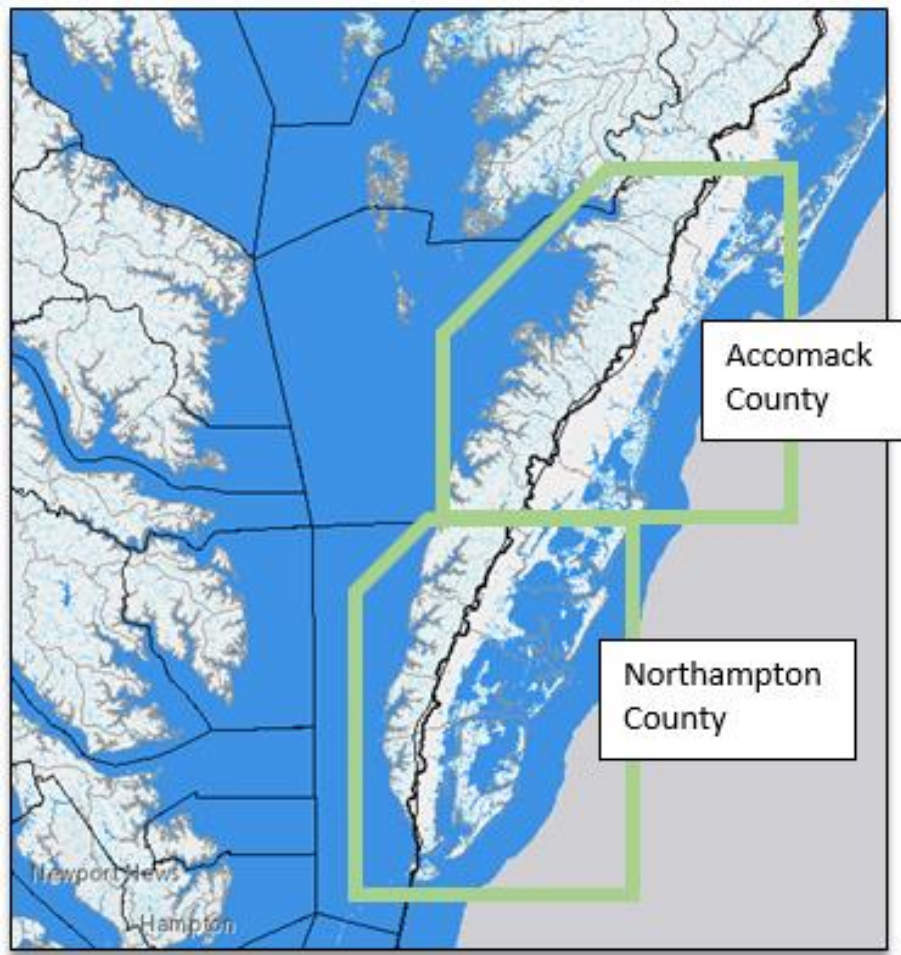


CHESAPEAKE BAY PHASE III WATERSHED IMPLEMENTATION PLAN

December 20, 2018



Executive Summary:

The Accomack-Northampton Planning District Commission (A-NPDC) facilitated the Chesapeake Bay Phase III Watershed Implementation Plan (WIP) project for member localities and other stakeholders in the fall of 2018. The goals of this project were to revise the Phase II WIP's best management practices (BMPs) according to local information and recommend programmatic actions to promote the implementation of voluntary practices. The A-NPDC concluded that addressing water quality goals in a manner that creates local jobs and supports local economic development is the approach best suited for achieving success by providing a driver for voluntary actions. We suggested over five dozen programmatic actions focusing on administrative capacity, potential new BMPs, funding, septic and sewer topics, and shoreline topics. We are most optimistic about the existing and proposed BMPs unique to our area that improve water quality while providing the additional co-benefits of job creation, flood control, and coastal resiliency.



Figure 1. Rain garden in Onancock (Accomack County)

Planning for the Future: Incentivizing Clean Water on Virginia's Eastern Shore:

Flanked by the Atlantic Ocean to the east and the Chesapeake Bay to the west, the Eastern Shore of Virginia is a 70-mile-long peninsula that has remained one of few rural regions on the Atlantic seaboard, despite consistent pressure from future development. Home to Accomack and Northampton counties, the region is unique for its wealth of coastal resources that has come to define the local culture and economy. Around the turn of the 20th century in the years following the construction of a railroad that allowed for expedited shipping of agricultural and seafood products to larger urban markets, Accomack and Northampton were noted as the two wealthiest

rural counties in the nation. Following this prosperous period, the region's population and economies regressed due to challenges in environmental sustainability and geographic isolation. While many other coastal communities have flourished along the Atlantic seaboard, the Eastern Shore continues to pursue opportunities to revive local economies and to persevere against the challenges facing its rural communities.

The Accomack-Northampton Planning District Commission provides planning, community development, and housing services to the 19 incorporated towns situated on Virginia's Eastern Shore. Approximately half of the PDC drains into the Chesapeake Bay, including both Accomack and Northampton Counties and all towns except Accomack, Chincoteague, and Wachapreague. At 1,310 square miles, Accomack is Virginia's largest county by area, though 861 square miles (65.7%) is underwater. Northampton County occupies 795 square miles, including 584 square miles (73.4%) that is underwater. According to the 2010 U.S. Census, the total population was 33,164 in Accomack and 12,389 in Northampton County.

Following the Project Methodologies provided by Virginia's Department of Environmental Quality (DEQ) in the contract, the A-NPDC worked with its consultant, the Berkley Group, on the Phase III WIP. This included developing the deliverables, which included letters of participation from localities, the updated BMP workbook, and an interim and final project report. The A-NPDC received letters of participation from Accomack County, Northampton County, and the towns of Cape Charles, Cheriton, Nassawadox, and Tangier.

Through this process, stakeholders and localities had the opportunity to provide feedback used to revise the BMP input deck and identify programmatic actions that support BMP implementation. During the four WIP III stakeholder meetings and via email and telephone calls, stakeholders identified more than 50 programmatic actions requiring additional support through administrative capacity, funding, research, or other provisions that, if implemented, would lay the foundation for a comprehensive water quality, coastal restoration, and economic package positively impacting Virginia's Eastern Shore and rural coastal Virginia regions. These actions marry economic growth with natural resource protection, preserving the qualities that make the Eastern Shore a unique and desirable location where agriculture, aquaculture, outdoor recreation, tourism and its more than 45,000 residents coexist. Below are highlighted several of these actions that have the potential to drive Bay clean-up efforts while strengthening the Eastern Shore's coastal economy:

Establish Filter-Feeding Shellfish as a BMP

An oyster can filter up to 50 gallons of water each day, removing nitrogen, phosphorus, and sediment in the process. This effort proposes farming 10 billion oysters throughout the Chesapeake Bay, ultimately driving the need for new workers to handle the millions of cages required to grow them. This would create indirect jobs in the cage-building, packaging, sales, and marketing industries that support oyster production, too. For such an effort to succeed, we propose the General Assembly adopt oyster BMPs as a priority for Virginia. A workforce development program and permitting system would be other key components of this local economic driver and BMP. This BMP could be extended to include other filter feeding shellfish, such as clams, which already form the basis of a major Eastern Shore industry.

Explore New Technologies & Options for On-site Septic Systems

Septic system failures pose significant water quality and public health concerns, yet the cost and installation of these systems falls almost exclusively on individual property owners. This funding challenge can be addressed concurrently with water quality concerns through exploration of alternative technologies, funding sources, and enforcement mechanisms for on-site septic systems and fields. Some potential solutions are identified in the William & Mary Coastal Policy Center paper titled “Onsite Sewage Systems: Background, Framework, and Solutions.”¹ Alternatives must be affordable to drive property owners’ decisions, which was identified by stakeholders as a major roadblock to properly maintaining septic systems on Virginia’s Eastern Shore. In addition to creating a program to address failing septic systems that includes homeowner education and financing for upgrades, this action proposes restoration of history funding sources to rehabilitate the approximately 200 homes in Accomack and Northampton counties that have no indoor plumbing. Increased oversight and enforcement mechanisms, namely through increased staff power, are also necessary to enforce septic tank pump out reporting.

Promote Working Waterfronts

Waterman have worked the waters off Virginia’s Eastern Shore for hundreds of years, bringing the bounty of the Chesapeake Bay to consumers both locally and nationally. This effort proposes creation of a sub-fund of the Land Preservation Tax Credit program focusing on Working Waterfronts. This sub-fund would allow businesses in the Working Waterfront Area to receive a conservation or corporate tax credit for installing living shorelines, biogenic reefs, living seawalls or other measures contributing to improved water quality and habitat. Co-benefits include continued protection of blue-green infrastructure within a scenic view shed, sustained ties to the region’s cultural history, and promotion of business opportunities within rural coastal Virginia. The Land Preservation Tax Credit Program would need to be amended in order for this effort to succeed.

Address Coastal Flooding:

The consensus of scientists reporting to the Virginia General Assembly in January 2013 on recurrent coastal flooding in southeast Virginia was that water levels in Hampton Roads, including the Eastern Shore, have risen one foot over the last 80 years.² Recurrent flooding due to sea-level rise, storm surge, hurricanes, and other extreme weather events is among the top concerns for Eastern Shore residents. As the agency currently charged with designing and managing drainage infrastructure such as roadways and ditches, the Virginia Department of Transportation (VDOT) is most readily equipped to tackle the issue of roadway flooding on Virginia’s Eastern Shore. This effort proposes the Virginia General Assembly designate VDOT with the responsibility of managing infrastructure necessary to combat the effects of flooding. Co-benefits include the Commonwealth’s enhanced ability to ensure water quality standards through oversight of flood mitigation efforts.

¹ <https://law.wm.edu/academics/programs/jd/electives/clinics/vacoastal/reports/onsitesewage.final.pdf>

² <http://www.a-npdc.org/wp-content/uploads/2016/04/Chapter-6-Coastal-Flooding.pdf>

Incentivize Living Shorelines

Living shorelines absorb nutrients and stabilize sediment, acting as a buffer against erosion and a filter for the Chesapeake Bay. With the requisite financial aid, homeowners could be incentivized to install more living shorelines. Increased use of these natural elements would expand the contracting workforce needed to install them while improving water quality in the Chesapeake Bay. Administrative capacity, funding, and a framework within which this process can function would be key components of a successful effort.

Data Inventory:

To reduce the amount of nutrients entering the Chesapeake Bay, Local Area Planning Goal (LAPG) reduction targets are set forth to be achieved by 2025 through the Phase III WIP. For the A-NPDC region, these targets are a reduction of 74,523 pounds of nitrogen and 6,847 pounds of phosphorus. DEQ distributed the BMP workbook providing these targets, WIP Phase II BMP types and amounts, BMP types and amounts as of June 30, 2017, and maximum BMP amounts available for the region. DEQ indicated that the WIP II BMP types and amounts meet these targets, and provided resources and references for the A-NPDC's use.

Throughout the development of the Phase III WIP and three project activities, the A-NPDC collected, investigated, and analyzed data relevant to the existing and planned BMPs, programs, partners, and co-benefits. The PDC contacted localities, state agencies, and local non-governmental partners to request data on local conditions and other local knowledge. Given the availability of data and finite amount of time available to develop the Phase III WIP, our general approach to achieve success in meeting WIP III goals by 2025 included the following strategies:

- Implement water quality-oriented land-use planning,
- Pair economic development opportunities with water quality improvements,
- Collect and compile data on existing and planned BMPs, and
- Retrofit and upgrade existing BMPs and developed sites.

Key information is referenced and summarized here:

Agriculture is the primary land use in Accomack County and little development is planned. The County provided a list of seven urban/developed BMPs identified by tax map number dated October 2018. Five of these have been constructed and two are under construction. The County estimated BMPs treating 665 acres associated with development in the towns of Hallwood, Oak Hall, Onancock, and Parksley may be implemented by 2025. In light of the uncertainty of these BMPs' implementation and concerns expressed by the County regarding capturing the full 665 acres, 70 acres were added to the BMP input deck.



The A-NPDC and the Berkley Group identified several federal, state, local, and private land conservation efforts that contribute to improved water quality in the Chesapeake Bay. We would like to ensure these measures are captured in the model:

1. The Virginia Eastern Shore Land Trust holds 74 donated conservation easements on 14,000 acres in Accomack and Northampton counties, including 77 miles of shoreline, 12 miles of perennial streams, 24 historic structures, and 6 structures on the National Register of History Places/Virginia Landmarks Register (NRHP/VLR).

2. The report *Socio-Economic Impacts of Conserved Land on*

Virginia's Eastern Shore (2017) describes the value of local ecosystem services and emphasize the local desire for conservation practices. The Virginia Coastal Zone Management Program (VCZMP) calculated that approximately 33 percent of the land in Accomack and Northampton counties is *considered* conserved. This is land that is generally treated as conserved, but does not have the formal development restrictions that exist in conservation easements. The VCZMP calculated that 10 percent of the land in Accomack and Northampton counties is in formal conservation easements.

3. There are several national protected areas:
- Eastern Shore of Virginia National Wildlife Refuge,
 - Fisherman Island National Wildlife Refuge,
 - Saxis (and Guard Shore) Wildlife Management Area,
 - Parkers Marsh Natural Area Preserve, and
 - William B. Trower Bayshore Natural Area Preserve.



Figure 3. Virginia Eastern Shore Land Trust Conservation Lands

4. State protected areas include:
 - Savage Neck Dunes State Natural Area Preserve,
 - Cape Charles Natural Area Preserve, and
 - Kiptopeke State Park.

A reported 126 acres has been reforested in Kiptopeke State Park.

The Planning District Commission did not receive all data requested. A BMP inventory or an estimate of the amount of future BMPs planned to 2025 based on projected development for Northampton County was not received, and therefore, existing BMPs may not be fully captured in the BMP workbook. In addition, the Berkley Group was not able to access the BMP Warehouse to investigate the amounts and types of BMPs reported. However, the Berkley Group learned from DEQ that reporting BMPs to the Warehouse is not required even for MS4 permittees, so we were not confident gaining access to this data would aid this project.

The Berkley Group did not receive a reply from the DEQ Virginia Stormwater Management Program office, the permitting authority for both counties. In addition, we received notice from VDOT and the Virginia Department of Health (VDH) that they would be reporting directly to DEQ. We believe that incorporation of this data and collaboration with these state agencies is key to developing an accurate and comprehensive plan.

Activity 1: Facilitate Meetings:

The A-NPDC developed a list of more than 100 stakeholders, including locality staff, state department staff, non-governmental organization staff, and others with a vested interest or knowledge of the Chesapeake Bay watershed within the region. The PDC invited these stakeholders to the four meetings via email and advertised the meetings on Virginia's Regulatory Town Hall website, its Facebook page, and in press releases in a local newspaper, the Eastern Shore Post. More than 20 stakeholders attended each meeting and the localities, Eastern Shore SWCD, DEQ, VDOT, VDH, The Nature Conservancy, and citizen attendees actively engaged in development of the Phase III WIP. Each meeting lasted two hours to start a discussion and the Berkley Group then followed up with stakeholders via email and, in some cases, individual phone calls to discuss information and specific data requests.

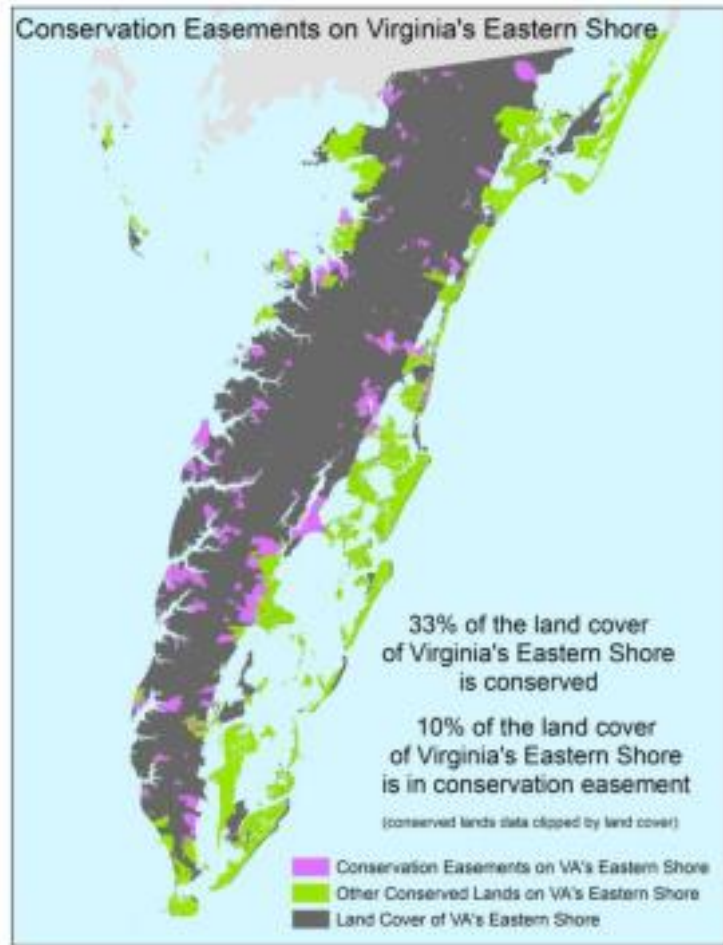


Figure 4. Conservation Easements

The A-NPDC held its first stakeholder meeting on August 23, 2018 (see minutes in Appendix A). This meeting included background information on the Chesapeake Bay TMDL/WIP III process, an overview of the BMP workbook, discussion of current regulatory/capacity barriers to implementing the WIP, and discussion of innovative, non-traditional BMPs that can improve water quality while spurring economic development. The Berkley Group incorporated feedback from this meeting into the BMP input deck and programmatic table. We submitted the interim draft workbook on September 14, 2018 to DEQ and did not receive a response regarding revisions or impact on the model.



Figure 6. A-NPDC WIP III Meeting 1

The A-NPDC held its second stakeholder meeting on September 21, 2018 (see minutes in Appendix B). This meeting focused on discussing the BMP table and associated programmatic actions. The Berkley Group incorporated feedback from this meeting into the BMP workbook. We submitted the updated interim draft workbook on October 19, 2018, upon request by DEQ. DEQ ran the model and indicated that our draft proposal fell short on meeting the nitrogen target by 3,781 pounds (5%) and short on the phosphorus target by 245 pounds (4%).



Figure 7. A-NPDC WIP III Meeting 2

The A-NPDC held its third stakeholder meeting on November 29, 2018 (see minutes in Appendix C). The purpose of this meeting was to present, in detail, the draft Phase III WIP for discussion and consensus. During the meeting, we incorporated feedback into the BMP workbook.

The A-NPDC participated in its fourth stakeholder meeting hosted by DEQ and the Virginia Department of Conservation and Recreation on November 29, 2018. This meeting included presentations on proposed actions from the regional SWCD and PDCs. Following, we incorporated the feedback into the BMP workbook.

This process created a network of localities, companies, and individuals knowledgeable of the Chesapeake Bay requirements and goals. Planned future efforts stemming from development of the Phase III WIP include a proposed meeting between VDH, septic system owners, pump-out and maintenance companies, and current and potential waste receivers to identify weak spots in the system for improvements. The series of meetings provided a forum for educating stakeholders on the current model and BMP options, creating a unique local plan, and garnering support for implementation and actions that pair Bay clean-up efforts with economic development.

Activity 2: BMP Input Deck:

The BMP Input deck developed by the A-NPDC for the DEQ Local Area Planning effort represents a theoretical implementation of BMPs by 2025 for the unregulated developed (non-MS4), natural, and septic sectors, based upon information supplied to the PDC by the DEQ as of June 2018. This scenario is just one of hundreds of possibilities that may occur between now and 2025 in the unregulated developed (non-MS4), natural, and septic sectors. Furthermore, this submittal does not represent any commitment by any of the member local governments of the A-NPDC to implement or fund the BMPs, Programmatic Actions, or Strategies, but rather, presents a realistic set of voluntary actions devised by stakeholders through development of the Phase III WIP.

In the LAPG BMPs tab, we based WIP III amounts on WIP II values unless we had substantial evidence to justify a revision. Revisions included:

- Using 2017 amounts for permeable pavement, stormwater performance standard, and three specific types of septic systems, as the 2017 amount was higher than the WIP II amount. The 2025 plan amount is cumulative, so any physical installations may be counted.
- Decreasing the amount for nutrient management plan. Our localities did not think it was feasible to prepare nutrient management plans for the amount of land suggested in WIP II.
- Moving the amount of VSMP ESC proposed in WIP II from ESC1 to ESC2. Future development will be required to meet the higher ESC2 criteria.
- Increasing septic pump outs to 20 percent to reach the requirement of pumping each system every five years.
- Increasing the number of Dry Extended Detention Ponds to serve anticipated development in several towns in Accomack County.
- Increasing the amount for Urban Shoreline Management based on the permitted amount reported by the Virginia Institute of Marine Science.
- Adding oysters as a new BMPs to improve water quality and drive economic growth.
- Adding a Growth Management Policy, a new BMP option that aligns with the development policies of Virginia's Eastern Shore.

Activity 3: Programmatic Recommendations:

The A-NPDC worked with local and regional representatives to identify gaps in capacity and funding, local strategies or actions, local co-benefits, revisions to state code, regulation or guidance, and policy or programmatic recommendations for meeting our Local Area Planning Goals.

The Programmatic Table was provided blank, so all information is new. We have organized the recommendations into the following categories:

- Program Administration,
- BMPs,
- Funding,
- Septic / Sewer Topics, and
- Shoreline Topics.

The details of these recommendations are available in the workbook, with top actions highlighted earlier in this report.

Conclusions:

The A-NPDC concluded that addressing water quality goals in a manner that promotes local job growth and economic development is the best approach for achieving success by providing a driver for voluntary actions. We suggested over five dozen programmatic actions focusing on administrative issues, potential new BMPs, funding, septic and sewer topics, and shoreline topics. We are most optimistic about the existing and proposed BMPs unique to our area that improve water quality while providing the additional co-benefits of job creation, flood control, and coastal resiliency.



Appendix A

Phase III WIP Stakeholder Meeting 1

Virginia Tech Agricultural Research and Extension Center
33446 Research Drive, Painter, VA

August 23, 2018
10 am – 12 pm

Meeting Notes

Attendees: Janet Sturgis and Michael Ward, (Northampton County Planning Commission), Claudette Lajoie (Solstice Environmental), Larry LeMond (Mayor, Cheriton), Sue Mastyl and Joe Valentine (Clean Water Council), Holly Porter (OMV Poultry Industry Inc.), Ben Bradley (Stantec for VDOT), Shannon Alexander (A-NPDC), Steve Hummel, Kevin Cline, and Rachel Hamm (DEQ), Charles Kolakowski and Susan McGhee (Northampton County), Richard Snyder (VIMS), Tyrone Upshur and Chris Guvernator (Accomack County), Roberta Kellam (SAG), Jane Lassiter (NRCS – USDA), Joseph Betit and Stuart Thomas (Citizen), Larry Dire (Town of Cape Charles), Jay Ford (CBF), and Drew Williams, Shaina Schaffer, Denise Nelson, and Starla Couso (The Berkley Group)

1. Welcome and Introductions

2. State of the Chesapeake Bay – 2017 Progress and 2025 Goals

- A. The Chesapeake Bay Total Maximum Daily Load (TMDL) is designed to ensure that all pollution control measures required to fully restore the Bay and its tidal rivers are in place by 2025.
- B. Watershed Implementation Plans (WIPs) were developed in 2010 (Phase I) and 2012 (Phase II) focusing on the interim targets for 2017 as well as 2025 goals.
- C. Water quality in the Bay has improved significantly, and now Virginia needs to be realistic about the actions that can be taken by 2025 to meet the goals.

3. Phase III WIP Timeline and Expectations

- A. EPA and DEQ have provided funding to develop the WIP Phase III which revises WIP Phase II actions.
- B. The state has identified Planning District Commissions (PDCs) to lead the WIP Phase III development process to collaborate with the localities and stakeholders to determine Best Management Practices (BMPs), programmatic needs, metrics, funding and capacity needs, co-benefits, and gaps in statutory/regulatory authority. This effort will focus on natural, developed, and septic BMPs (non-permitted, non-agricultural, and non-forested).
- C. A-NPDC will be holding three additional stakeholder meetings to develop the WIP Phase II for submittal to DEQ on December 14, 2018.

- D. The Department of Conservation and Recreation (DCR) is conducting a parallel effort with the Soil and Water Conservation Districts (SWCDs) for agricultural and forest sectors (non-urban). The fourth stakeholder meeting will be a joint meeting with the SWCDs to examine respective planning efforts to understand gaps and partnership opportunities.
- E. The Chesapeake Bay Program has provided the Chesapeake Assessment Scenario Tool (CAST) which can be used to run the Bay Watershed model to determine if assigned pollutant reduction targets will be met. The CAST model is calibrated against data from monitoring stations throughout the Bay. Technical questions about the model data should be directed to James Davis-Martin at DEQ.
- F. Upon submission of local data at the PDC and SWCD level, the state will review and finalize development of the WIP Phase III with anticipation of new pollutant reduction targets released in the summer of 2019.

4. Best Management Practices (BMPs) Discussion

- A. Accuracy of the Local Area Planning Goals (LAPG) Table and Spreadsheet
 - a. For purposes of this project, the term “urban” refers to all non-agriculture and non-forested land.
 - b. Model is built on the data available. Voluntary BMPs have not been captured because there is no requirement to report those BMPs. There might be other BMPs or regulatory actions that have been installed but may not have been captured in the model. There is a need to provide grant funding to update BMP historical data as has been previously offered by DEQ.
 - c. There needs to be a different way to conduct reporting so that the process is more streamlined and can be accurately captured.
 - d. Stream Restoration might not be feasible due the geography of the Eastern Shore and therefore, the 1,943,589 feet available for stream restorations in the LAPG Table is not a realistic number.
 - e. The street sweeping numbers are inaccurate. Street sweeping is occurring throughout the towns on the Eastern Shore and needs to be captured.
 - f. During a recent Chesapeake Bay Foundation SAG meeting, it was reported that there is a total 38% target reduction for nitrogen across all sectors.
- B. Oysters In-Water
 - a. Oysters in-water can improve the water quality and reduce bacteria loads as well as facilitate growth in the economy. Lewie Lawrence at the Middle Peninsula Planning District Commission (MPPDC) has estimated the number of jobs that would be created using oyster BMPs.
- C. Septic Sector
 - a. Recommend double checking the number of septic BMPs recorded in the model (as of June 30, 2017).
 - b. It is the localities’ responsibility under the Chesapeake Bay Act to enforce septic tank pump out reporting in Chesapeake Bay Preservation Areas (CBPAs); however, most localities don’t have the resources (staff/contracting) or an efficient system for enforcement. It would be more efficient for the private companies performing the septic pump outs to report this information.
 - c. The wastewater treatment plant at Cape Charles is no longer accepting septic waste, so it is being diverted to Maryland.
 - d. There are properties on the Eastern Shore that rely on outhouses. Estimates are in the hundreds, however there is not adequate data available.

- i. Question to James Davis-Martin at DEQ - how does the model account for outhouses?
 - e. The LAPG Table states that 1,050 is the goal for conversion from septic to public sewer. Given the fact that extension of sanitary public sewer is not likely, this number may be unattainable.
- D. With the Virginia Department of Health relying more heavily on contractors for inspections/services, higher fees are anticipated which may disincentive people from properly installing systems.
- E. VDOT and Stormwater
 - a. None of VDOT's roads on the Eastern Shore are part of its MS4 service area because there are not any Census-designated urbanized areas. As a result, VDOT is not a local partner in developing solutions or offsetting water quality credits in this region.
 - b. Heavy rains and climate change are impacting the accessibility of roads. This could be an opportunity to partner or receive monetary assistance.
- F. Maintenance of BMPs
 - a. Maintenance responsibility of BMPs needs to be properly delegated to appropriate regulatory bodies.
 - b. There are major issues with capacity and funding needs associated with implementing and maintaining BMPs.
- G. Planning for Climate Change
 - a. There is uncertainty of how climate change will impact the 2025 goals. Additional studies on these impacts needs to be performed so that the Bay model can more accurately account for these changes.
 - b. DEQ is considering updates to the model to account for climate change by 2021.
 - c. The localities of A-NPDC need to be more aggressively looking at shoreline management practices to combat climate change or changing landscapes and ecosystems.
- H. Can DEQ identify some of the BMPs that they've seen implemented as part of compliance with a consent order? DEQ may have some insight on low hanging fruit based upon their experience.
- I. Consider how policy to prevent homeowners from sweeping grass clippings into the street could be a creditable BMP.
- J. Considering MPPDC's WIP III Ideas
- K. The ideas presented by the Middle Peninsula Planning District Commission (MPPDC) could be a starting point to consider BMP ideas or regulatory and programmatic ideas that are currently not in the CAST model. By considering these innovative BMPs, the final report might more accurately reflect the targeted concerns of the A-NPDC.
- L. Similar to protecting the largemouth bass, A-NPDC might consider protecting the filter feeder menhaden species as means to cleaning the Bay.
- M. Discussion on stormwater credit trading across watershed boundaries is another regulatory consideration that needs to be more closely studied.
- N. Looking at attaining credit for regional BMPs might be another item that A-NPDC wants to consider.

Final Thoughts

- A. Soil and Water Conservation Area 6 is hosting a meeting for the Soil and Water Conservation District on August 28th at 10 am (Tidewater AREC, 6321 Holland Road, Suffolk, 23437).
- B. It would be helpful to conduct local studies to calculate the cost of BMP construction to make more informed decision making.
- C. Recommendation to compile a consolidated list of information reported to or required by various state agencies (i.e., DEQ, DCR, VDH, etc.). This would allow for streamlined reporting and greater transparency amongst state agencies.
- D. How are “headwaters” defined on this side of the Bay? Do these standard geological definitions fit what is occurring on the Eastern Shore?
- E. It would be beneficial to discuss the cost effectiveness per pound of reduced nutrient pollution at the next meeting. There may be more accurate costs at the local level that should be considered through this process.

5. Wrap-up & Next Steps

- A. The planning team will distribute meeting minutes, the DEQ workbook, a link to Lewie’s table, and other resources.
 - a. [“National 303d/TMDL Webinar Series: Examples of TMDL Tracking and Reporting”](#) is an archived video that includes two presentations. The first presentation “Making Progress Count: An Overview of the Chesapeake Bay Program’s Efforts to Estimate Pollution Reductions” (40 min) was recorded in September 2017 and provides an easy to understand history and methodology for the Chesapeake Bay TMDL.
 - b. [“Using CAST to Develop an Environmental Control Plan for Nitrogen, Phosphorus and Sediment”](#) is an archived video (60 min) recorded in June 2018 as an introduction to using the CAST model software online.
 - c. [“Better Site Design” Manual](#) is an assessment of low impact development practices that meet the performance criteria of the Chesapeake Bay Preservation Area Designation and Management Regulations.
- B. The Berkley Group will compile all of these WIP III ideas into the deliverable formats that DEQ requested. This will be shared with the local stakeholders prior to the next meeting.
- C. Next meeting will be Sept. 21, 10-12pm at the Virginia Tech Agricultural Research and Extension Center (33446 Research Dr. Painter, VA 23420)
- D. DEQ is hosting a webinar on the WIP Phase III program Sept. 5. Find details and register here: <https://register.gotoweinar.com/register/5161409239764379650>



Appendix B

Phase III WIP Stakeholder Meeting II

Virginia Tech Agricultural Research and Extension Center
33446 Research Drive, Painter, VA
September 21, 2018
10 am – 12 pm

MEETING NOTES

Attendees: Janet Sturgis and Michael Ward (Northampton County Planning Commission), Sue Mastyl (Clean Water Council), Ben Bradley (Stantec for VDOT), Shannon Alexander, Clara Vaughn, and Curtis Smith (A-NPDC), Steve Hummel and Rachel Hamm (DEQ), Charles Kolakowski and Susan McGhee (Northampton County), Mike Mason and Chris Guvernator (Accomack County), Joseph Betit and Roberta Kellam (citizens), Larry Dire (Town of Cape Charles), Ursula Deitch and Theresa Pittman (VA Coop. Ext.), Spencer Murray (Northampton), Cole Charnock and Carmie Savage (ES SWCD), Robbie Lewis (VDOT), John Coker (Northampton Supervisor), Steve Rideout (VT ES AREC), Bill Kerbin (Town of Onancock), and Darren Coffey, Denise Nelson, and Starla Couso (The Berkley Group)

1. Welcome and Introductions

- A. The meeting was conducted as a group discussion to revise the Excel workbook provided by DEQ. Many of the recommendations by the group were captured in the workbook; therefore, the workbook is a vital component of the minutes.
- B. Although this PDC effort focuses on urban BMPs and opportunities, stakeholders asked if there will be time to review the agriculture and forest recommendations being prepared by the Soil and Water Conservation District.
 - a. The fourth meeting for this effort will include a presentation of the agriculture and forest recommendations to allow for discussion of synergies and possible collaborations for implementing all recommendations for the Eastern Shore.
- C. Stakeholders suggested targeting the largest sources of pollution to prioritize our efforts. This is an approach supported by DEQ.
 - a. We will ask DEQ for locality specific workbooks to see locality-specific load reduction targets and numbers of local BMPs.
 - b. We will investigate the level of accurate detail in the model to determine if it is appropriate to use the model to identify the largest sources of pollution.

- D. Stakeholders asked for maps to visually confirm the amounts listed in the “2025 Available” column on the LAPG BMPs tab in the workbook (acres of land and linear feet of shoreline and streamlines).
 - a. We will attach maps to these minutes.
- E. Stakeholders noted that not all existing conservation easements in the PDC appear in CAST.
 - a. We recommend DEQ update their records and the model for all current conservation easements.
- F. Stakeholders are concerned that previous efforts to reduce pollutant loads to the Bay are not represented in CAST. They noted that DEQ may not have the data on these efforts or the efforts may not be in the form of typical BMPs for loading in the model.
 - a. We recommend investigating previous efforts for inclusion in the plan and CAST to recognize achievements to date. We recommend evaluating previous efforts and supporting the continued implementation of successful efforts.

2. Discuss Best Management Practices

- G. Forest Buffer. In the urban context, the forest buffer BMP is referring to linear wooded areas in non-agricultural land that help filter nutrients. While there is overlap between non-urban and urban best management practices, we are discussing this BMP specific to non-agricultural, non-forested land.
- H. Forest Planting.
 - a. We recommend creating a mechanism to identify county-owned and privately-owned land that might be appropriate for forest planting.
 - b. We recommend creating incentives such as tax breaks to encourage forest planting.
 - c. We recommend development distribution of a model comprehensive plan amendment to encourage forest planting as a BMP through code.

3. Discuss Programmatic Table

- A. Enable MS4s to Purchase Nutrient Credits from Areas Outside of the Basin. The recommendation was intended to create a revenue stream for the Eastern Shore to fund BMP implementation. There is some confusion regarding nutrient credit programs and how this would be implemented. There is also a desire to force more urban localities to implement local BMPs instead of allowing them to pay for implementation elsewhere.
 - a. We recommend investigating this option and implications for use in determining a course of action.
- B. Consider a Policy to Prevent Homeowners from Sweeping Grass Clippings into the Street. Logistically, there are multiple levels of government that would need to coordinate in order to properly implement grass clippings as a BMP.
 - a. We recommend assessing the regulatory and logistic constraints for use in determining a course of action.

- C. Native Plant Ditches as a BMP. These are aesthetically pleasing and scientifically backed to mitigate nitrogen and phosphorous levels.
 - a. We will discuss with DEQ (perhaps James Davis-Martin) to identify which BMP could be used to represent the process. Vegetated Channel BMP might work.
- D. Shoreline Big Tree Program. The program strives to plant native trees in public places with the intent of creating champion trees within and for the community.
 - a. We recommend expanding and supporting this program.
- E. Managing Stormwater. While localities within ANPDC are not MS4 jurisdictions, a plan similar to a Drainage Plan under MS4 could be conducted in order to target point source discharge and pollution.
- F. Septic Systems. There is not enough capacity on the Eastern Shore to maintain the septic systems. Localities send inspection reminders, but there is little follow up or enforcement. There are only two companies capable of pumping out septic systems and they have to discharge the waste at a site in Maryland. There have been studies in the past on connecting septic properties to sewers. The Onancock WWTP has capacity for additional flow.
 - a. We recommend providing funding and additional staff for tracking septic systems, inspections, pump outs, and compliance.
 - b. We recommend providing funding for a program to assist property owners with the expense of septic system inspections, pump outs, repairs, and replacement.
 - c. We recommend conducting a feasibility study for identifying a site for pumped discharge disposal in the PDC.
 - d. We recommend conducting feasibility studies on creating regional sewer systems for use in determining a course of action.
- G. Restore Historic Funding for Rehabilitation of Homes that have no Indoor Plumbing. There had been a successful program to assist property owners in upgrading water and sewer facilities.
 - a. We recommend restoring historic funding levels for rehabilitation of homes with no indoor plumbing.
- H. Recycling Glass. Recycled glass can be used in permeable pavers and other BMPs.
 - a. We recommend funding a feasibility study for local glass recycling and reuse.
- I. Ship Dumping. Stakeholders are concerned the ships they see in the Bay are dumping sewage and chemicals.
 - a. We recommend creating a “no discharge zone” within the Bay.

4. Wrap-up and Next Steps

- A. Wrap up. We have completed the second of four meetings designed to create a peer network for fine tuning the WIP II recommendations according to local criteria. We are scheduled to have two more meetings prior to submitting the new WIP III

recommendations to DEQ on Dec. 14. In 2019, DEQ will be compiling, analyzing, and preparing state-wide WIP III recommendations. These will be available for public comment in the spring prior to being sent to EPA.

B. Homework.

- a. We are sending you files for your review:
 - i. These meeting minutes
 - ii. The Excel workbook
 - iii. Maps
- b. Please review the following and return comments to Denise Nelson at The Berkley Group (denise@bgllc.net) by Oct. 12.
 - i. Excel workbook, LAPG BMPs tab. Review the amounts in the WIP 3 column. Confirm these BMPs and amounts are feasible or suggest revisions.
 - ii. Excel workbook, Programmatic Table tab. Review the entire tab. Confirm the information is accurate and complete or suggest revisions.

C. Next meeting date. The dates for meetings 3 and 4 will be announced in mid-October.

Attachments:

1. Excel workbook file
2. Maps



Appendix C

Phase III WIP Stakeholder Meeting 1

Eastern Shore Community College, Great Hall
29300 Lankford Highway, Melfa, VA 23410
November 29, 2018
9:30 am – 11:30

MEETING NOTES

Attendees: Shannon Alexander, Clara Vaughn, and Curtis Smith (A-NPDC), Charles Kolakowski and Susan McGhee (Northampton County), Chris Guvernator (Accomack County), Rachel Hamm (DEQ), Joseph Betit and William A. Prosise Jr. (citizens), Ursula Deitch and Theresa Pittman (VA Coop. Ext.), Cole Charnock and Carmie Savage (ES SWCD), Kenny Midgett (VDOP), Sue Mastyl (Clean Water Council), Jon Richardson (VDH ESHD), Revel Walker (Walker's Seafood), Nick Thomas (Farmer), and Darren Coffey, Drew Williams, Denise Nelson, and Starla Couso (The Berkley Group).

1. Welcome and Introductions

2. Data Inventory

A. Results.

- i. Our rural, non-MS4 localities defer VSMP authority to DEQ and therefore have very few records of physical BMPs installed.
- i. Accomack County website and staff supplied various types of data and plans.
- ii. Northampton County provided information on conservation activities by several stakeholders within county limits.
- iii. A-NPDC provided relevant reports.
- iv. Numerous stakeholders shared history, information, and suggestions at meetings, via phone calls, and via email to describe the local context and values.
- v. The population is anticipated to decrease by 2025.

B. Challenges

- vi. DEQ's VSMP office did not respond to request for BMP data.
- vii. VDH indicated the total number of septic systems installed and provided a list of alternative systems. They do not have or did not share spatial data (GIS map) or inspection and maintenance records. They indicated they would be reporting directly to DEQ.
- viii. VDOT indicated they would be reporting directly to DEQ.

3. Best Management Practices (BMPs)

- A. Approach. We based WIP III BMP types and values on those provided in WIP II unless we had data or information to justify a revision.
- B. Recommendations
 - i. For BMPs with larger amounts by 2017 than estimated in WIP II, we used the 2017 amount. These included: permeable pavement, stormwater performance standard, and three types of septic systems.
 - ii. We reduced the amount of nutrient management plans.
 - iii. We increased the amount of dry extended detention ponds based on future development anticipated in Accomack County.
 - iv. We moved the amount of erosion and sediment control 1 to erosion and sediment control 2 based on current ESC practices.
 - v. We increased the amount of urban shoreline management based on what has already been permitted.
 - vi. We included diploid and triploid oyster aquaculture.
 - vii. We calculated septic pump-outs based on 20% of the system per year.
 - viii. We added growth management policy.
- C. Comments on the BMP Input Deck:
 - i. We are concerned that the quantity of linear feet possible for urban stream restoration under the 2025 Available column (1,943,589) is inaccurate.
 - ii. We would like to see living shorelines as a separate BMP from non-living shorelines.

4. Programmatic Tab

- A. We put the items on the programmatic tab into these categories:
 - I. Program Administration
 - II. Future BMPs
 - III. Funding
 - IV. Septic System Topics
 - V. Shoreline Topics
- B. Program Administration. These are recommendations on procedures, policies, support, and guidance to help localities and agencies be more successful in implementing and maintaining BMPs.
- C. Future BMPs
 - i. Aquaculture.
 - a. Support Clam Aquaculture. While clam aquaculture is an option, there is more room for growth for oyster aquaculture. Instead of just “clam aquaculture” the Programmatic Action could be expanded to include filter feeding shellfish and other kinds of aquatic species that capture nitrogen.

- b. In A-NPDC, the Nature Conservancy created oyster castles that both this PDC and the localities do not have the funds or resources to create themselves. Adding infrastructure to capture oyster larvae could not only create habitat but also improve water quality.
 - c. Other concerns that affect aquaculture practices are dropping salinity rates and the impacts of climate change, rain patterns, and weather changes.
 - d. The localities of A-NPDC need to be more aggressively looking at shoreline management practices to combat climate change or changing landscapes and ecosystems.
 - ii. Discussion on Dredged Materials to Elevate Land
 - a. This potential BMP under the Programmatic Actions table may not be an appropriate for the Accomack-Northampton PDC.
 - b. Background on the idea behind this BMP: There are opportunities to use good dredged materials to increase the elevation of the land. The dredge materials would be held in place by vegetation to avoid runoff. The assumption being that dredged materials is already being created so repurposing the dredged material could help create a living shoreline.
 - c. The goal of the Bay Model is not to move the material around but get it out of the Bay. There are concerns that there is not enough science or research to definitively say that utilizing dredged materials will remove nitrogen and phosphorous from the Bay. Additionally, it would be difficult to get a permit. Any environmentally sensitive area would have to go through an extensive process to identify spoils.
 - iii. SAV Mitigation Banks
 - a. Background on the idea behind this BMP: Harvest the SAV to repurpose it to create a soil additive and jobs in a new industry.
 - b. The SAV banks should be allowed to spread and stabilize the floor. Getting credit for having the SAV banks as opposed to harvesting the SAV banks for nitrogen and phosphorous financial credits may be more beneficial for this area. Additionally, there will need to be a study conducted on the two dominant SAVs to determine the impacts of SAV on nitrogen, phosphorous, and sediment loads. Further—under the Bay Act—once SAV is present, it cannot be touched.

D. Funding

E. Septic System Topics

- i. Septic Pumping: There are about six to eight companies that do pump and haul. The issue is not capacity, rather it is a lack of enforcement and willingness to inspect pump outs.
- ii. Septic Treatment: Currently, there is nowhere within the two counties that will currently accept waste.
- iii. Why does Onancock not accept waste? There is a pretreatment issues that Onancock is facing. Additionally, Onancock has an excess capacity and design issues. A small volume has a big impact on the entire process. Most treatment plants have to be built around a certain capacity. Evidently, there are several challenges.

- iv. General Septic System: There is a two-part process of connecting towns and building the proper capacity.

Create a new Programmatic Action to maintain network and conduct a meeting with A-NPDC and VDH to discuss the pump outs and capacity that goes beyond the WIP III effort. There is strong interest in having this discussion.

Create a new Programmatic Action that discusses looking at financial incentives or tax credits to ensure the same rate of response for pump out reporting.

Create a new Programmatic Action to identify opportunities for education and homeowner education to ensure compliance with septic pump out opportunities. These education efforts could include creating a write up so that potential homeowners can understand when they are purchasing a house; letters or pamphlets sent out by the Counties to provide information on septic; public service announcements are in the process of being created and the outreach for septic can also be included in those PSAs.

F. Living Shorelines

- i. Question: When there is a huge storm event, large piles of seaweed are present throughout the county. Could this be an opportunity to collect and create a soil additive?
 - a. The issue was the salt content. Additionally, with other debris, it could be potentially difficult to remove or hazardous. However, consider looking further into seaweed collection as a potential BMP.
- ii. There was a study conducted by VEMs, to partner with clam aquaculture to create a new use for materials that collect on clam nets. This is an opportunity to identify new industry partners. The best easiest thing to do to help the clam industry, would be to dredge. There are four major hatcheries supported by Pardon Creek (Pardon Creek is on the sea side, not the Bay side). There is also seaweed byproduct that comes from clam.
- iii. Look into the BMPs of the Elizabeth River Project. The Bay Foundation partnered on the Elizabeth River Project and Lafayette Project. The primary concern of these efforts was shellfish and shoreline restoration.

5. Meeting 4 Preparation

- A. Format. Meeting 4 will be facilitated by Dep. Sec. Ann Jennings from the Office of Natural Resources. DEQ will present an introduction to the Phase III approach and model. DCR will present a summary of the SWCD recommendations. A-NPDC and HRPDC will present their recommendations. There will be plenty of time for Q&A followed by a discussion on opportunities for coordination and collaboration.
- B. A-NPDC presentation. We walked through the A-NPDC slides and made revisions as necessary.

6. Next Steps

- A. Meeting 4 is today, 1-4pm, here.
- B. All additional data, concerns, and feedback are due to Denise Nelson at The Berkley Group (denise@bgllc.net) by Friday December 7.
- C. A-NPDC will submit our workbook and report to DEQ on December 14.
- D. In 2019, DEQ will be compiling, analyzing, and preparing state-wide WIP III recommendations. These will be available for public comment in the spring prior to being sent to EPA.