. An executive order could raise the profile of this work and encourage its widespread use.

Reviving funding for Act 167 stormwater planning and improvements, along with streamlined permitting and more vigorous compliance, can help address pollution from stormwater runoff at the county and municipal levels using existing authority. Incorporating BMPs in new development as-you-go can also save funding and streamline projects. Similarly, using abandoned mine lands under existing federal funding authority in the Surface Mining Control and Reclamation Act (SMCRA) to apply excess Chesapeake Bay nutrients and restore mined watersheds can solve two problems at once. Legislation to support delivery of excess nutrients to these sites, as exists in other states, would be necessary. Pennsylvania currently gets about $25 million a year in SMCRA funding, some of which could be used for water quality improvements.

Adopting a pay-for-success model, similar to what PennDOT has been using under its Private-Public Partnership program, would facilitate private sector or investor partners to pay for large projects or a series of similar projects up-front, and get repaid by government sources for the actual nutrient reductions achieved. The benefits of this approach include mobilizing private-sector capital, paying only for actual results, and the potential for cost savings through large-scale efficiencies. Public funds would still need to be tapped to pay for the projects.

c. Category 3 – New Revenue Sources

In the third category, the group identified new legislation that would be required to generate new funding for BMP implementation as well as the staffing needed to make it happen. These include removal of a sales tax exemption on bottled water, tea, and similar beverages that, by one study estimate, could generate an additional $353.9 million per year. Another approach used in several nearby states, including Maryland, is a water use fee applied to large nonresidential water users who take water for commercial use. A 2018 study by the Legislative Budget and Finance Committee notes this type of fee in Pennsylvania could generate “hundreds of millions” of dollars each year. Most legislative proposals to date would exclude agricultural water users.

Other revenue generating ideas identified by the group would yield more modest contributions, including a tax check-off for tree planting and buffer projects on motor license applications, an optional add-on fee to boat registrations and other outdoor recreational uses to help restore the Bay, and a Pennsylvania Clean Water license plate dedicated to the same.

These recommendations are summarized in Table A3.1 Funding Workgroup Phase 3 WIP Financing Ideas below.

Table A3.1 -- Funding Workgroup Phase 3 WIP Financing Ideas

Note: The suggestions below have been considered by the Phase 3 WIP Funding Workgroup, through discussions with other partners. The Funding Workgroup has not estimated the costs in detail for all of these ideas, but this could be done for ideas selected for further development. Please refer back to Section III for a description of the mechanisms considered in the development of this table.

Category 1: Revisions/Enhancements to Existing Programs					
Idea # *(no priority order)*	**Program Concept**	**Estimated Cost/Results**	**Personnel**	**First/Next Steps**	**Notes**
1.1	The state, Pennsylvania farmers, and (potentially) federal partners (NRCS/FSA) need a system to share confidential reports about adoptions of BMPs.	DEP has approximately $3.7 million in the EPA Bay Grant funding budgeted over the next 3-5 years to develop and implement such a system. NOTE: A significant cost reduction will result if the suggested changes in the Right to Know Law are implemented.	This existing funding includes 1 DEP position to coordinate and administer these efforts. It does not include any additional DEP staff costs for onsite verification.	To save a significant amount of time and resources, and to protect the privacy of the agricultural community, revisions to Pennsylvania's Right to Know Law are needed as the first step. Once passed, PDA can implement a simple annual reporting system for the agricultural community to report progress that can be easily tracked and verified.	Currently, many voluntary BMPs are implemented on farms in Pennsylvania, but are never reported through any existing programs. Pennsylvania is unable to count the pollution reductions generated by these practices toward meeting the Bay TMDL requirements. A better reporting system is needed to track and verify progress to enable farmers to report to the state the practices they have implemented.
1.2	Ensure that landowners enrolled in the Farmland Preservation Program follow existing rules and regulations requiring manure/nutrient management and erosion and sediment control plans and plan implementation.	PDA will need resources to ensure enrolled lands are compliant. Landowners who need to come into compliance should bear those costs, but should retain their FPP payments if they do.		Determine PDA resource needs for compliance checks.	There are 552,702 acres currently enrolled in the program.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
1.3	Revise provisions related to the Agriculture Use acres in Clean and Green to incentivize landowners to comply with existing rules and regulations governing agricultural operations. Encourage additional participation in the Forest Management aspects of Clean and Green through additional education and outreach.	Adjusting this program could impact (increase or decrease) tax revenue to county governments.	To determine compliance, DEP Agricultural Inspection Reports would be shared with County Tax Assessors for further coordination with the county conservation districts and/or DEP. DCNR service foresters currently provide private landowners with help on their stewardship plans and would need to evaluate what additional resources are needed to expand this work under Forest Reserve.	To make these provisions more meaningful, amendments to the legislature for their consideration	Agriculture Use and Agriculture Reserve together have 4 million acres enrolled; Forest Reserve has 5 million.
1.4a	Require counties and/or municipalities to comply with Act 167 requirements by having an approved county stormwater management plans and all associated municipal ordinances in place before seeking state economic development grants and assistance.		Additional support staff for DEP would be needed to administer this program.	Determine those programs that support development or redevelopment activities and include Act 167 compliance as a threshold eligibility.	Including Act 167 standards for all Commonwealth financial support will better focus resources. This is one of the consistent recommendations of the four pilot counties as something that was an essential component to ensure successful implementation of their Phase 3 WIP Countywide Action Plan.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
1.4b	Restore funding for Act 167 planning. This should include funding for new county and municipal plans where none currently exist, and funding for plan implementation (such as creation of ordinances) and plan updates, where necessary, to existing plans more than five years old. This impact will particularly be felt in non-MS4 areas, where county/municipal stormwater regulations may currently be non-existent. Funding should also be structured to incentivize MS4 counties/municipalities to update stormwater plans/ordinances in conjunction with their MS4 compliance activities. Act 167 planning and PRP planning should occur simultaneously where possible to ensure the greatest possible consistency and coordination within a region.	Stormwater planning and implementation of updated ordinances at the county and municipal levels will result in greater pollution reductions funded by the private sector, as new and re-development occurs that incorporates current BMPs.	Some staff costs will occur at the county/municipal level to oversee implementation of stormwater ordinances but permit fees can be structured to partially or completely cover the cost of additional staff.	Budget approval from the state legislature would be necessary to restore funding for Act 167 planning.	DEP actively worked with and funded county Act 167 planning and implementation in the past, but funding was eliminated approximately 6-8 years ago.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
1.4c	Avoid 3rd party and DEP review of NPDES stormwater management and post-construction permits for those within municipalities with up to date ordinances consistent with Act 167.	There should be no additional costs to implement this recommendation.	This concept would allow understaffed DEP stormwater personnel to focus on plan implementation instead of plan review.		This concept would eliminate duplicate review of permits by municipal engineers and DEP. Should result in a streamlined review process and shorten the NPDES permit review process. May prove an incentive to municipalities to adopt up to date ordinances that are in compliance with Act 167 requirements.
1.5	Expand the TreeVitalize urban tree and buffer programs. Coordinate with Department of Community Economic Development's community revitalization programs. Consider enhancing TreeVitalize Program technical guidance (See Notes).	DCNR estimates a continued and expanded program would cost $3.7 million. These programs have a 1:1 match requirement.		Budget Approval would be necessary to support expansion. Support the existing legislation for the Keystone Tree Fund.	DCNR should coordinate with the Department of Community Economic Development on this effort. Enhance Guidance to: Educate grant recipients about the value of using trees to meet MS4 requirements and to mitigate localized stormwater problems. Provide information about the stormwater infiltration capacity of various tree species. Encourage grantees to select tree species with the greatest stormwater infiltration value, where such species are appropriate given site constraints and other factors.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
1.6	Pennsylvania State Agencies should put buffers and other practices in place on state-owned lands wherever feasible. Possibilities include roadways, parks, campuses, and prisons. Leading by example is a critical step. Taking action on public lands with public dollars demonstrates a commitment to water quality protection and restoration, serves as an outreach and education tool for engaging the public, and promotes these activities as the new normal. Thinking beyond just existing publicly held properties, the Commonwealth could also look at any state level construction or redevelopment activities (roads, public buildings, etc.) for opportunities to incorporate additional water quality or quantity management benefits. Incorporating these features at the time of construction is far less expensive than retrofitting.	There will be incremental costs for developing green protocols for implementing this on Commonwealth property, as well as for labor, plant materials and maintenance.	No new staff would be needed, but contract dollars would.	New or repurposed funds to pay or cost-share the best management practices and plans Use implementation of the PennDOT Connects Program Budget approvals would be needed to support efforts. An Executive Order to facilitate implementation is suggested.	A map of state parcels has already been completed. DCNR currently leases 6,000 acres of farmland on its state parks to farmers. Agencies should also include state affiliated agencies like the Fish and Boat Commission, Game Commission, state colleges and universities, etc.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
1.7	Revise the Growing Greener and other existing state funding sources project selection criteria to a first-come, first serve award process.	None; uses existing funding sources	Existing staff would use revised criteria to focus on high needs areas.	Agencies with Growing Greener funding agree to the change in prioritization. The current understanding is this adjustment is possible without legislative approval.	Including standards to focus funding to high needs areas will allow better utilization of resources
1.8	When requesting federal Abandoned Mine Drainage funds, DEP should prioritize projects that help the state meet its Phase 3 WIP goals.	DEP invests ~$25 million in AMD statewide each year, but only a portion of that could help achieve Phase 3 WIP goals.		Look into potential synergies with biosolids or manure or large scale legacy sediment and dam removal projects to accelerate implementation and bring down costs. These by products can be used as a supply of nutrients for trees and a soil enhancement. DEP would start by developing an internal process to identify AMD projects that have Phase 3 WIP co-benefits.	There are an estimated 35,000 acres of AMD lands on state forestlands alone, more on private lands.

Category 2: Innovative Approaches					
Idea # *(no priority order)*	**Program Concept**	**Estimated Cost/Results**	**Personnel**	**First/Next Steps**	**Notes**
2.1	Pool agency funding targeted to Chesapeake Bay efforts into one fund and let an oversight group administer and manage the funds. The sponsoring agencies would still get recognition for having contributed toward the accomplishments achieved.	Based on recent reports to EPA in response to federal reporting requirements, Pennsylvania averages about $60 million per year in state funding for Chesapeake Bay Restoration efforts.	Options as to how this is implemented need to be explored as to whether staff support would be need. While each agency would likely need to provide a point person for coordination and review processes, Chesapeake Bay Trust and the National Fish and Wildlife Foundations offer good models for distribution of blended funds in a way that maintains the agencies' various missions. Likely no new personnel needed if farmed out to an existing entity in this way. If the state chose to operate the blended fund internally, I would likely require the realignment or reassignment of existing personnel.	An oversight group would need to be created with the ability to manage monies from multiple agencies, target resources with enough administrative resources available to them to implement and coordinate the effort.	Purpose of this funding and the focus of this oversight group must be on the implementation of the Phase 3 WIP. Efficiencies would be gained for both the applicants and the agencies responsible for these funding programs. Having applicants cobble together multiple grants from multiple places is overwhelming and having many agencies each managing their own administrative processes is wasted time, energy, and capacity.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
2.2	Passage of a new Growing Greener 3 program and funding source that dedicates dollars to farmland preservation, agriculture practices, buffers, and other practices, with some % dedicated to the Bay watershed. Change the name of the initiative to focus on the goal and uses of the monies.	Would be a new source of funding, estimates vary		Legislation to approve a new program and a new funding source targeted at compliance with the Bay issues.	
2.3	PENNVEST use the state revolving loan program to support project sponsors meet Phase 3 WIP goals. PENNVEST can: 1. Offer counties low-interest loans for capital improvements and practices 2. Coordinate loans with the Farmland Preservation program and Clean and Green to support BMP installation on lands in their programs. 3. Expand Riparian Buffer and TreeVitalize Program with low interest loans	Loans will be repaid with interest; grant level unknown. Loan funding is currently available.	Existing staff could potentially handle incremental increase in loan volume. Partnering with other stakeholders could expand participants.	Review the loan origination process to better accommodate loans to farmers. Look at the potential for sub level revolving loan programs seeded with funding from PENNVEST and administered through a more local entity, possibly through conservation districts, or counties with approved county-wide action plans. Administrative support is eligible from PENNVEST to implement construction projects. Identify existing private lenders willing to participate in link-deposit loan program where PENNVEST money is used to buy down the interest rate on loans to farmers through local lending institutions	Work with sub level entities to administer a revolving loan program. Streamlining would offer the benefit to PENNVEST of fewer loans/grants to manage, while also allowing the Counties to direct funding to the geographies, practices, and implementers that make the most sense given context. Less administration and more spending autonomy.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
2.4	One-Stop-Shop facilitation for farmers and urban centers–streamline and expedite the process of matching farmers and other land owners to technical assistance available for water quality projects from all local state and federal sources. counties. Run a pilot of this concept through an RFP process to solicit proposals at the county or regional level. Proposals would describe how these services would be effectively provided to serve the needs of both agriculture and urban communities. PENNVEST could fund the creation of these one-stop-shop centers to help farmers, land owners and communities navigate possible sources of federal, state, and local cost-share and technical assistance programs.	Pilot effort for Tier 1 and 2 counties would require about $1.2M	RFP can be generated and administered with existing staff.	Project may be funded using state revolving loan administrative funding targeted to nonpoint source pollution prevention. PENNVEST may pilot this concept through and RFP for the Tier 1 counties.	Look at the Community Action Centers (https://www.centerforcommunityaction.org/) for child care, health, and other social services as a model. These centers combine program assistance, tools into a package to meet the needs of individual families.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
2.5	Promote Integrator incentives and industry pressure for compliance, following the Alliance for the Chesapeake Bay and Turkey Hill model, and the Environmental Defense Fund efforts to have buyers require compliance by farmers.	Small cost for outreach, education, and coordination at the state level.		More support for similar efforts, NFWF is funding some of this through grants.	Utilize funding incentives to support entities the promote farm compliance. The strength of these models is that the marketplace is driving the actions taken and a heavy state engagement is not necessary. Promotion of these models is the most appropriate role for the state. There could be opportunities to establish purchasing preferences for vendors/suppliers that employ these types of approaches.
2.6	Address the economic development aspect of abandoned mine land reclamation and other environmental restoration efforts. Incentivize through Department of Community and Economic Development a new business or grow an existing business of hauling and transporting manure, other byproducts, or legacy sediment to reclamation sites as an application for soil amendment, buffer maintenance, stream restoration, etc. (See Note)		Minimal, as the concept is to add the requirement into permits or at other existing control points. Abandoned Mine Land funding currently has a pilot program that may be available to develop one or more of these areas.	Provide incentives for hauling manure. Include a permit condition in the reclamation work to require the use of nutrients from these sources. The Department of Community and Economic Development would offer subsidies and other support to manure haulers for this purpose. PADEP would require use of manure from areas that have a surplus for this purpose.	An alternative is to use the byproducts from other alternative manure treatment technologies such as biochar, digesters or composting and Legacy Sediment restoration and dam removal sites. Other state Manure Hauling Programs could serve as a model for this effort.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
2.7	DEP should consider offsets as an option for Municipal Separate Storm Sewer Systems (MS4s) for project implementation on offsite locations.	This will significantly decrease the cost per pound for nutrient reductions. This will also reduce the cost for compliance for MS4 communities.		Formal guidance as to how this can be implemented is needed.	This will encourage cooperation across sectors and promote a more regionalized approach to addressing stormwater.
Category 3: New Funding					
Idea # *(no priority order)*	**Program Concept**	**Estimated Cost/Results**	**Personnel**	**First/Next Steps**	**Notes**
3.1	The state must find a significant new dedicated funding source to support clean water initiatives. Potential sources of funding for this program are listed below. A combination of these options may be required to provide the level of funding needed.	This would be a new source of funding, where estimates would vary.	Depending on the final source of funding and the method of collecting and administering the program, estimates for personnel to manage the program will vary.	Legislation would need to be reintroduced for this purpose in 2019	

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
3.1a	Restore PA **–** A proposed plan to Restore Critical Pennsylvania Infrastructure	Proposed bond initiative to include some funding for conservation among other infrastructure improvements, totaling $4.5 billion. The conservation components are listed in the notes.	No estimate of the personnel resources needed to implement this initiative have been provided.		Initiative to restore Pennsylvania infrastructure including investments in critical flood control infrastructure, green infrastructure, and stormwater management for MS4 communities.
3.1b	Pennsylvania Farm Bill – A proposal to provide support for and continued investments in the commonwealth's agriculture industry.	The conservation measures include: • $3 million for REAP to increase the lifetime cap and increase availability. • $500,000 for AgriLink • $2.5 million for conservation grants for practice implementation.	1 staff person for the State Conservation Commission is proposed.		Among other things, the proposal will provide funding for technical assistance and to incentivize the installation of best management practices.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
3.1c	A water use fee applied to large nonresidential entities that take water for commercial use.	$0.0020/gallon fee would bring in about $353.9 million a year.			A 2018 study* by the Legislative Budget and Finance Committee estimated that modest fees on each gallon of water withdrawn over 10,000 gallons per day could generate hundreds of millions of dollars state-wide. Many different combinations of minimum/maximum fees and exemptions could be explored. If the revenue were directed back to the watershed where it was generated, 67% would go to the Chesapeake watershed. *http://lbfc.legis.state.pa.us/Resources/Documents/Reports/623.pdf
3.1d	Removal of the sales tax exemption for bottled water, tea, and similar beverage purchases.				
3.1e	PennDOT could create a new license check-off program — e.g. the Keystone Tree Fund — to support buffer and urban tree plantings.	Estimates vary, likely to be less than $100K/year.		Support existing legislation for this purpose.	Consideration to establishment and O&M costs should be given. Just getting the trees in the ground won't be sufficient if there isn't funding to ensure survival/thriving.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
3.1f	The state could create a "Clean Water PA" license plate, enabling car-buyers to show their support for environmental protection and contribute to the cause.			Need to evaluate the potential funding this would create. Works well in Maryland, since they only have 2 specialty plates, while Pennsylvania already has 5. Also, would need to account for collecting and administering the funds collected. There is also a saturation point where money collected diminished. Experts would need to study this option to determine whether or not it is worthwhile. A similar program in neighboring Maryland is successful.	A Pennsylvania version that represents a healthy local stream with charismatic elements depicted. A forested stream with trout jumping, a whitetail deer buck drinking, and Bald Eagle flying over, with a beautiful sun on the horizon. This hits three demographics (i.e., bird watchers, hunters, and fishermen). The plate is also an outreach, messaging tool.
3.1g	Begin a dialogue with outdoor recreation users such as hunters, fishermen, boaters, and other conservation communities on the feasibility of adding a fee for the enhancement of the resources they are utilizing. These funds would then be dedicated to programs/projects identified in local countywide action plans.	Recent survey showed voters are willing to pay an additional $50 or more in fees for water initiatives.			

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
3.1h	The state could incorporate a regional level, watershed-wide, or statewide impervious surface fee to fund stormwater management. The fee could be modeled after studying various successful municipal and regional stormwater fees in Pennsylvania and elsewhere.			Legislation would be required.	The individual impact would be mitigated by spreading the costs. Perhaps this could be done as a Local Watershed Service District. Consider administrative costs, but could possibly go to pooled funding pot. Municipalities may not like the perceived loss of autonomy, but perhaps that could be addressed by: (a) giving the municipalities the option to opt out if they have their own fee system in place, and (b) this could this be used to support the implementation of the countywide action plans or the municipalities Pollutant Reduction Plans.

Idea # *(no priority order)*	Program Concept	Estimated Cost/Results	Personnel	First/Next Steps	Notes
3.2	Expand the REAP Program, which is already popular with farmers. The funding criteria could be revised to target and prioritize projects that help the state meet its Phase 3 WIP goals.	$10M to $20M Evaluate the lifetime individual $150,000 cap to see if this should be increased. The additional funding for this program can not result in a decrease in funding to other agencies and county programs that rely on tax income.	Two to four staff would be needed.	Support the sponsorship of the Governor's Pennsylvania Farm Bill proposal. Ask the legislature to expand REAP, possibly additional staff and marketing budget. PDA should also reach out to private investors to expand program.	The criteria for REAP should be continually evaluated to ensure the program is investing in the most cost-effective best management practices. Before expanding this program, the impact on other agencies and counties that would normally receive this tax income needs to be evaluated. The amount of funding to these entities cannot be decreased as a result of an increase in funding to REAP.
3.3	Conservation investors dedicate a portion of their investment to best management practices, must see some return on the investment in a form of a Pay for Performance Program. The investor gets a return on investment once certain requirements are met.	Outside sources of funds exist, but some payback mechanism will be needed Private investment up-front, paid back from public funds when reductions are achieved.	Need to identify an entity to structure and manage transactions.	Talk to outside investors, look at other states for examples. Legislation may be needed to address possible procurement limitations at the municipal level. In addition, this may also be needed if the state is going to become a purchasing agent for reductions.	The PennDOT Pay for Performance model may be applicable. Other examples include Maryland-based Ecosystem Investment Partners (EIP), Colorado's Peaks to People water-user-financed watershed protection and the Conservation Stewardship Program, Maryland Clean Water Commerce Act.

III. Programmatic Recommendations of the Four Pilot Counties

Throughout the pilot planning process, the four pilot counties recognized a list of challenges/barriers that would hinder the success of their Countywide Action Plans (CAPs). These challenges and barriers focus on various existing programs, policies, and regulation. Recommendations from the pilot counties also suggest the creation of new programs, policies, and regulations. The four pilot counties have identified the success of their plan as an if/then statement. This entails: IF the identified challenge/barrier (can/cannot) be overcome, THEN the county (is/is not) able to achieve a quantified goal. The pilot counties have established a list of challenges/barrier beyond their local authoritative power. These recommendations are above the county's authoritative power and are outlined as Programmatic Recommendations and summarized in the Programmatic Recommendations Template.

These recommendations are summarized below.

A. Establishment of an Integrated Planning Program

Pilot counties have identified that existing water permits, programs and resources are not in coordination, which creates a challenge while working through the planning process. The recommendation details the need for collaboration between local/state programs, as well as state water programs coordinating efforts internally. In expansion of local/state coordination the county recommendation is:

- Establish an integrated planning program at DEP within the Chesapeake Bay Office to spearhead implementation of the programmatic and permitting changes that are important to the success of the Pennsylvania WIP and Countywide Action Plans
- A collaborative county level planner to help facilitate county planning and implementation efforts
- Continuation of state support during the planning and implementation process
    - Consistency with people who attend county planning efforts

In addition to the recommendations the county has identified potential challenges:

- Development of staff with knowledgeable integrated planning efforts
- Consistency of having the same person attend county meetings due to other obligations
- Convincing regulatory agencies of the need/benefit of having integrated planning and implementation programs
- Incorporate Governor's push for Pennsylvania to be the #1 state for organic production can be integrated with water quality efforts
- Municipalities should not have to hire engineers twice to complete documentation for similar plans (102, 537, etc.)

B. Reporting and Tracking of Best Management Practices

The pilot counties have recognized that current reporting methods are not sufficient for tracking and reporting of Best Management Practices (BMPs). The counties' recommendation is to create a standardized central database, that ALL agencies and consultants will have access to. The centralized database will serve as the reporting warehouse. The counties have identified potential challenges that come with the development of wide scale reporting:

- Confidentiality of reported data
  - May require changes to the Right to Know Act
  - Not all partners are ready to share data
- Training of staff on new data bases
  - Limited municipal resources to use an integrated system
- Coordination of all agencies and consultants to report into one system
  - DEP/DCNR/PDA/Private Consultants/Municipalities/etc.
- Approved method for capturing Best Management Practices

In addition to the challenges, the counties have provided recommendations on improvement:

- Must capture all plans
  - county conservation plans, restoration project permits, grant applications, etc.
- Capture non-manure nutrient management
  - Coordination of fertilizer companies/regulators/farmers
  - May require fertilizer companies to lower sales
- Capture Stormwater BMPs on less than an acre not required by Chapter 102
- Manure Transport
  - No system is currently in place
  - Changes to Act 49 to require tracking of manure transport
- Explore opening practice keeper
- Make sure all data systems are talking to one another
- Consistency in reporting buffers
- Ensure DEP MS4 program credits Urban Forest Expansion

C. MS4 and the 2023 Permit Cycle

The pilot counties have identified existing concerns with the 2023 MS4 permitting cycle and have provided an extensive list of challenges and recommendations for further improvements. The counties have identified the following challenges:

- Multiple programs at state level are not coordinating efforts and plans
  - (State Water Plan, Act 167, MS4, etc.)
- Current MS4 calculations are expensive and do not provide clear direction for calculations of reductions
  - Could use the Bay model for calculations
- Flexibility of MS4 to allow Permittees to reduce required pollutant reductions across the entire jurisdiction
  - May require EPA buy-in
  - Flexibility to work outside of the predefined UA
- DEP and EPA requirements and programs complicate the process and serve as a disincentive
  - Challenge for municipalities to focus on water quality rather than specific inefficient program requirements
- A shift in focus of current MS4 permits from total sediment to total nitrogen presented by the Phase III WIP

In addition to the challenges, the counties have provided recommendations on improvement:

- Utilize the Bay Model to establish and assign MS4 baseloads, reductions, and requirements
- Establishment of watershed or county wide permits to simplify and expedite the permitting process
- Provide flexibility to combine MS4/TMDL/WIP III requirements into one single plan
- Counties need to be involved when developing the next MS4 permittee cycle
- Can leverage cost effective funds with the expansion to watershed wide permitting

D. Changes to Act 167

The pilot counties are suggesting updating, changes, and enforcement of Pennsylvania's Act 167. The proposed changes would include updating Act 167 to included regionalized (county) runoff and flood management. In addition to updating Act 167, the pilot counties have recommended enforcement of Act 167 compliance. The counties have identified potential challenges with updating and enforcing act 167:

- Act 167 is not funded adequately in general budget
- Lack of flexibility in regional management of water quality under act 167

Additional recommendations for improving Act 167:

- Legislation that allows pollutant modeling parameters to be consistent with CAST
- Update model ordinances for countywide or watershed goals
- Allow for regionalization for cost effectiveness
- Enforcement of municipal Stormwater Ordinances consistent with County Stormwater Management Plan
- The addition of 2 DEP Act 167 enforcement staff

E. Creation of Incentivized Programs for Best Management Practices

The recommendation from the pilot counties is to establish positive and negative incentives that will promote improved water quality. Positive incentives are economic incentives that will intentionally influence the increase in Best Management Practices. Negative incentives are penalties that for all stakeholders to comply with State Laws. The counties have identified challenges with this approach:

- Political will to create and establish new incentive programs
- Funding for an economic incentive
- CREP is not working
- Landowner buy-in to existing incentive programs, that do not pay for parts of implementation

In addition to the challenges, the counties have provided recommendations on improvement:

- Give municipalities in compliance with Act 167 credit/incentives toward MS4 permits
- Municipalities with land use authority should not have MS4 requirements
- New regulatory incentives for Cover Crops, Nutrient Management, Conservation Plans, Buffers, etc.

- Develop an incentive program to promote livestock access management to stream corridors.

F. Development of a Regulatory Model for Results Oriented Approach

The pilot counties are proposing an increase in water quality monitoring to promote a results-oriented approach. The recommended approach will allow for permitting compliance to be met through water quality monitoring. The increase in water quality data will provide more accurate information as to what still needs to be accomplished and where. The counties have identified challenges with this approach:

- Permit change that allows the use of water quality data to demonstrate permit compliance
- Change in philosophy
- EPA buy-in
- Delay in obtaining enough trend data

  In addition to the challenges, the counties have provided recommendations on improvement:

- Look into allowing citizens data as accurate reporting data
- Use additional data to establish more accurate baselines and measure progress
- Greater display of results to obtain public buy-in

G. Urban Nutrient Management

Pilot counties have identified the importance of Urban Nutrient Management to their counties nutrient reduction in the Developed Sector. The pilot counties have stood in support of proposed fertilizer legislation. The challenge identified by the counties is the legislature passing the Fertilizer Bill.

H. Stream Restoration Permitting Process

The Pilot Counties recommendation is to improve the current permitting process. The challenge with the existing permitting process for stream restoration is extensive. The other challenges and recommendations identified by the pilot counties include:

- Changes to MS4 that currently limits municipal interest and participation
- Expedited permitting process to increase total number of projects
- Development of an acceptable monitoring protocol
- Central data system for stream restoration projects
- Streamlined permitting process will also incorporate wetland restoration
- Potential for adding wetland restoration to list of projects eligible for REAP

- Current Bay modeling credit is low in comparative to reported results

I. Clean Streams Law

The pilot counties are suggesting changes to the Clean Streams Law in Pennsylvania. The recommendation is regarding stream access management and stream restoration as stated above. The recommendation is to:

- Adopt change to Pennsylvania's Clean Stream Law to allow local ability to require fencing of livestock out of a stream or river
- Vision for stream access to be restricted by 2024

J. Adopt or Update Act 537

The pilot counties have provided a recommendation to increase the number of municipalities that adopt or update their Act 537 plans. One recommendation to achieve success is stricter regulations required from state regulators.

K. Appropriate Waste Management Systems in Rural Areas

The pilot counties have recommended reducing the number of failing on-lot disposal systems (OLDS). The recommendation is to require stricter regulations from state regulators.

L. Funding Opportunities

The pilot counties have identified that current state legislation complicates and/or prohibits various public-private initiatives from collaboratively sharing public funds.

M. Implementation and Next Steps

The pilot counties have identified an extensive list of technical resources and funding assistance they will need in order to attain their planning goals. The state workgroups have additionally identified a detailed list of the technical resources and funding needed for implementation. The Local Area Goals Workgroup has identified the technical resources and funding necessary for planning and implementation of the remaining counties in the Chesapeake Bay Watershed.