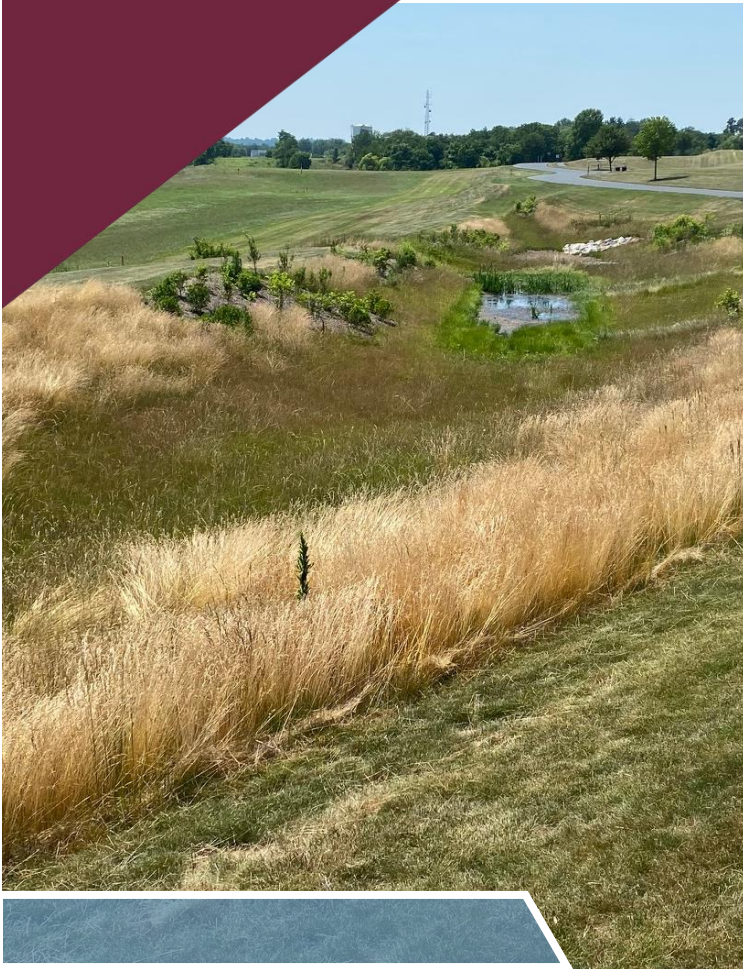


HRG

Herbert, Rowland & Grubic, Inc.
Engineering & Related Services

AN EMPLOYEE-OWNED COMPANY

SNYDER AND UNION COUNTIES COUNTYWIDE ACTION PLAN



Submitted to:

SNYDER AND UNION COUNTIES COUNTY
CONSERVATION DISTRICT
ATTN: Mr. Jason Winey
10541 Route 522,
Middleburg, PA17842

004783.0427

Submitted by:

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Date: December 16, 2021

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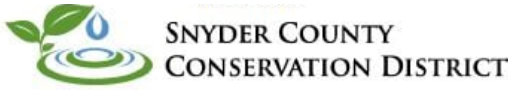
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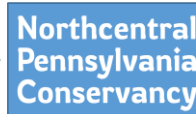
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Stakeholders Involved with the Snyder and Union Counties Countywide Action Plans

The Planning Team



The Partners



Local Farmers from across Union and Snyder County



Thank you to all stakeholders who provided comments and feedback throughout the development process!

Snyder and Union Counties Executive Overview

Plan Highlights

In 2021, Snyder and Union Counties were asked by the Pennsylvania Department of Environmental Protection (PADEP) to participate in the State’s Chesapeake Bay effort by developing Countywide Action Plans (CAPs) that reduce nutrients and sediment in local waterways. The two counties were given the option to develop individual CAPs or work together to develop a regional plan. The counties elected to develop individual CAPs but work together on their development and share ideas to expand on existing partnerships in the group of counties. The regional partnership also provides an opportunity to share resources to allow for cost effective implementation of the CAPs.

The Snyder and Union Counties CAPs provide a countywide strategy for the two counties to achieve clean water goals. The initiatives outlined in the plans will protect natural resources, promote agriculture sustainability, and increase conservation efforts. Local conservation efforts will benefit local communities throughout the Snyder and Union Counties while assisting Pennsylvania with meeting its Chesapeake Bay requirements.

Snyder and Union Counties encompasses 650 square miles of land and 1,350 miles of stream that all drain to the Chesapeake Bay. This land is represented by roughly 59% natural or forested land, 30% agricultural land, and 11% developed or urban land. Nutrients and sediment are generated from agricultural and developed lands, so roughly 41% of the land are the focus in the CAP. Of the 1,350 stream miles approximately 25% of the county’s streams are impaired, with much of the impairment coming from excess sediment. All these factors play into how much nutrients and sediment enter the Chesapeake Bay from Snyder and Union Counties. PADEP estimated that in 2019 Snyder and Union Counties were contributing 6.6 million pounds of nitrogen and 358 thousand pounds of phosphorus to local waterways on an annual basis. By 2025, these counties are looking to reduce 2.75 million pounds of nitrogen and 130 thousand pounds of phosphorus. The table below shows modeled estimates for pollutants in 1985 and 2019 along with the 2025 state goals for Snyder and Union Counties.

Year	Nitrogen (pounds/year) delivered to Snyder and Union Counties waterways	Phosphorus (pounds/year) delivered to Snyder and Union Counties waterways
1985	6,612,000	452,000
2019	6,624,000	358,000
2025 Goal	3,877,000	228,000
<i>Reduction Target</i>	<i>2,747,000</i>	<i>130,000</i>

To achieve the goals outlined above, the Snyder and Union Counties CAPs identify priority initiatives and actions that support the county’s goal of protecting healthy streams and rivers while restoring

waterways that need additional help. The CAP includes four priority initiatives that are broken into actions items with manageable and measurable goals. These action items will evolve over time based upon early plan implementation successes and changes in local priorities.

Goals of the Countywide Action Plan

Chesapeake Bay watershed goals are focused on reducing three primary pollutants: nitrogen, phosphorus, and sediment. Municipalities have played a significant role in achieving these goals over the past two decades through wastewater treatment advances and urban stormwater management. Since wastewater treatment and urban stormwater management support our water quality goals, the CAP implementation team will work with municipalities and authorities who lead these programs to support and leverage their efforts where possible.

Agricultural lands present another opportunity to reach county clean water goals. Where not managed properly, agricultural land releases nutrients and sediment into local waterways similar to other land uses. Many goals in Priority Initiative #3 focus on determining what steps local farmers can take to reduce the amount of nutrients and sediment reaching local waterways, in addition to identifying necessary funding and technical support to assist the community.

Key Findings

The Snyder and Union Counties Planning Teams connected with over 100 stakeholders from across the counties. A few common themes were identified through these discussions that informed the development of the CAP. Below are the themes identified by various stakeholders:

- Snyder and Union Counties are a community of action! Many individuals and organizations are already taking steps to clean up local waterways. The CAP can help by fostering new connections and leveraging resources to reach common goals (water quality and otherwise).
- Monitoring water quality matters. The counties must continue to monitor water quality to ensure management actions are working and to geographically focus efforts to the most impaired watersheds. Expanded assessment by PADEP in areas that have not been fully assessed will assist the counties with long-term water quality improvement/protection.
- Regional partnerships are key. Snyder and Union Counties already collaborate on existing efforts, which demonstrates the power of working together to share resources and funding. Limited resources can stretch further if the counties work together.
- Technical assistance and funding are keys to success. Unfortunately, many existing clean water initiatives in the counties have been slowed or stalled due to a lack of timely technical and financial resources when landowners are ready to go. To ramp up existing projects and start new ones, new funding streams are critical. The implementation teams are working to identify actionable solutions from across the public and private sectors.

Opportunities for Success

Many opportunities for success in Snyder and Union Counties came out of CAP planning sessions and meetings with stakeholders. Some successful efforts can be recognized in the short term, with others

taking longer to achieve results. Below are some success stories the Snyder and Union Counties CAPs can achieve.

Short Term:

- Apply for funding to implement a cover crop incentive program that would benefit farmers in each county.
- Implement the existing Buffalo Creek 319 WIP and begin implementation of the Middle Creek 319 WIP.
- Develop a communication strategy to communicate consistent water quality goals and engage more landowners and farmers.
- Engage landowners willing to implement projects to begin funding applications.

Long Term:

- Set-up a regional technical assistance program to serve the needs of farmers and landowners in both counties.
- Establish a program to rapidly delist catchments associated with the Precision Conservation Initiative.
- Work with over 300 new farmers to write and develop conservation and nutrient management plans.
- Identify some private funding sources that may be able to supplement public funding sources/existing sources utilized for stakeholders.

Challenges to Implementation

The CAP presents many challenges to implementation that, if not addressed, will become hurdles to being successful, especially by the 2025 deadline. Each action item has challenges, many of which are regulatory, tied to a State program, or a general long-standing conservation challenge. Paired with the challenge column in the planning template, the programmatic recommendations template suggests solutions to overcome many of the identified challenges. The following challenges are common topics throughout many of the action items and, if not addressed, will stall progress.

Funding: The Snyder and Union Counties CAPs are estimated to cost approximately \$160 million over the next five years to implement. County governments and local municipalities cannot cover the required funding for implementation. Local government entities struggle to cover the cost of delivering their required services as it is. State and Federal funding is available; however, not to the extent to support the required amounts for implementation. Applying for funding, securing funding contracts, and reporting on the spending is a time-consuming process. Similarly, each program has its nuances which confuses landowners and challenges practitioners who are better suited to work through technical challenges rather than financial/legal challenges. To efficiently scale up county CAP implementation efforts, grants must be consolidated, and funders must be willing to increase funds and support staff to meet local implementation needs by 2025. Accelerated contracting timelines will result in more predictable implementation schedules.

People: The Snyder and Union Counties CAPs propose over 50 new positions to assist with implementation efforts. Current staffing capacity is limited at county governments and organizations devoted to implementation efforts. Staff are required to complete many outside job duties in addition to CAP-related efforts. Engineering and technical assistance at

Conservation Districts and other respective entities is limited with backlogs extending months and years. To be successful, the Snyder and Union Counties CAPs identified 50 additional positions in the private and public sector to overcome technical assistance and engineering deficits, in addition to needed coordination at county governments. Should human capital funding be developed, this is an opportunity to get more people interested in a career in conservation, including science/technology/engineering/math (STEM), communications, data management, project management, policy, planning, and other related disciplines.

Landowner Buy-in: One of the biggest challenges in implementing the CAP is that, beyond basic regulatory requirements and government oversight, landowner participation in clean water improvements on their property is voluntary. Faced with competing priorities for their land and the fact that best management practices may have significant associated costs for installation and maintenance, landowners may opt not to pursue them. Removing productive cropland out of production is another challenging constraint when proposing to implement conservation practices. In order to overcome these challenges, incentive payments and market-driven outcomes must be an option for implementation.

Permitting: Many of the projects proposed in the CAP require engineering, design and regulatory permitting (Chapter 102, 105, 106, Section 404, Act 38, etc.). Understaffing at the PADEP regional office level causes an impact on permitting timelines, which delays construction. To achieve the 2025 timeline, projects must be approved for permitting in short order to ensure bidding and construction can proceed in a timely manner. If permit application submittals need to be of higher quality to accelerate processing, training should be provided to practitioners.

Reporting and Tracking: All projects implemented as part of the CAP must be reported to State and Federal agencies to count toward reduction goals. Many projects are privately funded by landowners and do not get reported. Locating and reporting projects that do not receive State or Federal funding, or are part of another regulatory reporting avenue, is challenging with available technologies and data sharing constraints. As a result, many projects continue to go unreported, and farmers aren't getting recognition for their conservation efforts. The current system of one-on-one farms visits to catch up on best management practice (BMP) reporting takes a long time, and reverification of reported practices continues to lag. Verification of projects once a project reaches its credited lifespan is challenging with each passing year as more and more projects lose credit and are not being re-reported until a Conservation District staff person performs a site visit. Overall, State and Federal program-related reporting also lags, and direct environmental monitoring may not yield actual water quality improvements for years, so in today's strategic environment, decisionmakers at the local level never have a clear picture of where conservation efforts are needed the most. Projects continue to proceed on a one-off pace, which is not what a scaled-up implementation strategy looks like. To overcome this issue, technology must be developed to easily identify and credit projects from aerial imaging so that local strategies can be more effective and reporting practices continue to improve.

Additional challenges are listed withing the CAP planning template; however, these are the common themes that arise. Despite these challenges, local stakeholders are motivated to make real progress, and have suggested innovative ways to overcome the challenges. State and Federal partners are critical to helping stakeholders overcome these challenges and push forward with implementation.

Executive Summary

The Snyder and Union Counties CAPs focus implementation across four (4) priority initiatives that will result in water quality improvements: 1) County programmatic initiatives, 2) reporting and tracking, 3) achieving new pollutant reductions, and 4) research, education, and training. Each of these priority initiatives is broken down into action items that result in improvements to water quality.

The CAPs establish a county framework to guide implementation partners and efforts on how to be successful in restoring and protecting water quality. Finalization of the CAP is the beginning of a multiyear implementation effort that will adapt overtime. Additional funding and resources are critical component to the CAP success and are detailed out in each action item. Since counties elected to develop individual CAPs, *below initiatives are denoted with a (S) Snyder and (U) Union Counties denoting in which template the initiative can be found.*

Priority Initiative 1: County Programmatic Initiatives

Priority Initiative 1 of the Snyder and Union Counties CAPs includes county programmatic initiatives that support or identify water quality goals that are already in progress within each respective county or are planned to be implemented by 2025. County programmatic initiatives include action items such as Comprehensive Plan implementation steps, Hazard Mitigation Plan implementation, Agricultural Preservation Program enhancements, University partnerships, communication plans, website development, and others. These initiatives are primarily coordinated by county government leads with support from local partners on implementation. County programmatic initiatives include many co-benefits that result in additional achievements outside of typical water quality improvements. Below are the top four (4) action items listed in the County Programmatic Initiatives section of the CAP.

- Action 1.1A/B/C/D (S)(U): Implement County Comprehensive Plan policies and actions
 - Conserve 3,100 acres of forest and 185 acres of wetland through 2025
 - Promote conservation of natural resources and increase recreational opportunities
 - Increase implementation and preservation of riparian forest buffers
 - Implement or write new Source Water Protection Plans
 - Facilitate efforts to minimize flood impacts
- Action 1.3 (S), 1.4 (U): Continue to Implement County Farmland Preservation Programs
 - Preserve 2,800 acres of farmland by 2025, secure additional funding to support goals
- Action 1.4 (S), 1.5 (U): Establish Funding to Support the Agricultural Community
 - Work with 300 farms by 2025 to ensure they follow required agricultural conservation and nutrient management plans
- Action 1.6 A/B (S), 1.7 A/B (U): Create a County Water Quality Communications Plan
 - Develop a communications plan leveraging existing plans and organizations to ensure one consistent water quality message
 - Develop an agricultural outreach strategy to engage farmers and landowners efficiently and effectively

Priority Initiative 2: Reporting and Tracking

Priority Initiative 2 of the Snyder and Union Counties CAPs identifies action items that need to occur by 2025 to improve reporting and tracking of BMPs. It is critical that all plans and implemented projects be reported to State and Federal agencies to be incorporated in data sets. All landowners, operators, and partners deserve recognition for the work they are doing, so in order to tell the success stories, data must be shared. Below are the top two (2) action items listed in the Reporting and Tracking section of the CAP.

- Action 2.1 (S)(U): Existing BMP Cataloguing
 - Identify the location of BMPs through manual and automated digitizing using high resolution aerial imagery and perform field visits where on-the-ground verification is required by regulators
 - Upload BMP implementation data into PracticeKeeper and FieldDoc, as appropriate
- Action 2.5 (S)(U): Improve Agricultural BMP Reporting Utilizing Existing Platforms
 - Increase reporting of plans in PracticeKeeper
 - Work with Capital Resource Conservation and Development (Capital RC&D) and Penn State University (PSU) Producer Survey to produce more complete results

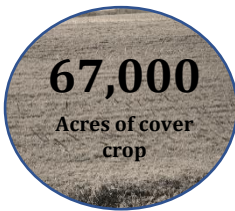
Priority Initiative 3: Achieve New Pollutant Reductions – Existing Programs, Watershed Plans

Priority Initiative 3 of the Snyder and Union Counties CAPs contains two parts. The first part identifies action items identified by each individual county that is a part of existing programs or plans with proposed plans or programs. Individual action items include initiatives such as WIPs, Section 319 WIPs, Alternative Restoration Plans, Coldwater Conservation Plans, etc. Below is brief overview of the action items for each county associated with the first part of Priority Initiative 3.

- Snyder County
 - Implement the Snyder County Riparian Buffer Program, finalize the Middle Creek 319 WIP, and accelerate implementation of the Rapid Delisting Catchment Strategy through Precision Conservation Partnership.
- Union County
 - Implement the Union County Greenway Plan, continue with implementation of the Buffalo Creek 319 WIP, and accelerate implementation of the Rapid Delisting Catchment Strategy through Precision Conservation Partnership.

Priority Initiative 3: Achieve New Pollutant Reductions – Numeric Goals

Priority Initiative 3, part two of the Snyder and Union Counties CAPs identifies action items that results in reductions to nutrients and sediment. This section of the CAP outlines numeric goals for each county that can be achieved through 2025 when the needed resources are put in place. Below are the five (5) most cost effective BMPs that improve the quality of our local streams by reducing nutrients and sediment. Numbers represented below are a culmination for both counties.



Cover Crops help to improve soil stability and soil health in agricultural operations. Increasing cover crops not only benefits water quality, but also helps to increase overall productivity of crop fields and long-term soil health. Cover crops can be incentivized through payment programs and continued education/outreach.

Agriculture Conservation or Agricultural E&S Plans are required by state and federal regulations when disturbing more than 5,000 sq feet of soil. Agriculture Conservation Plans are a great way to plan for long-term farm sustainability and improve economic benefits through conservation practices. Conservation Districts and USDA's Natural Resources Conservation Service (NRCS) support by writing Ag E&S and Conservation Plans, along with private sector plan writers.



Nutrient Management or Manure Management Plans are required by state and federal regulations for farmers and landowners who have farm animals. Nutrient Management Plans help with properly applying animal manure to cropland while maximizing the benefits to soil health. Conservation Districts, NRCS, and private sector plan writers are available to develop Nutrient Management and Manure Management Plans.

Forest and grass riparian buffers are excellent ways to address flooding and provide additional habitat for wildlife. Buffers help to provide vital shade for instream life, while also filtering nutrients and sediment from stormwater runoff. Various existing programs help to fund the implementation of riparian buffers while paying incentives to landowners willing to implement them.



Manure storage tanks are an excellent way to properly store manure until croplands are in need of nutrients. Manure pits, stacking pads, and in-barn systems are a few examples of ways to properly store manure. Manure storage structures are effective when sized according to a Nutrient Management or Manure Management Plan. Many cost share programs are available to assist with funding the design and construction of properly sized manure storage facilities.

Priority Initiative 4: Research, Education and Training

Priority Initiative 4 of the Snyder and Union Counties CAPs focuses on research, monitoring and education through the empowerment of partners. This section includes bolstering existing monitoring efforts and incorporating locally collected data into larger data sets at the state and federal level. In addition, this section includes supporting local watershed and environmental organizations that are critical partners to support implementation. Supporting these organizations with funding and leverage to gain new members is critical to successfully implementing the CAP. A top-down government-led approach will minimize the effectiveness of the plan.

Programmatic Initiative: Recommendations for State Programmatic Changes

The Countywide Action Plan is not limited to county specific initiatives that need to be implemented by 2025. As part of the CAP, there is an additional template specifically intended for changes that need to occur at the State and Federal levels with respect to programs, policies, regulations, and legislative actions. This template allows county partners to hold mutual accountability to State and Federal leaders as we work together to implement the CAP and the overall Chesapeake Bay Pennsylvania Phase 3 WIP. The recommended changes in this template correlate with the challenges listed in this executive summary and the detailed Snyder and Union Counties CAPs. If these challenges are not addressed with changes to State and Federal programs, many of the goals outlined in the CAP become impossible to achieve. Common themes with programmatic recommendations include funding program enhancements through additional allocations, streamlined permitting, improved reporting and verification, increased flexibility in state and federal guidelines for programs, and additional involvement from state agencies not actively engaged in Chesapeake Bay restoration efforts. Below are a few of the critical programmatic changes that need to occur for the CAPs to be successful.

- Action 1.2 – Creation of flexible funding to support regional technical assistance positions such as engineers, nutrient management planners, etc.
- Action 1.20 – Expand the Conservation Excellence Grant (CEG) program to Tier 3 & 4 Counties to assist with project implementation
- Action 1.23 – Create a statewide cover crop incentive program
- Action 1.33 – Institute a bi-annual remote sensing program to increase reporting and verification of practices

Corridors of Opportunity





The Countywide Action Plan requires broad scale planning across entire county jurisdictions. Although the most effective planning efforts may be accomplished at a jurisdictional level, implementation of the plan can be more effective at a watershed scale. As part of the CAP planning process, each county has identified, based on a scoring system, the HUC-12 watersheds that are most effective to work in determined on a range of criteria. The following criteria was used to determine the highest priority watersheds that will produce the most effective results.

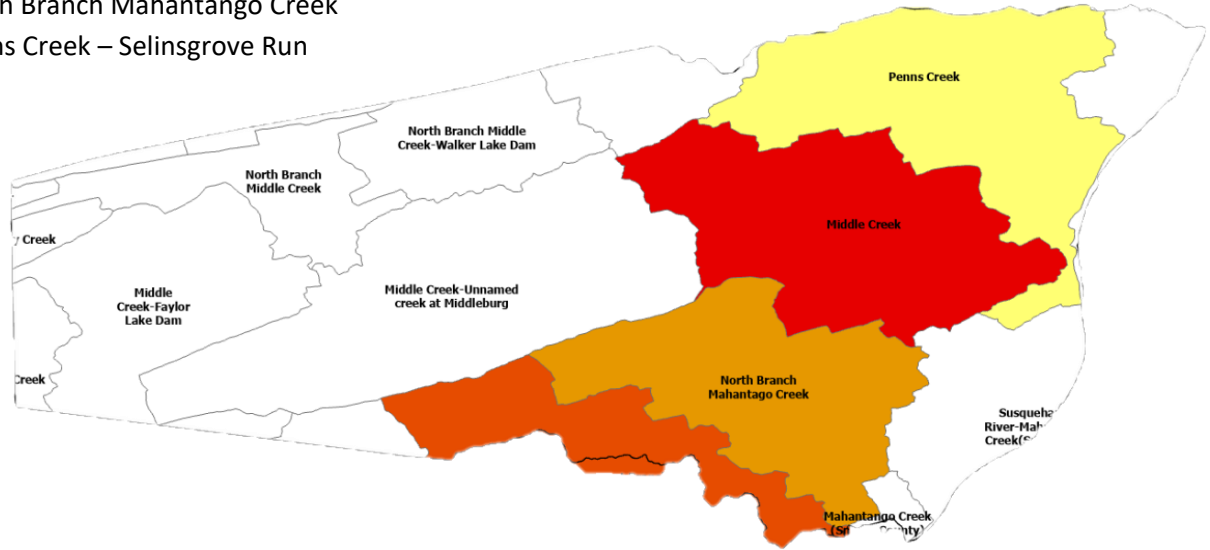
1. *Partners:* Are there current conservation, watershed organizations, or other organizations active within the watershed who can assist with implementation efforts?
2. *Total Nitrogen:* Based on the Chesapeake Bay Programs top 25% nitrogen loading rates along with [USGS SPARROW](#) models the watersheds were ranked based on their loading rates of nitrogen to local waterways.
3. *Connecting CAP Goals with Opportunities for Implementation:* Comparing existing land use with numeric BMP goals and programmatic goals in the CAP, how much opportunity exists in the watershed to implement BMPs?

Based on this scoring criteria, below are the top watersheds in each county that will be a high priority of focus for implementation efforts. This does not mean other watersheds will not receive assistance, but these watersheds are anticipated to produce the most effective water quality improvements and leverage the most co-benefits.

Snyder County:





In Snyder County the top four (4) priority watersheds are as follows.

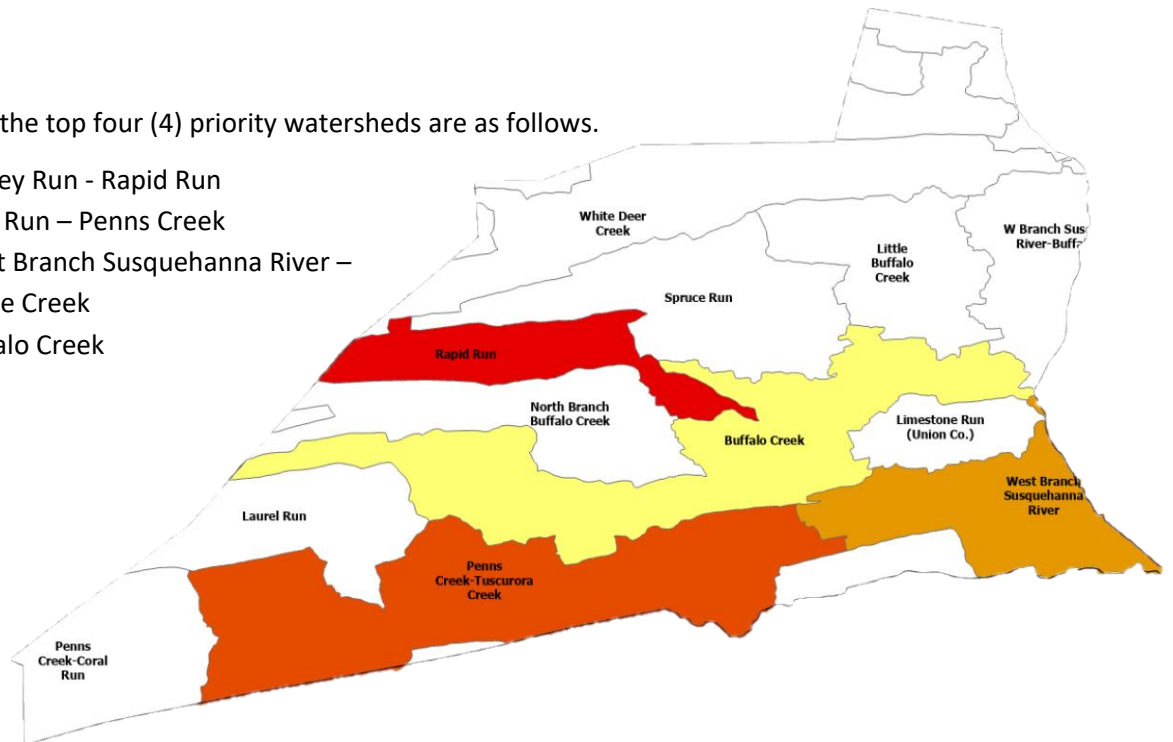
-  1. Middle Creek – Susquehecka Creek
-  2. West Branch Mahantango Creek
-  3. North Branch Mahantango Creek
-  4. Penns Creek – Selinsgrove Run



Union County:

In Union County the top four (4) priority watersheds are as follows.

-  1. Conley Run - Rapid Run
-  2. Cold Run – Penns Creek
-  3. West Branch Susquehanna River – Turtle Creek
-  4. Buffalo Creek



Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template – SNYDER COUNTY

Green - action has been completed or is moving forward as planned **Yellow** - action has encountered minor obstacles **Red** - action has not been taken or has encountered a serious barrier

Action #	Description	Performance Target(s)	Partners	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available				Resources Needed			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
Priority Initiative 1: County Programmatic Initiatives														
1.1A	Implement County Comprehensive Plan policies and actions (Adopted 2001)	<p>Ensure that growth activities address existing water quality impairments through stormwater BMP implementation already required by local ordinance</p> <p>Preserve Environmentally sensitive, culturally, and economically important areas from new development through zoning and ordinances</p> <p>Conserve 1,600 acres of forest.</p> <p>Conserve 60 acres of wetlands.</p>	SCPC, growth boundary municipalities, CKCOG, SEDA-COG	Multi-township	Ongoing	<p>Educating municipalities, Updating local plans and ordinances, Growth areas not consistent with Census Urbanized Areas</p> <p>Local governments willing to propose to ordinances to protect economically and environmentally friendly landscapes</p> <p>Work with solar farms for zoning purposes and BMP implementation.</p> <p>Comprehensive Plan is underdevelopment and will be updated in the coming years.</p>	Education, outreach	1 SCPC staff person			1 – FTE Clean Water Coordinator for Planning Commission	Snyder County Planning Commission (SCPC)	<p>\$130,000 per year</p> <p>\$2,000 per acre of forest conserved through easement → Total \$3.2M</p> <p>\$2,000 per acre of wetland conserved through easement → Total \$120K</p>	<p>DEP</p> <p>Funding Options:</p> <p>PA DCNR Community Conservation Partnerships Program</p> <p>CFA Greenways, Trails, and Recreation Program</p>

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template – SNYDER COUNTY

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Action #	Description	Performance Target(s)	Partners	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available				Resources Needed			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
1.1B	Advance local comprehensive planning efforts	Protecting Snyder County’s surface water and groundwater as a viable resource is critical to preserving water quality and healthy communities Snyder County will work with DEP to help develop Source Water Protection Plans for systems that service <100K users.	Multi-township	Multi-township	1-2 years	Reinforcing the municipal role in coordinating with the water authorities to perform education and outreach.					1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year	DEP
	Source Water Protection Plan development										PADEP Northcentral Regional Office, utility staff, private sector	\$100,000	USDA/FSA/NR WA Source Water Protection Program	
1.1C	Advance local comprehensive planning efforts	Improve flood prone areas with BMPs that also enhance water quality Work with Selinsgrove Borough Flood Prevention Plan	Multi-Township, Selinsgrove Borough	Within responsible party municipalities	5-10 years	Flood controls can capture pollution, if considered in design and maintained.	CRS program guides	FEMA Region III STAFF			1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000	DEP
	Project Implementation										Consultants	\$500,000	PEMA/FEMA	

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template – SNYDER COUNTY

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Action #	Description	Performance Target(s)	Partners	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available				Resources Needed			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
1.1D*	Evaluate areas to establish riparian buffers to stabilize stream banks and limit encroachment	Identify landowners willing to participate and work with the following partners to implement new buffers Work with Chesapeake Conservancy through rapid de-listing approach to identify new landowners.	Municipalities, Conservation District, CBF, Pheasants Forever, National Trout Unlimited, Chesapeake Conservancy, Watershed Associations, Susquehanna University	Countywide	5-10 years	Adopting ordinances may require a pilot project in a willing municipality to demonstrate success. Look to revise and promote ordinances where feasible. Some ordinances promote destruction of buffers due to “mowing” ordinances. Buffer funding programs must include 5-10-year minimum maintenance plan, incentive money for landowners, along with volunteers to establish the buffer.	landowner outreach; on the ground riparian project execution	1 County GIS staff person, 2 Conservation District staff people			1 – FTE Clean Water Coordinator for Planning Commission 1 – Clean Water Coordinator for Conservation District	Planning Commission Conservation District	\$130,000 per year \$130,000 per year Expand Buffer Bonus Program to provide \$10,000 per acre of buffer installed to include 5-year maintenance contract → \$2.2M total	DEP DEP Funding Options: CFA Watershed Restoration and Protection Program PA Fish and Boat Commission CBF, Alliance for the Bay DCNR, Growing Greener, NFWF

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template – SNYDER COUNTY

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Action #	Description	Performance Target(s)	Partners	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available				Resources Needed			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
1.1E	Adopt and update an on-lot sewage management program (Act 537)	Look to review and update all Act 537 plans by municipality. Explore plan creation for municipalities for those who do not have a plan, look to incorporate new pumping guidelines.	Municipalities, Sewage Enforcement Officer	Municipalities where public sewer is not available.	5 years	Landowner education will be needed to promote proper on-lot septic system maintenance.	Utilize existing DEP model ordinances as guidance		Sewage Enforcement Officer	Municipalities	1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year	DEP
													\$1,000,000 funding to update willing municipalities	DEP/DCED/CAP Grant
1.2*	Act 167 Stormwater Management	Revise existing model stormwater ordinance where needed. Look to incentivize additional protections for streams. Support implementation of existing ordinances where feasible. Look to revise Act 167 to encompass a countywide plan.	SCPC, municipal engineers, CKCOG, SEDA-COG, Municipalities	Countywide	2021 – discuss interest to pursue and funding opportunities	Political will and involvement from local municipalities. Funding to develop and implement an Act 167 plan is limited.					Act 167 Plan Development 1 – FTE Clean Water Coordinator for Planning Commission	Consultant Planning Commission	\$500,000 \$130,000 per year	DEP DEP

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template – SNYDER COUNTY

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1.3*	Continue to Implement County Farmland Preservation Program.	<p>Total preservation farm goal (28 farms in program currently – 2,993 acres)</p> <p>Look to fund 4-5 additional farms per year in preservation program. – 1,500 acres of farmland conservation</p> <p>Preservation of Agriculture and Open Space Land Use through the encouragement of local governments to implement effective land use ordinances</p> <p>Utilize conservation easements to protect land</p>	Lancaster Farmland Trust and Agricultural Preservation Coordinator, NRCS, SCCD, Farm Bureau, Snyder County Comprehensive Plan	Ag land use area that fits farmland preservation criteria	2022-2023 – explore incentive opportunities	<p>Operator acceptance, additional resources for plan development incentivize BMP installation as a farmland preservation goal.</p> <p>Preserved farms are required to have an NRCS Conservation Plan, work with farmers to ensure Conservation Plan is reported in PracticeKeeper. Recommend making this a program requirement statewide.</p> <p>Lack of funds to preserve land. Landowner willingness decreases due to the reality of the limited funds, if they don't rank at the "top" of the list, over years they quit applying.</p>	Priority recommendations, easement revision recommendations, supplemental BMP funding research	Ag Land Preservation Board 1 SCPD staff				<p>4-5 farms per year enrolled if funding is met</p> <p>Conservation District</p> <p>Conservation District</p> <p>Conservation District</p>	<p>Assume \$250,000 per farm → \$5,000,000</p> <p>\$130,000 per year</p> <p>\$75,000 per year</p> <p>\$780,000 per year</p>	<p>NFWF, GG. Increased Conservation District budget, PDA, NRCS</p> <p>DEP</p> <p>DEP</p> <p>PDA/SCC/NRCS/DEP</p>

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1.4*	<p>Establish funding/staff support to assist the Agricultural community (day to day support)</p> <p>864 farms exist in Snyder County</p>	<p>Approximately 200 have their plans in Snyder County, goal is to complete 400 by 2025.</p> <p>Support local farms with financial assistance from institutions</p> <p>Work with private ag consultants to document plan reporting.</p> <p>In order to communicate effectively with the farming community one on one farmer outreach must be conducted.</p> <p>Work to document Act 38 and preserved farms conservation and nutrient management plans.</p>	<p>SCPD, SCCD, Contracted planners, Snyder County Farm Bureau, Act 38 operators, organic farmers, preserved farms, integrators, Ag Credit Unions</p>	<p>Countywide Ag Land</p>	<p>2022-2025</p>	<p>Limited compliance activities by DEP.</p> <p>Lack of Technical assistance to support the farming community.</p> <p>Private sector Ag plans are not required to be shared with District staff.</p> <p>Work with Act 38, preserved farms and organic farms to report Ag E&S and NRCS Conservation Plans. These operations are required to have them, but no requirement to report the plans. It is recommended state agencies make changes to Act 38 and preserved farm programs to require PracticeKeeper reporting.</p>	<p>Field verification, troubleshooting</p> <p>50 farm visits per year</p>	<p>SCCD, USDA NRCS, Private Consultants</p> <p>Chesapeake Bay Technician</p>	<p>Conservation Plan Inventory</p> <p>1 FTE Chesapeake Bay Technician</p>	<p>Chesapeake Conservancy (NRCS grant)</p> <p>Chesapeake Bay Inspection Program</p>	<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>3 – FTE Design, Permit construction Services</p> <p>3 – FTE Design, Permit construction Services</p> <p>1 – FTE Clean Water Coordinator for Conservation District</p> <p>1 – administrative assistant</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Private Sector/SCCD</p> <p>Private Sector/SCCD</p> <p>Conservation District</p> <p>Conservation District</p>	<p>\$780,000 per year</p> <p>\$420,000 per year</p> <p>\$315,000 per year</p> <p>\$130,000 per year</p> <p>\$75,000 per year</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p> <p>DEP</p> <p>DEP</p>

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1.5A	Susquehanna University Partnership - Implementation	Develop undergraduate and graduate students to support staff with implementation. Work with University students and staff to support 319 WIP implementation.	Susquehanna University – Professors: Matt Wilson	319 Priority Watershed Riparian properties Preserved farms Priority Corridor Watersheds - Susquehecka, North Selinsgrove Creek, West Branch Mahantango, Northwest Branch Mahantango	2022-2025	Continued undergraduate/graduate engagement as students graduate through program, implementation funding Lack of technical assistance professionals to mentor students Lack of competitive paying job opportunities that ensure long term sustainable for recently graduated students	Outreach boots on the ground	Susquehanna University students	N/A	N/A	5 – Student Internships to Support CAP Implementation	Susquehanna University or Other Students who live locally and attend other colleges	\$50,000	TBD
1.5B	Quantify Land/BMPs Managed by Susquehanna University	Work with Susquehanna University to ensure that water quality improvements that they manage are captured in PK/FieldDoc	Susquehanna University (SU)	SU Owned Lands in Snyder County	2022	Getting maximum credits for experimental BMPs	Institutional knowledge	1 County staff person, HRG (CAP coordinator)	N/A	N/A	5 – Student Internships to Support CAP Implementation	Susquehanna University or Other Students who live locally and attend other colleges	\$50,000	TBD

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1.6A	Develop a Snyder County Water quality communication plan, leveraging existing documents and covering topics including Comprehensive Plan, Greenways Plan, Act 167, Middle Creek 319 etc.	Develop messages and audience; execute plan and distribute messaging through staff and partners. Utilize the Snyder County website as a source of consistent communication, website development is underway.	Board of Commissioners staff, PA DEP Northcentral Office, Penn State Extension (Master Gardeners), PA Rural Water Association, Trout Unlimited, Penns Creek Watershed Association, Watershed Association, USDA-NRCS, DCNR, Susquehanna University, SCCD	Countywide	2022 – develop local content, timing, identify responsible staff	Simplifying the resources that are available					Website development and continued maintenance 1 – FTE Marketing and Outreach Coordinator 1 – FTE Clean Water Coordinator for Planning Commission	District/ Planning Commission Planning Commission Planning Commission	\$30,000 per year \$130,000 per year \$130,000 per year	Administrative budget tag-along to project-related grant award NFWF DEP

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1.6B*	Agricultural Communication Strategy	<p>One on one farm outreach is the best way to communicate with farmers. Work to develop a plan to complete one on one farm visits.</p> <p>Work to develop a communication plan to engage integrators to work with their producers.</p> <p>Partner with pesticide meetings, young farmers and other ag meetings to provide information.</p> <p>Utilize Farm Bureau Newsletter for announcements</p>	<p>SCCD, County Farm Bureau, Integrators, Ag Land Preservation, PSU Extension, NRCS, 4R Alliance, Young Farmers, Pesticide Meetings</p>	Countywide	2022-2025	<p>Funding to support the technical assistance required to complete one on one farm outreach.</p> <p>Outreach to integrators is a challenge due to the number of integrators and multiple country boundaries they serve. It is recommended DEP/PDA/SCC communicate with integrators on a frequent basis to reduce mixed messages.</p>					<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>1 – FTE Marketing and Outreach Coordinator</p> <p>1 – FTE Clean Water Coordinator for Conservation District</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Planning Commission</p> <p>Conservation District</p>	<p>\$780,000 per year</p> <p>\$130,000 per year</p> <p>\$130,000 per year</p> <p>See 1.6A for website costs.</p> <p>Costs for meeting attendance and administration would be covered through other funding requests.</p>	<p>DEP/NRCS/SCC/PDA</p> <p>NFWF</p> <p>DEP</p>

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Priority Initiative 2: Reporting and Tracking														
2.1*	Existing BMP cataloguing (quantity and location) for select BMPs, expanding on general recommendations provided in QAPP BMPs = forest buffers, urban forest buffers, grass buffers, urban grass buffers, manure storages, grassed waterways, wet ponds and wetlands, fencing	Expand use of existing buffer layer with urban hydrology layer R&D into distinguishing ag, pasture, and turf covers from grassed buffers Manual digitizing where leaf-off <1 ft resolution imagery is available Back check with staff field views where required Add data to Practice Keeper or another batch upload option (FieldDoc)	Lead - Chesapeake Conservancy Stakeholder peer review – Susquehanna University, USGS, Farm Bureau, PDA, EPA	Countywide	2022 – cataloguing 2023 – Practice Keeper batch upload processing and field views	EPA acceptance of the approach, further refine guidance in QAPP so that counties can accomplish this or so that the state can take the burden off of counties, utilize the approach to catalogue existing BMPs and do on the ground verification where required for reporting purposes, this is an accelerated BMP catch up approach while we continue to provide support to farmers on planning and BMP installs, reduce the amount of interruption of government entities to compliant farm operations	Precision Conservation Tools General methodology outline BMP field backcheck	Chesapeake Conservancy QAPP Varies by BMP	N/A 	N/A 	Further GIS and data processing/method refinement 5 – Student Internships to Support CAP Implementation 6 – additional Ag Planners to provide technical assistance and verification support	Chesapeake Conservancy Susquehanna University Student or local student attending nearby university etc. District/NRCS/Private Sector Farm Visits	\$46,000 (2022 only) \$50,000 \$780,000 per year	EPA/DEP TBD PDA/SCC/NRCS/DEP

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2.2*	Identify future ag/urban project opportunities using remote sensing	BMP opportunity analysis – ag conservation, land retirement, alternative crop, forest conservation, stream restoration Back check with staff field views Batch upload to FieldDoc to calculate credit opportunity	Lead - Chesapeake Conservancy Stakeholder peer review – Susquehanna University, USGS, Farm Bureau, PDA,	Countywide	2022 – cataloguing 2023 – batch upload processing and field views 2024 – 2025 – implementation focus	Different data set scales/precision	Precision Conservation Tools Batch upload processing BMP field verify	Chesapeake Conservancy DEP/SRBC Varies by BMP	N/A	N/A	5 – Student Internships to Support CAP Implementation	Susquehanna University Student or local student attending nearby university etc.	\$50,000	TBD
2.3*	Develop a local system to capture data collection on urban structural and non-structural practices	Add development related BMPs to PK/FieldDoc so that as land use data sets are updated, there are accompanying BMPs	Municipal engineers, Chesapeake Conservancy, Central Keystone Council of Governments	Urban/suburban landscape	2022	Currently municipalities are not collecting BMP data because it is not required in non-MS4 communities. Must incentivize communities to report, there is no existing system in place.	Reporting platform	FieldDoc	N/A	N/A	Training 5 – Student Internships to Support CAP Implementation 1 – municipal planner	DEP Susquehanna University Student or local student attending nearby university etc. Planning Commission, CKCOG, Seda-COG Municipality, etc.	N/A \$50,000 per year \$130,000 per year	DEP TBD DEP

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2.4*	Implement a documentation program for commercial and homeowner nutrient applications in developed lands Support current legislation for a fertilizer bill.	Support fertilizer legislation – where legislation requires reporting, be the data clearinghouse Legislation will support the implementation of Urban Nutrient Management – 2,000 acres.	PSU Extension	Countywide	TBD	Education of responsible parties, receiving timely information, training on reporting system, will need direction from State on what’s expected and any reporting system that’s developed.	TBD based on fertilizer legislation if passed	TBD based on fertilizer legislation if passed	TBD based on fertilizer legislation if passed	TBD based on fertilizer legislation if passed	1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year Urban Nutrient Management \$10 per acre → \$20,000	DEP DEP/PDA/DCNR/NFWF/CBF/Chesapeake Conservancy
2.5*	Improve Agricultural BMP reporting utilizing PracticeKeeper, Capital RC&D Transect Survey, PSU Survey, Manure Transport Reporting and Remote Sensing	Increase reporting of agriculture plans into PracticeKeeper Work with Capital RC&D to improve current transect survey routes to be more inclusive Work with PSU to produce better response rate to the PSU survey for Snyder County Work with PDA/DEP to improve manure transport reporting	DEP, SCCD, NRCS, PDA, NRCS, Snyder County Farm Bureau, Capital RC&D, Chesapeake Conservancy, PSU Survey, Manure Brokers	Countywide	2022-2025	Private sector ag planners do not have access to PracticeKeeper. Ag planners do not have time to report into PK. Current Capital RC&D routes are not all inclusive. Current response rates are low and miss a large demographic of Juniata County farmers. Manure brokers are not required to report data annually. Data is not inclusive.					5 – Summer interns for reporting and verification	Local University Student or local student attending nearby university etc.	\$50,000 – paid internships See 3.5 for funding needs to improve cover crop reporting for Capital RC&D	DEP/PDA/SCC

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2.6*	Standardized Reporting for Dairy Precision Feeding	Counties would like to utilize the dairy precision feeding BMP. However, current reporting guidelines do not allow for clear reporting standards on feed reduction amounts, how to report, and who is qualified to report.	Chesapeake Bay Program, Penn State Extension, Dairy co-ops	Countywide	2022	It is recommended that milk urea nitrogen (MUN) be an acceptable standard for reporting dairy precision feeding. Guidelines need to be posted on acceptable MUN rates and work with dairy integrators to receive MUN data to report to DEP.	N/A	N/A	N/A	N/A	Reporting protocol	Chesapeake Bay Program, Penn State Extension, Dairy co-ops	N/A	N/A
Priority Initiative 3: Achieve New Pollutant Reductions														
3.1	Implement Snyder County Riparian Buffer Program from recently awarded Growing Greener Grant	Implement 10 acres of Riparian Forest Buffers Implement other Agriculture BMPs as needed such as Stream Fencing, Animal Crossings and Watering Facilities	SCCD	Snyder County ag land	2021-2022	Having enough in-house technical assistance capacity to see projects from concept through construction	Design, construction oversight	SCCD, Consultants	Received \$120,000 to be implemented by December of 2021	Growing Greener Grant	1 – FTE Clean Water Coordinator for Conservation District	Conservation District	\$130,000 per year	DEP

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3.2	Finalize Middle Creek 319 Watershed Implementation Plan	Develop and start implementing the local WIP	Susquehanna University, SCCD, other partners to be identified in plan development	Lower Middle Creek and Susquehanna Watershed	WIP Development and submitted Fall 2021 Implementation Grant Application – 2022 – see plan when completed and approved Partial Implementation – 2023-2025	Funding, landowner interest in BMPs, implementation partner coordination.					Design, permit, construction oversight	Private sector, US FWS, volunteers, Conservation District, Susquehanna University	Estimated, final numbers will be submitted once plan is approved: \$500K per farm at \$1.5M per year → \$7.5M over 5 years	EPA 319 Funds, PADEP, NRCS, CBF, CREP, NFWF

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3.3	Accelerated Implementation of Rapid Delisting Catchment Strategy through the Precision Conservation Partnership	<p>Have identified four priority catchments.</p> <p>Have identified 3-10 parcels per priority catchment</p> <p>Susquehecka Creek is priority number 1 with 3 parcels already identified for outreach and willing to implement</p>	Chesapeake Conservancy, SCCD and Precision Conservation Partnership Stakeholders	Headwaters of Susquehecka Creek, North Selinsgrove Creek, West - West branch Mahantango Creek, North – west branch Mahantango Creek Watersheds	2022-2025	Gaining landowner interest, design/permit/construction schedules, dedicated funding to support BMP implementation, Lack of technical assistance and engineering staff to support implementation.	<p>Program management and GIS</p> <p>Landowner outreach</p>	Chesapeake Conservancy	Partnership stakeholders			3 – additional FTE municipal/ environmental planners	Chesapeake Conservancy, CBF, Etc.	<p>\$390,000 per year</p> <p>\$100,000 dollars to complete rapid delisting program management per year → total cost \$500,000</p> <p>Other funding identified in below initiatives</p>	<p>DEP/NRCS/ SCC/PDA/ DCNR/NFWF/ Growing Greener/ EPA</p> <p>EPA/DEP</p>

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3.4*	Help farmers and operators to be in compliance with state and federal Conservation and Nutrient Management Plans	<p>Soil and Water Quality Conservation Plans (AG E&S) 20,000 new acres</p> <p>Nutrient Management (Manure Management) 13,000 new acres of Core N and 14,500 new acres of Core P</p> <p>Work with Act 38 operators (79), Preserved Farms (28), and certified organics to document plans already required</p> <p>Implementation Challenges (continued): State agencies must work with integrators to ensure they are requiring compliance by farmers. Some integrators require compliance, but not all, great way to communicate with farmers as well.</p>	4R Alliance, SCCD, Snyder County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits, integrators (Bell and Evans, Country View, Pilgrims Pride, Empire Kosher, BJE Land O’Lakes, Dairy Farmers of America, Maryland and Virginia Milk Producers Cooperative, BJE Poultry, Chick to Chicken, Tyson, Purdue, Eggs for Vaccines, Smithfield Hatfield, Swift), Act 38 farmers	Countywide Ag Land	2022-2023	<p>Lack of DEP inspections.</p> <p>Reporting and verification of AG Plans, NRCS plans expire and do not get reverified, private plans are never entered.</p> <p>Lack of Technical assistance to support agriculture planning and implementation, one on one farm outreach is best way to capture existing plans.</p> <p>Act 38 and Preserved Farms not required to enter plans in PK, Recommendations to require programs to enter plans into PK.</p>	Educational support	CBF/4R Alliance	CBF grant	NFWF	6 – additional Ag Planners to work with farmers	District/NRCS/Private Sector Farm Visits	\$780,000 per year	DEP/NRCS/SCC/PDA
							50 farms visits per year	Chesapeake Bay Technician	1 FTE Chesapeake Bay Technician	Chesapeake Bay Inspection Program		Conservation Plans	\$15 per acre for a total cost of \$300,000	DEP/SCC/PDA/NRCS
												Core N and Core P	\$15 per acre for a total cost of \$217,500	DEP/SCC/PDA/NRCS

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3.5	Advanced Nutrient Management (4R) Practice Education and Implementation	<p>Transition manure management plans to nutrient management plans and incentivize implementation</p> <p>Increase existing 4R practice (N Placement by 2,530 acres and N Timing by 15,000 acres)</p> <p>Increase pre-sidedress nitrogen test (PSNT) or Chlorophyll testing additional participants</p>	4R Alliance, SCCD, Snyder County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits, PA Game Commission	Countywide AG Land	2022-2023	<p>Landowner interest, BMP verification (annual).</p> <p>Lack of Technical assistance to support agriculture planning and implementation.</p> <p>Additional funding to support soil testing. Soil testing is key to meeting the recommendations of supplemental BMPs.</p> <p>Machine dependent for most farming operations.</p> <p>Cost of fertilizer is self-regulating farmers to use less fertilizer; therefore, lower rates are applied.</p>	<p>Educational support</p> <p>50 farms visits per year</p>	<p>CBF/4R Alliance</p> <p>Chesapeake Bay Technician</p>	<p>CBF grant</p> <p>1 FTE Chesapeake Bay Technician</p>	<p>NFWF</p> <p>Chesapeake Bay Inspection Program</p>	<p>6 – additional Ag Planners to work with farmers to meet 4R standards</p>	<p>District/NRCS/Private Sector Farm Visits</p>	<p>\$780,000 per year</p> <p>\$10 per acre of advanced nutrient management planning per type → total cost for all is \$175,300</p> <p>\$25,000 per year to increase PNST education and testing → \$125,000 total</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/PDA/SCC/NRCS/4R Alliance</p> <p>DEP/SCC/PDA/NRCS/4R Alliance</p>

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3.6*	Implement Practice to improve soil health and sustainability (Tillage Management and Cover Crops)	Determine feasibility of having a county/state cost share program to enhance adoption of the annual practice Implement tillage management and cover crops on an annual rate of 40,000 acres High Residue, 4,000 acres Conservation Tillage, 2,000 acres Low Residue, 4,000 acres of cover crops and 32,600 acres of cover crops with fall nutrients	SCCD, Snyder County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits, PA Game Commission	Countywide Ag Land	2022 – investigation 2023 – next steps	Capacity to manage the program, landowner interest Lack of technical assistance and farm planners to work with farmers to transition to High Residue Tillage Current verification methods do not accurately capture implemented amounts – work with Capital RC&D to improve Transect Survey Routes Farmers are harvesting cover crops for forage, need accurate efficiency crediting for commodity cover crops Existing Cover Crop Programs have strict plant by date that does not work with changing weather patterns and wetter years	Transect survey Landowner education 50 farm visits per year	Capital RC&D 1 SCCD staff person Chesapeake Bay Technician			6 – additional Ag Planners to transition farmers to high residue County Conservation District – staff to administer the program Capital RC&D staff to complete Transect Survey	District/NRCS/Private Sector Farm Visits Cover Crop Incentive Program Capital RC&D	\$780,000 per year \$90 per acre traditional per year → \$360K for a 5-year total of \$1.8M (incentive payment, administration, capital RC&D reporting) \$50 per acre fall nutrients per year → \$1.63M for 5-year total of \$8.15M \$50,000 for improvements to Capital RC&D Transect Survey	DEP/NRCS/SCC/PDA PDA, SCC, Growing Greener, PACD DEP

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3.7*	Implement more pasture management BMPs	<p>Prescribed grazing – 700 acres</p> <p>Forest buffers on fenced pasture corridor – 15 acres</p> <p>Grass buffers on fenced pasture corridor – 15 acres</p>	SCCD, NRCS, Private Ag Consultants, Chesapeake Bay Foundation, Chesapeake Conservancy	Countywide ag lands – landowners who raise horses, dairy, beef and other pasture grazing animals	2025	<p>Landowner education, BMP funding for non-buffer work, plan updates, data gathering.</p> <p>Lack of Technical assistance to support agriculture planning and implementation.</p> <p>Old NRCS plans need to be updated to comply with prescribed grazing definition – difficult to get landowner buy-in – fund alternative watering and fencing; most pastures are streamside.</p> <p>Increasing construction costs are cancelling NRCS contracts.</p>	50 farm visits per year	Chesapeake Bay Technician			<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>3 – additional FTE environmental technician</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Chesapeake Conservancy, CBF, Clearwater Conservancy, etc.</p>	<p>\$780,000 per year</p> <p>\$390,000 per year</p> <p>Prescribed grazing \$540 per acre → \$378,000 total</p> <p>FB Buffer W/ Exclusion \$10,500 per acre → \$157,500 total</p> <p>GB Buffer W/ Exclusion \$2,750 per acre → \$41,250 total</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA/DCNR/NFWF/Growing Greener/ EPA</p> <p>DEP/NRCS/SCC/PDA/DCNR/NFWF/Growing Greener/ EPA</p> <p>DEP/NRCS/SCC/PDA/DCNR/NFWF/Growing Greener/ EPA</p>

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3.8*	Riparian buffer and re-forestation BMPs	<p>510 riparian forest buffer acres – new buffer; Need to recredit additional acres lost since 2010</p> <p>130 riparian grass buffer acres – new buffer; Need to recredit additional acres lost since 2010</p> <p>15 acres – Agriculture Tree Planting</p> <p>60 acres – urban forest buffer</p> <p>2 acres – urban tree canopy</p> <p>100 acres – urban forest planting</p>	CBF, Penns Creek Watershed Association, Chesapeake Conservancy, NRCS, SCCD, PA Game Commission, Susquehanna University	Countywide	<p>2022 – line up landowners</p> <p>2023-2025 – implementation</p>	<p>Landowner partnerships, landowner education, volunteer acceptance of buffer plantings, buffer maintenance guide for farmers, routine site visits to confirm buffers are thriving, invasive species removal during establishment.</p> <p>Flash grazing must be allowed with buffer installation.</p> <p>Funding program must include a 5-10-year maintenance program to establish buffers along with incentive program \$4K minimum per acre payment.</p> <p>Must revise ordinances to not cut down buffers because of “messy” appearance.</p>	<p>Materials</p> <p>Mapping</p>	<p>SCCD (in-kind, annual tree sale efforts), CBF</p> <p>Chesapeake Conservancy</p>	<p>Budget available to be determined</p>	<p>CBF, NFWF, NFWS, NRCS - CREP</p>	<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>3 – additional FTE environmental technician</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Chesapeake Conservancy, CBF, Clearwater Conservancy, etc.</p>	<p>\$780,000 per year</p> <p>\$390,000 per year</p> <p>Forest Buffer \$10,000 per acre → 2.2M</p> <p>Grass Buffer \$2,500 per acre → \$250,000</p> <p>Tree/Forest Planting \$10,000 per acre → \$1.16M</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA/DCNR</p> <p>DCNR, NFWF, PACD, TreeVitalize, DEP, Coldwater Heritage Partnership Implementation Grants, Landscape Scale Restoration (LSR) Grant Program – US Forest Service, Pennsylvania Habitat Stewardship Program, Alliance for the Bay, CBF, Chesapeake Conservancy</p>

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template – SNYDER COUNTY

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.9	Wetland restoration implementation on marginal production ag land	<p>22 acres of Wetland Restoration</p> <p>20 Acres of Wetland Enhancement and Rehabilitation</p> <p>Identify 1 large property owner from University of Vermont restorable wetland layer to help identify where wetland restoration is feasible</p>	Chesapeake Conservancy, SCCD, NRCS, MLC, PA Game Commission	Countywide	2022 – 2025	<p>Willing landowner; appropriate siting, design, and construction for successful restoration result</p> <p>Lack of technical assistance for landowner outreach and agriculture planning to identify potential site locations</p>	Landowner outreach	1 SCCD staff person			<p>3 – additional FTE environmental technician</p> <p>2 – stream biologist</p>	<p>Chesapeake Conservancy, CBF, Clearwater Conservancy, etc.</p> <p>SCCD/ Environmental Group</p>	<p>\$390,000 per year</p> <p>\$280,000</p> <p>Wetland Restoration \$30,000 per acre → \$1.26M</p>	<p>DEP/DCNR</p> <p>DEP/DCNR/PA FBC/USGS</p> <p>DEP/DCNR/ USDA Conservation Reserve Program (CRP) or NRCS Wetlands Reserve Program (WRP)</p>

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3.10	Stream Restoration (Urban and Agriculture)	<p>10,400 Linear feet (2 miles) Urban Stream Restoration</p> <p>4,600 Linear feet (<1 mile) Agriculture Stream Restoration</p>	CBF, Chesapeake Conservancy, TU National, NFWS, Penns Creek Watershed Association, PFBC Stream Restoration Team, MLC, NRCS, SCCD	Rapid delisting areas	2022 – 2025	Design/permit/construction cycle seems to work in two-year increments, there is an assumption that eroded/degraded streams exist based upon 403(d) listing – should that not be the case in the field, adjust quantitative goal down and ensure buffers are in place Lack of funding to cover engineering design	GIS Design/GP-1 permit	Chesapeake Conservancy and partners Trout Unlimited, Municipalities			Design, permit, construction services 2 – Municipal Engineers 3 – FTE Design, Permit construction Services 2 – stream biologist	Private sector, USFWS, TU Municipalities, Planning Commission, CKCOG, Seda-COG Private Sector/ SCCD SCCD/ Environmental Group	Assume \$900/LF - \$9.36M – Urban Assume \$400/LF - \$1.84M Agriculture \$280,000 per year \$420,000 \$280,000	Growing Greener, NFWS, DEP, DCNR, PAFBC, USGS DEP/NRCS/ SCC/PDA DEP/DCNR DEP/DCNR/PA FBC/USGS

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.11	Implement more barnyard runoff control/loafing lot management	32 acres of barnyard runoff controls (18 acres need reverification)	SCCD, Chesapeake Conservancy, NRCS, Snyder County Farm Bureau, Private Ag Consultants	Countywide Farms	2022-2025	Lack of Technical assistance to support agriculture planning and implementation. Lack of funding to cover engineering design. Increasing construction costs are resulting in cancelled NRCS contracts.					6 – additional Ag Planners to provide technical assistance and ag planning	District/NRCS/ Private Sector Farm Visits	\$780,000 per year	DEP/NRCS/ SCC/PDA
											3 – FTE Design, Permit construction Services	Private Sector/ SCCD	\$420,000 per year	DEP/NRCS/ SCC/PDA
											3 – FTE Design, Permit construction Services	Private Sector/ SCCD	\$315,000 per year	DEP/NRCS/ SCC/PDA
													Barnyard Runoff Control \$175K per project, assume 1 acre per project \$2.45M in total	DEP/NRCS/ SCC/PDA/ PennVEST

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.12	Animal Waste Storage Systems	15,000 Animal Units of Animal Waste Management Systems (3,000 new AUs of livestock & 12,000 new AUs of poultry)	SCCD, SCC, CEG Program County Farm Bureau, NRCS, Ag Land Preservation, Chesapeake Conservancy, Private Ag Consultants	Livestock & Poultry farms	2022-2025	Time to get through planning, design, and construction; outreach to smaller farms that likely need the assistance; match cash value for small farms; readiness to plan/implement projects when outreach efforts yield willing landowners. Lack of funding to cover engineering design.	Project implementation – 5 farms a year	NRCS, SCCD, Private Ag Sector			6 – additional Ag Planners to provide technical assistance and ag planning 3 – FTE Design, Permit construction Services 3 – FTE Design, Permit construction Services	District/NRCS/Private Sector Farm Visits Private Sector/SCCD Private Sector/SCCD	\$780,000 per year \$420,000 per year \$315,000 per year Animal waste management system \$175,000 per project, assume 100 AUs per project \$26.25M in total	DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA/PennVEST
3.13*	Export of Excess Manure out of Snyder County	Manure Transport of excess manure out of Snyder County – 14,500 Dry Tons Per Year	SCCD, PDA, SCC, Snyder County Farm Bureau, NRCS, Local manure brokers, Private Sector nutrient management planners	Countywide Ag Lands	2022 - 2025	Current reporting methods do not accurately capture the amount of manure leaving Snyder County. Manure brokers are not required to report data. Lack of Technical assistance to support agriculture planning and implementation.					6 – additional Ag Planners to provide technical assistance and ag planning Expansion of PracticeKeeper to require manure brokers' reporting	District/NRCS/Private Sector Farm Visits Manure Brokers/SCCD	\$780,000 per year \$100,000 per year	DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.14	Urban Stormwater Management Non-Regulated Communities	Implement existing ordinances at local municipal level Catalogue existing BMPs that fit into this category and newly built ones Wet Ponds and Wetlands - 80 new acres treated	SCPC, SCCD, developing municipalities, Central Keystone Council of Governments, SEDA-COG	County-wide	Ongoing 2022-2025	Coordination/training for municipal staff, FieldDoc batch opportunity, non-MS4 engagement (what's in it for them?), difficulty obtaining past information (MS4s typically have databases from 2003-present).	Reporting platform	FieldDoc			5 – Summer interns for reporting and verification	Susquehanna University Student or local student attending nearby university etc.	\$50,000 – paid internships	NRCS/PDA/DEP
											2 – Municipal Engineers	Municipalities, Planning Commission, CKCOG, Seda-COG	\$280,000 per year	TBD
											1 – municipal planner	Planning Commission, CKCOG, Seda-COG, Municipality, etc.	\$130,000 per year	DEP
												Document existing projects through Mech Tech	Wet Ponds and Wetlands \$1,129 → \$90,320 \$25,000 to work with Mech Tech on previous reporting	DEP DEP

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.15	Conservation Landscaping/Turf to Meadow Conversion	Promote new program and enable one large tract landowners' participation 80 new acres of Conservation Landscaping	SCPC, DCNR, Clear Water Conservancy, Chesapeake Conservancy, Penns Creek Watershed Association, MLC	Developed areas in County municipalities	2022 - 2025	Landowner education and acceptance Existing mowing ordinances and weed ordinances can be a challenge to implementation	Planting plan assistance	Alliance for the Bay (in-kind)			1 – FTE Municipal Planner 3 – additional FTE environmental technician	Planning Commission Chesapeake Conservancy, CBF, Clearwater Conservancy, etc.	\$130,000 per year \$130,000 per year \$2,500 per acre meadow → \$200,000 budget for all	DEP/DCNR DEP/DCNR/ SCC/PDA/ NRCS DCNR
3.16*	Continue dirt and gravel road program	22 miles overall restored through past projects Continue to implement the program annually	SCCD, Trout Unlimited	Countywide	2025	Continue D&G Road program funding. Expand Dirt and Gravel Road Program to include farm lanes.	Education, technical assistance, project oversight 1 – technical staff administering the program	SCCD, Center for Dirt & Gravel Road Studies, SCC	\$1.8 Million since 1998	State Conservation Commission	1 – FTE Clean Water Coordinator for Conservation District	Conservation District	\$130,000 per year Dirt and Gravel Roads \$40 per foot → TBD	DEP/PDA/ SCC SCC
3.17*	Work with PennDOT and local municipalities to reduce frequency of mowing and grading road ditches and along roadways	Educate local municipal leaders and work with PennDOT to address state owned roads on the importance of keeping higher vegetation along roadways to prevent erosion and increase nutrient uptake.	Local Municipalities, SCPC, DEP and PennDOT	Countywide	2023	PennDOT's and Municipal willingness to cut back on mowing programs. DEP Chesapeake Bay Program will need to assist in the education of PennDOT.					1 – FTE Clean Water Coordinator for Planning Commission 1 – FTE Clean Water Coordinator for Conservation District	Planning Commission Conservation District	\$130,000 per year \$130,000 per year	DEP DEP/PDA/ SCC

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.18*	Work with PA Game Commission to establish BMPs and conservation easements within Game Lands. Require farmland lessees to implement CNMPs and Ag E&S plans	Approximately 2,900 acres of state Game Lands are managed in Snyder County.	PA Game Commission, SCCD, MLC	PA Game Lands 188, 194, 212	2025	Coordination with Game Commission often challenging, requiring leases to implement plans when not currently required by lease contract.					1 – FTE Clean Water Coordinator for Conservation District	Conservation District	\$130,000 per year	DEP/PDA/ SCC
3.19*	Private Funding & Grant Administration	Identify some private funding sources that may be able to supplement public funding sources/existing sources utilized for stakeholders, continue to work with partners to facilitate additional funding.	Existing project implementer networks	Countywide	2022-2025	Need to expand network, educational aspect of less common funders, logistics of utilizing unproven funding sources (or lesser known). Grant administration is a challenge due to limited staff and time-consuming nature of grant reporting and administration.	Financial services	HRG (CAP coordinator)			1 – FTE Conservation District Grant Manager	Conservation District	\$130,000	TBD
										1 – FTE Planning Commission Grant Manager	Planning Commission	\$130,000	TBD	
										2 – staff accountants	Planning Commission & Conservation District	\$140,000 per year	TBD	

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
Priority Initiative 4: Research, Education, and Training														
4.1*	Incorporate existing water quality monitoring data into Chesapeake Data Explorer/ Chesapeake Monitoring Cooperative database & Initiate additional water quality monitoring sites that promote long-term trend evaluation at key locations in Snyder County	Location identification, financial and volunteer budget analysis, and initial landowner communication by end of 2021 CAST-21 acknowledgment of our data Map existing monitoring locations Expand monitoring based on Corridors of Opportunity/rapid delisting area monitoring gaps	ALLARM, Susquehanna University, watershed associations, TU, USGS, SCCD, NRCS	Countywide	2022	Land access, expanded volunteer need, equipment/materials budget, Consistent data collection, QAQC continuation Data precision, QAQC, opportunity to educate landowners about local stream health and what they can do about it Ensure USGS/DEP/SU continue monitoring in Turtle Creek.	QAQC	Susquehanna University /ALLARM			Volunteers for Water quality monitoring New monitoring equipment 3 – additional FTE environmental technician 2 – stream biologist	Local environmental groups Conservation District Chesapeake Conservancy, CBF, Clearwater Conservancy, etc. SCCD/ Environmental Group	N/A \$10,000 \$130,000 per year \$280,000 per year	Incorporate existing water quality monitoring data into Chesapeake Data Explorer/ Chesapeake Monitoring Cooperative database DEP/NRCS/ DCNR/PDA DEP/DCNR/PA FBC/USGS

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template – SNYDER COUNTY

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4.2A	Supporting watershed associations for short-term success and long-term sustainability aligning with their goals	Develop new or reestablish existing watershed associations to support with CAP implementation. Watershed organizations can support with outreach, engagement, new project identification and implementation. Enhance the capacity of local watershed associations for short-term success and long-term sustainability.	Penns Creek Watershed Association, MLC, Trout Unlimited, National Trout Unlimited	Countywide	Ongoing	Continued coordination among a lot of active groups, keep project leads list active so that watershed approach to grant applications can be developed well in advance of submittal deadlines.	Social media shares	County – department to be determined			1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year	DEP
							Project development support	CAP Coordinator (HRG)			1 – FTE Clean Water Coordinator for Conservation District	Conservation District	\$130,000 per year	DEP/PDA/ SCC
												\$5000 per organization to produce promotional materials (hats, shirts, stickers) for members → \$15,000 total per year	To be included in project-related grant applications	
4.2B	Explore options to establish a Snyder County Watershed and Conservation Association	Look to establish a new countywide watershed association with 501(c)3 status to support implementation of projects. Potential to merge Penns Creek Watershed Association into the new organization.	SCCD, Penns Creek Watershed Association, TU, other watershed or conservation organizations	Countywide	2023	Lack of participation in watershed organizations is challenging. Establishing a 501(c)3 takes time. Political will to develop the group. Funding to support the group					1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year	DEP
											1 – FTE Clean Water Coordinator for Conservation District	Conservation District	\$130,000 per year	DEP/PDA/ SCC
												\$10,000 to establish Snyder County Watershed and Conservation Association	DEP	

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template

Each county-based local area will use this template to identify:

1. Inputs – These are both existing and needed resources, public and private, to implement the identified priority initiative. These include both technical and financial resources, such as personnel, supplies, equipment and funding.
2. Process – what is each partner able to do where and by when. These are the action items listed under each priority initiative.
3. Outputs and outcomes – both short and long-term. These are the priority initiatives identified by each county. The performance targets are the intermediate indicators that will measure progress.
4. Implementation challenges – any potential issues or roadblocks to implementation that could impede outputs and outcomes.

Asterisk: Place an asterisk next to the action number(s) for action items that appear in both the County Planning and Progress Template and the Programmatic Recommendations Template.

For each Priority Initiative or Program Element: Use the fields, as defined below, to identify the inputs and the process that will be followed to achieve each priority initiative. This is the “who, what, where, when and how” of the plan:

Description = What. This may include programs that address prevention, education, or as specific as planned BMP installations that will address the Priority Initiative. A programmatic or policy effort will require some ability to quantify the anticipated benefits which will allow calculation of the associated nutrient reductions.

Performance Target = How. This is an extension of the Description above. The Performance Target details the unique BMPs that will result from implementation of the Priority Initiative and serves as a benchmark to track progress in addressing the Priority Initiative. Performance Targets may be spread across multiple Responsible Parties, Geographies, and Timelines based on the specifics of the Initiative.

Responsible Party(ies) = Who. This is/are the key partner(s) who will implement the action items through outreach, assistance or funding, and who will be responsible for delivering the identified programs or practices.

Geographic Location = Where. This field identifies the geographic range of the planned implementation. This could extend to the entire county or down to a small watershed, based on the scale of the Priority Initiative, range of the Responsible Party, or planned funding/resources. *NOTE: Resource limitations alone should not limit potential implementation as additional funding may become available in the future.*

Expected Timeline = When. Provide the expected completion date for the planned activity. This should be a reasonable expectation, based on knowledge and experience, that will aid in tracking progress toward addressing the Priority Initiative.

Resources Available: Technical & Funding = This field will note technical and financial resources secured/available to implement the program (Description). This is the total of the resources identified in the County Resources Inventory Template below allocated to the priority initiative as a whole; or, if available, to each action.

Resources Needed: Technical & Funding = This field will note technical and financial resources needed/outstanding to implement the program (Description). This is the total of the additional resources projected and identified as needed in the County Resources Inventory Template below allocated to the priority initiative as a whole; or, if possible, to each action.

Potential Implementation Challenges/Issues = This field will note challenges and issues that may delay program implementation (Description).

GLOSSARY

- ACT 167 Plan.** The Pennsylvania Stormwater Management Act of 1978, or Act 167, required that each county must prepare and adopt a watershed stormwater management plan for each watershed located in the county as designated by DEP, in consultation with the municipalities located within each watershed.
- Ag E&S – Agricultural Erosion and Sedimentation Plan.** Agricultural Erosion and Sedimentation plans document best management practices on crop and pasture fields to mitigate erosion and protect soil health. Any landowner that disturbs the soil (including no tillage) more than 5,000 square feet ($\sim 1/10$ acre) must have a written Agricultural Erosion & Sediment Control Plan according to Pennsylvania State law, Chapter 102.
- ALLARM – Alliance for Aquatic Resource Monitoring.** ALLARM is a program of Dickinson College that enhances local action for the protection and restoration of waterways by empowering communities with scientific knowledge and tools.
- AMD – Acid Mine Drainage.** Outflow of acidic water from metal mines or coal mines.
- BMP – Best Management Practice.** Best management practices describe a type of water pollution control. Using agricultural BMPs can help to prevent or minimize the effects of nonpoint source pollution.
- BRIC – Building Resilient and Infrastructure and Communities.** The Building Resilient Infrastructure and Communities (BRIC) program is a new FEMA pre-disaster hazard mitigation program that replaces the existing Pre-Disaster Mitigation (PDM) program.
- CAST - Chesapeake Assessment Scenario Tool.** CAST is a web-based nitrogen, phosphorus and sediment load estimator tool that streamlines environmental planning.
- CBF – Chesapeake Bay Foundation.** The Chesapeake Bay Foundation is a non-profit organization devoted to the restoration and protection of the Chesapeake Bay in the United States.
- SCCD – Snyder County Conservation District.** The Snyder County Conservation District serves as the primary local source of assistance to all individuals and organizations who benefit from the county's natural resources that we collectively strive to sustain and improve.
- SCPC – Snyder County Planning Commission.** The Snyder County Planning Commission makes recommendations and decisions to maintain and enhance the high quality of life for all residents, in accordance with the Pennsylvania Municipalities Planning Code, and other laws and regulations of the Commonwealth of Pennsylvania and the County of Snyder.
- CHMP – County Hazard Mitigation Plan.** The Snyder County Hazard Mitigation Plan was developed for the purpose of providing a blueprint for reducing property damage and saving lives from the effects of future natural and human-caused disasters in Snyder County; Qualifying the County for pre-disaster and post-disaster grant funding; Complying with state and federal legislative requirements related to local hazard mitigation planning; Demonstrating a firm local commitment to hazard mitigation principles; and Improving community resiliency following a disaster event.
- CNMP – Comprehensive Nutrient Management Plan.** A Comprehensive Nutrient Management Plan is a whole farm, progressive document. It contains records of the current activities on a livestock operation, an evaluation of the existing environmental risks, and proposals to reduce the risk of negative impacts to the environment. The objective is to ensure both farm production and environmental goals (clean water, clean air, and healthy soils) are achieved on the farm.
- COO - Corridors of Opportunity.** Analysis completed comparing the County Comprehensive Plan goals to potential for co-benefits for local water quality. Since there are elevated nitrogen levels throughout Snyder County, the analysis helped focus the planning team on particular HUC12 watersheds for the most global benefit. Once the HUC12 watersheds are identified, the next step is to identify regulatory compliant (or in progress) farms, their neighbors, and preserved farms for targeted outreach and specific BMP installation options.
- CRS – Community Rating System.** Community Rating System is a voluntary incentive program that recognizes and encourages community floodplain management activities that exceed the minimum National Flood Insurance Plan requirements.
- DCNR – Department of Conservation and Natural Resources.** DCNR is responsible for maintaining and preserving state parks and forests; providing information on the state's natural resources; and working with communities to benefit local recreation and natural areas.
- DEP – Department of Environmental Protection.** The Department of Environmental Protection's mission is to protect Pennsylvania's air, land and water from pollution and to provide for the health and safety of its citizens through a cleaner environment.
- EPA – Environmental Protection Agency.** The Environmental Protection Agency is a United States federal government agency whose mission is to protect human and environmental health.
- FEMA – Federal Emergency Management Agency.** FEMA supports citizens and emergency personnel to build, sustain, and improve the nation's capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.
- FieldDoc – FieldDoc** is a protected, online database that uses geographic information to generate baseline nutrient and sediment loading information and calculate load reductions for planned BMPs.
- GIS – Geographic Information System.** GIS is a computer system that analyzes and displays geographically referenced information.
- HUC12 – Watershed.** A local sub-watershed level delineation that captures tributary systems draining into the larger Chesapeake Bay watershed.
- MLC – Merrill Linn Conservancy.** Local non-profit conservation organization serving the Central Susquehanna Valley.
- MMP – Manure Management Plan.** Manure management plans document how a landowner plans to capture, store, treat, and utilize animal manures in an environmentally sustainable manner. Every landowner that has livestock or spreads manure on their property must have a written Manure Management Plan according to Pennsylvania State law, Chapter 91.
- MS4 – Municipal Separate Storm Sewer System.** A separate storm sewer system is a collection of structures, including retention basins, ditches, roadside inlets and underground pipes, designed to gather stormwater from built-up areas and discharge it, without treatment, into local streams and rivers.
- NFWF – National Fish and Wildlife Foundation.** NFWF works towards sustaining, restoring, and enhancing the nation's fish, wildlife, plants and habitats for current and future generations through innovative public and private partnerships, and by investing financial resources and intellectual capital into science-based programs designed to address conservation priorities and achieve measurable outcomes.
- NMP – Act 38 Nutrient Management Plan.** Nutrient management plans are required under Pennsylvania State law Act 38 which applies to operations with more than 2,000 pounds live animal weight per acre of pasture and crop fields.
- NRCS – Natural Resource Conservation Service.** NRCS's programs help farmers reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters.
- PACD – Pennsylvania Association of Conservation Districts.** Provides support for Pennsylvania's conservation districts.
- PEMA – Pennsylvania Emergency Management Agency.** PEMA is tasked with the response to, preparedness for, recovery from, and the mitigation or prevention of disasters and other emergencies.
- PracticeKeeper.** PracticeKeeper is a protected, online database Used for reporting conservation plans, BMPs, E&S plans, nutrient management plans, watershed plans, complaints, DEP inspection reports and data exports to DEP.
- QAPP – Quality Assurance Project Plan.** A QA Project Plan documents the technical and quality aspects of a project, including project management, implementation and assessment. It specifies responsibilities, monitoring objectives, sampling design, sample collection methods, analytical methods, quality control, data management and data validation activities. It is required by EPA prior to any monitoring or data collection.

QAQC – Quality Assurance Quality Control. QA/QC is the combination of quality assurance, the process or set of processes used to measure and assure the quality of a product, and quality control, the process of ensuring products and services meet consumer expectations.

4R Nutrient Stewardship – Precision Conservation. Right fertilizer source at the Right rate, at the Right time and in the Right place for optimal crop management.

SRBC – Susquehanna River Basin Commission. SRBC’s mission is to enhance public welfare through comprehensive planning, water supply allocation, and management of the water resources of the Susquehanna River Basin.

SWM – Stormwater Management. Stormwater management is the effort to reduce runoff of rainwater or melted snow into streets, lawns and other sites and the improvement of water quality.

SWP – Source Water Protection. Source Water Protection is a planning process conducted by local water utilities, as well as regional or national government agencies, to protect drinking water sources from overuse and contamination.

USGS – United States Geological Survey. USGS provides science about the natural hazards that threaten lives and livelihoods; the water, energy, minerals, and other natural resources we rely on; the health of our ecosystems and environment; and the impacts of climate and land-use change.

WIP – Watershed Implementation Plan. Watershed Implementation Plans (WIPs) are the roadmap for how the Bay jurisdictions (including Pennsylvania), in partnership with federal and local governments, will achieve the Chesapeake Bay TMDL allocations.

WWTP – Wastewater Treatment Plant. Wastewater treatment plants process contaminants from wastewater or sewage and convert it into an effluent that can be returned to the water cycle with acceptable impact on the environment or reused for various purposes.

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template – UNION COUNTY

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Action #	Description	Performance Target(s)	Partners	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available				Resources Needed			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
Priority Initiative 1: County Programmatic Initiatives														
1.1A	<p>Implement County Comprehensive Plan policies and actions</p> <p>Update County Comprehensive plan beginning 2021/2022</p>	<p>Ensure that growth activities address existing water quality impairments through stormwater BMP implementation already required by local ordinance</p> <p>Preserve Environmentally sensitive areas from new development through zoning, ordinances and land trusts.</p> <p>Conserve 1,500 acres of forest.</p> <p>Conserve 125 acres of wetlands.</p>	<p>Union County Planning Commission (UCPC), growth boundary municipalities, Union County Hazard Mitigation Plan (CHMP), Act 167, Union County Greenway Plan, Municipalities</p>	Countywide	<p>Begin update to County Comprehensive plan beginning 2021/2022</p>	<p>Educating municipalities, Updating local plans and ordinances, Growth areas not consistent with Census Urbanized Areas</p> <p>Local governments willing to propose ordinances to protect economically and environmentally friendly landscapes</p>	Education, outreach	1 UCPC staff person			1 – FTE Clean Water Coordinator for UCPC	UCPC	<p>\$130,000 per year</p> <p>\$2,000 per acre of forest conserved through easement → Total \$3.0M</p> <p>\$2,000 per acre of wetland conserved through easement → Total \$250K</p> <p>\$40,000 to support Comprehensive plan implementation</p>	<p>Department of Environmental Protection (DEP)</p> <p>Funding Options:</p> <p>PA Department of Conservation and Natural Resources (DCNR) Community Conservation Partnerships Program</p> <p>CFA Greenways, Trails, and Recreation Program</p>

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template – UNION COUNTY

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1.1B	<p>Advance local comprehensive planning efforts</p> <p>Implement the Source Water Protection (SWP) Plan</p> <p>Preparation and implementation of an effective stormwater management (SWM) plan</p>	<p>Protecting Union County’s surface water and groundwater as a viable resource is critical to preserving water quality and healthy communities</p> <p>Work with municipal authorities to educate on the benefits of SWP Plan – work with DEP on development of Plans.</p>	<p>Municipalities, DEP NRCO Staff to assist with SWP, New Berlin and Mifflinburg Borough</p>	<p>Countywide</p> <p>New Berlin and Mifflinburg Boroughs</p>	1-2 years	<p>Reinforcing the municipal role in coordinating with the water authorities to perform education and outreach.</p> <p>The problem is the protection areas often lie outside the political boundary of the municipality that owns the system. Some of the adjacent municipalities have no zoning. The plans might be dated but the implementation realities are unchanged.</p>					<p>1 – FTE Clean Water Coordinator for UCPC</p> <p>SWP development</p>	<p>UCPC</p> <p>PADEP Northcentral Regional Office, utility staff, private sector</p>	<p>\$130,000 per year</p> <p>\$100,000</p>	<p>DEP</p> <p>USDA/FSA/NR WA SWP Program</p>

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1.1C*	Evaluate areas to establish riparian buffers to stabilize stream banks and limit encroachment	Identify landowners willing to participate and work with the following partners to implement new buffers Work with Chesapeake Conservancy through rapid de-listing approach to identify new landowners. Identified over 1,600 acres of opportunity within Union County to implement a 35 ft wide buffer.	Municipalities, UCCD, CBF, Pheasants Forever, National Trout Unlimited, Buffalo Creek Watershed Association, Merrill Linn Conservancy (MLC)	Countywide	5-10 years	Adopting ordinances, may require a pilot project in a willing municipality to demonstrate success. Look to revise and promote ordinances where feasible. Some ordinances promote destruction of buffers due to “mowing” ordinances. Buffer funding programs must include 5-10-year minimum maintenance plan, incentive money for landowners, along with volunteers to establish the buffer.	Landowner outreach; on the ground riparian project execution	1 County GIS staff person, 2 UCCD staff people, Chesapeake Conservancy			1 – FTE Clean Water Coordinator for UCPC 1 – Clean Water Coordinator for UCCD	UCPC UCCD	\$130,000 per year \$130,000 per year Expand Buffer Bonus Program to provide \$10,000 per acre of buffer installed to include 5-year maintenance contract→ \$2.85M total	DEP DEP Funding Options: CFA Watershed Restoration and Protection Program PA Fish and Boat Commission CBF, Alliance for the Bay DCNR, Growing Greener, National Fish and Wildlife Foundation (NFWF)

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1.1D	Adopt and update an on-lot sewage management program (Act 537)	Look to review and update all Act 537 plans by municipality. Explore plan creation for municipalities for those who do not have a plan, look to incorporate new pumping guidelines.	Municipalities, Sewage Enforcement Officer	Countywide	5 years	Landowner education will be needed to promote proper on-lot septic system maintenance Municipal buy-in to update Act 537 plans. Lack of timely DEP enforcement of the 537 Program.			Sewage Enforcement Officer	Municipalities	1 – FTE Clean Water Coordinator for UCPC	UCPC	\$130,000 per year \$1,000,000 funding to update willing municipalities	DEP DEP/DCED/ CAP Grant/ PennVEST

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1.2	Union CHMP	<p>Improve flood prone areas with BMPs that also enhance water quality</p> <p>Proceed with project to improve West Milton and Kelly Township</p> <p>Flood control measure in place for Mifflinburg Borough and West Buffalo Township (Act 167)</p>	UCPC, Union County Comprehensive Plan, ACT 167,	<p>Countywide</p> <p>West Milton and Kelly Township</p> <p>Lewisburg Borough Flood Resiliency Green Infrastructure</p>	2022-2025	<p>Flood controls can capture pollution, if considered in design and maintained.</p> <p>Current Requirements by Pennsylvania Emergency Management Agency (PEMA)/ Federal Emergency Management Agency (FEMA) are tough to receive funding – funding available only if hazard is identified by FEMA/PEMA and needs extremely project specific. Also, can't plant buffers in buy-out areas without FEMA approval.</p>	CRS program guides	FEMA Region III STAFF			<p>Engineering Feasibility Study</p> <p>1 – FTE Clean Water Coordinator for UCPC</p> <p>Project Implementation</p>	<p>Consultants</p> <p>UCPC</p> <p>Consultants</p>	<p>\$150,000</p> <p>\$130,000</p> <p>\$500,000</p>	<p>PEMA/FEMA</p> <p>DEP</p> <p>PEMA/FEMA</p>
1.3*	Act 167 SWM	Revise existing model stormwater ordinance when feasible. Look to incentivize additional protections for streams. Support implementation of existing ordinances where feasible.	UCPC, municipal engineers, UCCD, Union County Farm Bureau, Buffalo Creek Act 167, Bull Run and White Deer Act 167 Watershed Plan	<p>Countywide</p> <p>Buffalo Creek, Bull Run, White Deer</p>	2022-2025	Should local involvement exist, funding to support coordination of Act 167 requirements.	Institutional knowledge	Municipal engineers – assume 6 for well-rounded local background			1 – FTE Clean Water Coordinator for UCPC	UCPC	\$130,000	DEP

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1.4*	Continue to Implement County Farmland Preservation Program.	<p>Total preservation farm goal (91 farms in program currently – 10,000 acres)</p> <p>Look to fund 300 acres (2-3 farms) per year in preservation program. – 1,300 acres of farmland conservation</p> <p>Preservation of Agriculture and Open Space Land Use through the encouragement of local governments to implement effective land use ordinances</p> <p>Utilize conservation easements to protect land</p>	Agricultural Preservation Coordinator, Natural Resource Conservation Service (NRCS), UCCD, Farm Bureau, Land Trusts	Prime farmland soils countywide	2022-2023 – explore incentive opportunities	<p>Operator acceptance, additional resources for plan development incentivize BMP installation as a farmland preservation goal.</p> <p>Preserved farms are required to have an NRCS Conservation Plan, work with farmers to ensure Conservation Plan is reported in PracticeKeeper. Recommend making this a program requirement statewide.</p> <p>Lack of funds to preserve land. Landowner willingness decreases due to the reality of the limited funds, if they don't rank at the "top" of the list, over years they quit applying.</p>					<p>Technical assistance for program management</p> <p>1 – FTE Clean Water Coordinator for UCCD</p> <p>1 – administrative assistant</p> <p>6 – Ag planners to assist with technical assistance</p>	<p>PDA</p> <p>UCCD</p> <p>UCCD</p> <p>UCCD</p>	<p>Assume \$250,000 per farm → \$3,000,000</p> <p>\$130,000 per year</p> <p>\$75,000 per year</p> <p>\$780,000 per year</p>	<p>NFWF, GG. Increased UCCD budget</p> <p>DEP</p> <p>DEP</p> <p>PDA/SCC/NRCS/DEP</p>

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1.5*	<p>Establish funding/staff support to assist the Agricultural community (day to day support)</p> <p>574 farms exist in Union County</p>	<p>Approximately 350 have their plans in Union County, goal is to complete 450 by 2025.</p> <p>Support local farms with financial assistance from institutions</p> <p>Work with private ag consultants to document plan reporting.</p> <p>In order to communicate effectively with the farming community one on one farmer outreach must be conducted.</p> <p>Work to document Act 38 and preserved farms conservation and nutrient management plans.</p>	UCPC, UCCD, Contracted planners, Union County Farm Bureau, ACT 38 operators, organic farmers, preserved farms, integrators	Countywide	2022-2025	<p>Limited compliance activities by DEP.</p> <p>Lack of Technical assistance to support the farming community</p> <p>Private sector Ag plans are not required to be shared with District staff.</p> <p>Work with Act 38, preserved farms and organic farms to report Ag E&S and NRCS Conservation Plans. These operations are required to have them, but no requirement to report the plans. It is recommended state agencies make changes to Act38 and preserved farm programs to require PracticeKeeper reporting.</p>	<p>Field verification, troubleshooting</p> <p>25 farm visits per year</p> <p>Contracted Planners</p>	<p>UCCD, USDA NRCS, Private Consultants</p> <p>Chesapeake Bay Technician</p> <p>Growing Greener Grant - UCCD</p>	<p>Conservation Plan Inventory</p> <p>0.5 FTE (\$32,500)</p> <p>\$50/plan to be paid to contractor</p>	<p>Chesapeake Conservancy (NRCS grant)</p> <p>Chesapeake Bay Inspection Program</p> <p>Landowner</p>	<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>3 – FTE Design, Engineers, Permits</p> <p>3 – FTE inspector construction Services</p> <p>1 – FTE Clean Water Coordinator for UCCD</p> <p>0.5 FTE – Chesapeake Bay Technician to expand this position to a full-time position instead of currently half</p> <p>1 – administrative assistant</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Private Sector/UCCD</p> <p>Private Sector/UCCD</p> <p>UCCD</p> <p>UCCD</p> <p>UCCD</p>	<p>\$780,000 per year</p> <p>\$420,000 per year</p> <p>\$315,000 per year</p> <p>\$130,000 per year</p> <p>\$32,500 per year</p> <p>\$75,000 per year</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p> <p>DEP</p> <p>DEP</p> <p>DEP</p>

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1.6A	Bucknell University (Bucknell) Partnership - Implementation	Develop undergraduate and graduate students to support staff with implementation. Work with Bucknell students and staff to support 319 WIP implementation	Bucknell – Professors	319 Priority Watershed – Buffalo Creek Riparian properties Preserved farms Priority Watersheds: Turtle Creek Headwaters, Turtle Creek South (Winfield Creek), Conley Run, and Cold Run Watersheds	2022-2025	Continued undergraduate/graduate engagement as students graduate through program, implementation funding Lack of technical assistance professionals to mentor students Lack of competitive paying job opportunities that ensure long term sustainability for recently graduated students	Outreach boots on the ground	Bucknell students	N/A	N/A	5 – Student Internships to Support CAP Implementation	Bucknell or Other Students who live locally and attend other colleges	\$50,000 per year	TBD
1.6B	Quantify Land/BMPs Managed by Bucknell	Work with Bucknell to ensure that water quality improvements that they manage are captured in PK/FieldDoc	Bucknell	Bucknell Owned Lands in Union County	2022	Getting maximum credits for experimental BMPs	Institutional knowledge	1 County staff person, HRG (CAP coordinator)	N/A	N/A	5 – Student Internships to Support CAP Implementation	Bucknell or Other Students who live locally and attend other colleges	\$50,000 per year	TBD

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1.7A	Develop a Union County Water quality communication plan, leveraging existing documents and covering topics including Hazard Mitigation, Comprehensive Plan, Greenways Plan, Act 167, Buffalo Creek 319 etc.	Work to Develop messages and audience; execute plan and distribute messaging through staff and partners. Utilize the Union County website as a source of consistent communication, website development is underway.	Board of Commissioner s staff, PA DEP Northcentral Office, Penn State Extension (Master Gardeners), PA Rural Water Association, Trout Unlimited, Buffalo Creek Watershed Alliance, USDA-NRCS, DCNR, Bucknell, UCCD	Countywide	2022-2023 Commence discussions and planning to develop a communication plan 2023 – develop local content, timing, identify responsible staff	Simplifying the resources that are available					Website development and continued maintenance 1 – FTE Marketing and Outreach Coordinator 1 – FTE Clean Water Coordinator for UCPC	District/ UCPC UCPC UCPC	\$30,000 per year \$130,000 per year \$130,000 per year	Administrative budget tag-along to project-related grant award NFWF DEP

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1.7B	Agricultural Communication Strategy	<p>Work to develop a communication plan to engage integrators:</p> <ol style="list-style-type: none"> 1. 1-4 mailings a year, for equip rental, ag preservation, etc. 2. Short postcard surveys to get feedback 3. Social Media 4. Trying to set up software that can email or text messages to our farmer lists 5. Outreach events - piggy backing on annual events hosted by partners (Extension, Commercial (Hoover Tractor), Community Events (Fair) 6. Stories or ads in local paper 7. Posters on bulletin boards at local businesses 8. Attending meetings of outside groups – Young Farmers, 4H, etc 	<p>UCCD, County Farm Bureau, Integrators, Ag Land Preservation, PSU Extension, NRCS, 4R Alliance, Young Farmers, Pesticide Meetings</p>	Countywide	2022-2025	<p>Funding to support the technical assistance required to complete one on one farm outreach</p> <p>Outreach to integrators is a challenge due to the number of integrators and multiple country boundaries they serve. It is recommended DEP/PDA/SCC communicate with integrators on a frequent basis to reduce mixed messages</p> <p>One on one farm outreach is the best way to communicate with farmers. Work to develop a plan to complete one on one farm visits.</p>					<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>1 – FTE Marketing and Outreach Coordinator</p> <p>1 – FTE Clean Water Coordinator for UCCD</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>UCPC</p> <p>UCCD</p>	<p>\$780,000 per year</p> <p>\$130,000 per year</p> <p>\$130,000 per year</p> <p>See 1.7A for website costs.</p> <p>Costs for meeting attendance and administration may be covered through other funding requests.</p>	<p>DEP/NRCS/SCC/PDA</p> <p>NFWF</p> <p>DEP</p>

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Priority Initiative 2: Reporting and Tracking														
2.1*	Existing BMP cataloging (quantity and location) for select BMPs, expanding on general recommendations provided in Quality Assurance Project Plan (QAPP) BMPs = forest buffers, urban forest buffers, grass buffers, urban grass buffers, manure storages, grassed waterways, wet ponds and wetlands, fencing	Expand use of existing buffer layer with urban hydrology layer R&D into distinguishing ag, pasture, and turf covers from grassed buffers Manual digitizing where leaf-off <1 ft resolution imagery is available Field verify with staff where required Add data to Practice Keeper or another batch upload option (FieldDoc)	Lead - Chesapeake Conservancy Stakeholder peer review – Bucknell, United States Geological Survey (USGS), Farm Bureau, PDA, Environmental Protection Agency (EPA)	Countywide	2022 – cataloging 2023 – Practice Keeper batch upload processing and field views	EPA acceptance of the approach, further refine guidance in QAPP so that counties can accomplish this or so that the state can take the burden off of counties, utilize the approach to catalogue existing BMPs and do on the ground verification where required for reporting purposes, this is an accelerated BMP catch up approach while we continue to provide support to farmers on planning and BMP installs, reduce the amount of interruption of government entities to compliant farm operations.	Precision Conservation Tools General methodology outline BMP field backcheck	Chesapeake Conservancy QAPP Varies by BMP	N/A 	N/A 	Further GIS and data processing/method refinement 5 – Student Internships to Support CAP Implementation 6 – additional Ag Planners to provide technical assistance and verification support	Chesapeake Conservancy Bucknell Student or local student attending nearby university etc. UCCD/NRCS/Private Sector Farm Visits	\$46,000 (2022 only) \$50,000 \$780,000 per year	EPA/DEP TBD PDA/SCC/NRCS/DEP

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2.2*	Identify future ag/urban project opportunities using automated means	BMP opportunity analysis – ag conservation, land retirement, alternative crop, forest conservation, stream restoration Back check with staff field views Batch upload to FieldDoc to calculate credit opportunity	Lead - Chesapeake Conservancy Stakeholder peer review – Bucknell, USGS, Farm Bureau, PDA	Countywide	2022 – cataloguing 2023 – batch upload processing and field views 2024 – 2025 – implementation focus	Different data set scales/precision	Precision Conservation Tools Batch upload processing BMP field verify GIS Mapping Abilities	Chesapeake Conservancy DEP/ Susquehanna River Basin Commission (SRBC) Varies by BMP Union County GIS Department	N/A 	N/A 	Further GIS and data processing/method refinement 5 – Student Internships to Support CAP Implementation	Chesapeake Conservancy, Union County GIS Department Bucknell Student or local student attending nearby university etc.	\$46,000 (2022 only) \$50,000	EPA/DEP TBD
2.3*	Develop a local system to capture data collection on urban structural and non-structural practices	Add development related BMPs to PK/FieldDoc so that as land use data sets are updated, there are accompanying BMPs	Municipal engineers, Chesapeake Conservancy, Central Keystone Council of Governments (CKCOG), Susquehanna Economic Development Association – Council of Governments (SEDA-COG)	Urban/suburban landscape	2022	Currently municipalities are not collecting BMP data because it is not required in non-Municipal Separate Storm Sewer System (MS4) communities. Must incentivize communities to report, no existing system in place.	Reporting platform	FieldDoc	N/A	N/A	Training 5 – Student Internships to Support CAP Implementation 1 – municipal planner	DEP Bucknell Student or local student attending nearby university etc. UCPC, CKCOG, SEDA-COG Municipality, etc.	N/A \$50,000 per year \$130,000 per year	DEP TBD DEP

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2.4*	<p>Implement a documentation program for commercial and homeowner nutrient applications in developed lands</p> <p>Support current legislation for fertilizer bill.</p>	<p>Support fertilizer legislation – where legislation requires reporting, be the data clearinghouse</p> <p>Legislation will support the implementation of Urban Nutrient Management – 2,000 acres</p>	PSU Extension	Countywide	TBD	<p>Education of responsible parties, receiving timely information, training on reporting system, will need direction from State on what’s expected and any reporting system that’s developed.</p> <p>Counties aren’t equipped with technology or field experience to manage this initiative Fertilizer Legislation has failed to pass congress in the last two years.</p>	TBD based on fertilizer legislation if passed	TBD based on fertilizer legislation if passed	TBD based on fertilizer legislation if passed	TBD based on fertilizer legislation if passed	1 – FTE Clean Water Coordinator for UCPC	UCPC	<p>\$130,000 per year</p> <p>Urban Nutrient Management \$10 per acre → \$20,000</p>	<p>DEP</p> <p>DEP/PDA</p>

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2.5*	Improve Agricultural BMP reporting utilizing PracticeKeeper, Capital RC&D Transect Survey, PSU Survey, Manure Transport Reporting and Remote Sensing	<p>Increase reporting of agriculture plans into PracticeKeeper</p> <p>Work with Capital RC&D to improve current transect survey routes to be more inclusive</p> <p>Work with PSU to produce better response rate to the PSU survey for Union County</p> <p>Work with PDA/DEP to improve manure reporting</p>	DEP, UCCD, NRCS, PDA, NRCS, Union County Farm Bureau, Capital RC&D, Chesapeake Conservancy, PSU Survey, Manure Brokers	Countywide	2022-2025	<p>Private sector ag planners do not have access to PracticeKeeper. Ag planners do not have time to report into PK.</p> <p>Current Capital RC&D routes are not all inclusive.</p> <p>Current response rates are low and miss a large demographic of Union County farmers.</p> <p>Manure brokers are not required to report data annually. Data is not all inclusive.</p>					5 – Summer interns for reporting and verification	Local University Student or local student attending nearby university etc.	\$50,000 – paid internships	DEP/PDA/SCC
2.6*	Standardized Reporting for Dairy Precision Feeding	Counties would like to utilize the dairy precision feeding BMP. However, current reporting guidelines do not allow for clear reporting standards on feed reduction amounts, how to report, and who is qualified to report.	Chesapeake Bay Program, Penn State Extension, Dairy co-ops	Countywide	2022	It is recommended that milk urea nitrogen (MUN) be an acceptable standard for reporting dairy precision feeding. Guidelines need to be posted on acceptable MUN rates and work with dairy integrators to receive MUN data to report to DEP.	N/A	N/A	N/A	N/A	Reporting protocol	Chesapeake Bay Program, Penn State Extension, Dairy co-ops	N/A	N/A

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Priority Initiative 3: Achieve New Pollutant Reductions														
3.1	Implement Union County Greenway Plan	<p>Protect 250 miles of riparian buffers using easements</p> <p>Install 200 acres of riparian buffers along the Susquehanna River</p> <p>Protect 50 acres of flood plain next to Koons Easement in Mifflinburg</p> <p>Permanently protect 1.5 miles of riverfront land in Great Stream Commons</p> <p>Make strategic additions to the state forest and other public lands</p>	UCPC, UCCD, Buffalo Creek Watershed Alliance, Land Trusts	Countywide	2021-2025	<p>Gaining landowner interest, design/permit/construction schedules, dedicated funding to support BMP implementation.</p> <p>Lack of technical assistance and engineering staff to support implementation.</p> <p>Lack of technical assistance to implement the plan.</p> <p>Lack of adequate funding to implement the plan.</p>					1 – FTE Clean Water Coordinator for UCPC	UCPC	<p>\$130,000 per year</p> <p>\$2,000 per acre of buffer conserved through easement → Total \$125K</p> <p>For buffer implementation see initiative 3.8</p> <p>\$2,000 per acre flood plain conserved through easement → Total \$100K</p>	<p>DEP</p> <p>TBD</p> <p>TBD</p>

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3.2	Implementation of the Buffalo Creek Watershed 319 Plan	<p>Conduct farm visits, windshield surveys, GIS Studies.</p> <p>Utilize Precision Conservation assessments to target strategic farm locations.</p> <p>2016 to present – market program to landowners in impaired segments.</p> <p>Aim for 3 farms per year for implementation</p>	Bucknell, UCCD, other partners to be identified	<p>Buffalo Creek Watershed</p> <p>Prioritizing Buffalo Creek mainstream, Beaver Run, Muddy Run/Coal Run, Little Buffalo, Rapid Run, Spruce Run, Panther Run, Black Run, Stony Run, Conley Run</p>	2021-2025	<p>Funding, landowner interest in BMPs, implementation partner coordination</p> <p>Reverification of existing farm BMPs</p>					<p>Design, permit, construction oversight</p> <p>1 – New Environmental Specialist</p>	<p>Private sector, US FWS, volunteers, UCCD, Bucknell</p> <p>UCCD</p>	<p>\$500K per farm at \$1.5M per year → \$7.5M over 5 years</p> <p>\$75,000</p>	<p>EPA 319 Funds, PADEP, NRCS, CBF, CREP, NFWF</p> <p>EPA 319 Grant</p>
3.3	Accelerated Implementation of Rapid Delisting Catchment Strategy through the Precision Conservation Partnership	<p>Have identified four priority catchments.</p> <p>Looking to identify 3-6 parcels per priority catchment</p> <p>Turtle Creek is priority number 1 with six catchments already identified for outreach</p>	Chesapeake Conservancy, UCCD and Precision Conservation Partnership Stakeholders	Turtle Creek Headwaters, Turtle Creek South (Winfield Creek), Conley Run, and Cold Run Watersheds	2022-2025	<p>Gaining landowner interest, design/permit/construction schedules, dedicated funding to support BMP implementation, Lack of technical assistance and engineering staff to support implementation.</p> <p>Can only work with 1-3 parcel owners per year based on current staffing.</p>	<p>Program management and GIS</p> <p>Landowner outreach</p>	Chesapeake Conservancy	Partnership stakeholders		<p>3 – additional FTE municipal/environmental planners</p>	Chesapeake Conservancy, CBF, etc.	<p>\$390,000 per year</p> <p>\$100,000 dollars to complete rapid delisting program management per year → total cost \$500,000</p> <p>Other funding identified in below initiatives</p>	<p>DEP/NRCS/SCC/PDA/DCNR/NFWF/Growing Greener/ EPA</p> <p>EPA/DEP</p>

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3.4*	Help farmers and operators comply with state and federal requirements: Conservation and Nutrient Management Plans	<p>Soil and Water Quality Conservation Plans (AG E&S) 10,000 new acres</p> <p>Nutrient Management (Manure Management) 10,500 new acres of Core N and 13,000 new acres of Core P</p> <p>Work with ACT 38 operators (47), Preserved Farms (91), and certified organics to document plans already required</p> <p>Implementation challenges (continued): State agencies must work with integrators to ensure they are requiring compliance by farmers. Some integrators require compliance, but not all, great way to communicate with farmers as well.</p>	4R Alliance, UCCD, Union County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits, integrators (Bell and Evans, Country View, Pilgrims Pride, Empire Kosher, BJE Land O'Lakes, Dairy Farmers of America, Maryland and Virginia Milk Producers Cooperative, BJE Poultry, Chick to Chicken, Tyson, Purdue, Eggs for Vaccines, Smithfield Hatfield, Swift) ACT 38 farmers	Countywide Ag Land	2022-2025	<p>Lack of DEP inspections.</p> <p>Reporting and verification of AG Plans, NRCS plans expire and do not get reverified, private plans are never entered.</p> <p>Lack of Technical assistance to support agriculture planning and implementation, one on one farm outreach is best way to capture existing plans.</p> <p>Act 38 and Preserved Farms not required to enter plans in PK, Recommended to require programs to enter plans into PK.</p>	25 farms per year inspected	UCCD	0.5 FTEs per year	DEP Chesapeake Bay Inspection program	6 – additional Ag Planners to work with farmers	<p>District/NRCS/Private Sector Farm Visits</p> <p>Conservation Plans</p> <p>Core N and Core P</p>	<p>\$780,000 per year</p> <p>\$15 per acre for a total cost of \$150,000</p> <p>\$15 per acre for a total cost of \$195,000</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/SCC/PDA/NRCS</p> <p>DEP/SCC/PDA/NRCS</p>

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3.5	Advanced Nutrient Management (4R) Practice Education and Implementation	Transition manure management plans (MMP) to nutrient management plans and incentivize implementation Increase existing 4R practice (N Rate by 3,450 acres, N Timing by 7,200 acres and N Placement by 4,300 acres)	4R Alliance, UCCD, Union County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits, PA Game Commission	Countywide Ag Land	2022-2025	<p>Landowner interest, BMP verification (annual)</p> <p>Lack of Technical assistance to support agriculture planning and implementation</p> <p>Additional funding to support soil testing. Soil testing is key to meeting the recommendations of supplemental BMPs.</p> <p>Machine dependent for most farming operations</p> <p>Cost of fertilizer is self-regulating farmers to use less fertilizer; therefore, lower rates are applied.</p> <p>Explore the idea of increasing PSNT or Chlorophyll testing to district program participants.</p>	<p>Educational support</p> <p>25 farms per year inspected</p> <p>Manure Spreader equipment</p>	<p>Bay Tech</p> <p>UCCD</p> <p>UCCD</p>	<p>\$32,500 per year</p> <p>0.5 FTEs</p>	<p>CBO Inspection Program</p> <p>Chesapeake Bay Inspection Program</p>	<p>6 – additional Ag Planners to work with farmers to meet 4R standards</p>	<p>District/NRCS/Private Sector Farm Visits</p>	<p>\$780,000 per year</p> <p>\$10 per acre of advanced nutrient management planning per type → total cost for all is \$149,500</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/PDA/SCC/NRCS</p>

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3.6*	Implement Practice to improve soil health and sustainability (Tillage Management and Cover Crops)	Determine feasibility of having a county/state cost share program to enhance adoption of the annual practice Implement tillage management and cover crops on an annual rate of 30,300 acres High Residue, 3,600 acres Conservation Tillage, 1,800 acres Low Residue, 900 acres of cover crops and 30,200 acres of cover crops with fall nutrients	UCCD, Union County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits, PA Game Commission	Countywide Ag Land	2022 – investigation 2023 – next steps	Capacity to manage the program, landowner interest Lack of technical assistance and farm planners to work with farmers to transition to High Residue Tillage Current verification methods do not accurately capture implemented amounts – work with Capital RC&D to improve Transect Survey Routes Farmers are harvesting cover crops for forage, need accurate efficiency crediting for commodity cover crops Existing Cover Crop Programs have strict plant by date that does not work with changing weather patterns and wetter years	Transect survey Landowner education Existing No-Till farm equipment for Rent	Capital RC&D 1 UCCD staff person UCCD			6 – additional Ag Planners to transition farmers to high residue County UCCD – staff to administer the program Capital RC&D staff to complete Transect Survey	District/NRCS/Private Sector Farm Visits Cover Crop Incentive Program Capital RC&D	\$780,000 per year \$90 per acre traditional per year → \$81K for a 5-year total of \$405K (incentive payment, administration , Capital RC&D reporting) \$50 per acre fall nutrients per year → \$1.5M for 5-year total of \$7.55M \$50,000 for improvements to Capital RC&D Transect Survey	DEP/NRCS/SCC/PDA PDA, SCC, Growing Greener, Pennsylvania Association of Conservation Districts (PACD) DEP

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3.7	Implement more pasture management BMPs	<p>Prescribed grazing – 350 acres</p> <p>Forest buffers on fenced pasture corridor – 75 acres</p> <p>Grass buffers on fenced pasture corridor – 26 acres</p>	UCCD, NRCS, Private Ag Consultants, Chesapeake Bay Foundation (CBF), Chesapeake Conservancy	Countywide ag lands – landowners who raise horses, dairy, beef and other pasture grazing animals	2025	<p>Landowner education, BMP funding for non-buffer work, plan updates, data gathering.</p> <p>Lack of Technical assistance to support agriculture planning and implementation.</p> <p>Old NRCS plans need to be updated to comply with prescribed grazing definition – difficult to get landowner buy-in – fund alternative watering and fencing; most pastures are streamside.</p> <p>Increasing construction costs are resulting in cancelled NRCS contracts.</p>					<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>3 – additional FTE environmental technician</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Chesapeake Conservancy, CBF, Clearwater Conservancy, etc.</p>	<p>\$780,000 per year</p> <p>\$390,000 per year</p> <p>Prescribed grazing \$540 per acre → \$189K total</p> <p>FB Buffer W/ Exclusion \$10,500 per acre → \$787,500 total</p> <p>GB Buffer W/ Exclusion \$2,750 per acre → \$71,500 total</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA/DCNR/NFWF/Growing Greener/ EPA</p> <p>DEP/NRCS/SCC/PDA/DCNR/NFWF/Growing Greener/ EPA</p> <p>DEP/NRCS/SCC/PDA/DCNR/NFWF/Growing Greener/ EPA</p>

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3.8*	Riparian buffer and re-forestation BMPs	<p>500 riparian forest buffer acres, (275) acres lost since 2017 need reverified</p> <p>400 riparian grass buffer acres, (25) acres lost since 2017 need reverified</p> <p>15 acres – Agriculture Tree Planting</p> <p>60 acres – urban forest buffer</p> <p>2 acres – urban tree canopy</p> <p>100 acres – urban forest planting</p>	CBF, Buffalo Creek Watershed Alliance, MLC, Chesapeake Conservancy, NRCS, UCCD, PA Game Commission, CBF	Countywide	<p>2022 – line up landowners</p> <p>2023-2025 – implementation</p>	<p>Landowner partnerships, landowner education, volunteer acceptance of buffer plantings, buffer maintenance guide for farmers, routine site visits to confirm buffers are thriving, invasive species removal during establishment.</p> <p>Flash grazing must be allowed with buffer installation.</p> <p>Funding program must include a 5-10-year maintenance program to establish buffers along with incentive program \$4K minimum per acre payment.</p> <p>Must revise ordinances to not cut down buffers because of “messy” appearance.</p>	<p>Materials</p> <p>Mapping</p>	<p>UCCD (in-kind, annual tree sale efforts), CBF</p> <p>Chesapeake Conservancy</p>	<p>Budget available to be determined</p>	<p>CBF, NFWF, NFWS, NRCS - CREP</p>	<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>3 – additional FTE environmental technician</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Chesapeake Conservancy, CBF, Clearwater Conservancy, etc.</p>	<p>\$780,000 per year</p> <p>\$390,000 per year</p> <p>Forest Buffer \$10,000 per acre → 2.85M</p> <p>Grass Buffer \$2,500 per acre → \$937,500</p> <p>Tree/Forest Planting \$10,000 per acre → \$1.161M</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA/DCNR</p> <p>DCNR, NFWF, PACD, TreeVitalize, DEP, Coldwater Heritage Partnership Implementation Grants, Landscape Scale Restoration (LSR) Grant Program – US Forest Service, Pennsylvania Habitat Stewardship Program, Alliance for the Bay, CBF, Chesapeake Conservancy</p>

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3.9	Wetland restoration implementation on marginal production ag land	<p>65 acres of Wetland Restoration</p> <p>25 Acres of Wetland Enhancement and Rehabilitation</p> <p>Identify 1 large property owner from University of Vermont restorable wetland layer to help identify where to implement a large project</p>	Chesapeake Conservancy, UCCD, NRCS, Buffalo Creek Watershed Alliance, MLC, PA Game Commission	Countywide	2022 – 2025	<p>Willing landowner; appropriate siting, design, and construction for successful restoration result.</p> <p>Lack of technical assistance for landowner outreach and agriculture planning to identify potential site locations.</p> <p>Lead time it takes to secure projects can take years.</p>	Landowner outreach	1 UCCD staff person			<p>3 – additional FTE environmental technician</p> <p>2 – stream biologist</p>	Chesapeake Conservancy, CBF, Clearwater Conservancy, etc. PAFBC, USGS, UCCD, etc.	<p>\$390,000 per year</p> <p>\$280,000</p> <p>Wetland Restoration \$30,000 per acre → \$2.7M</p>	<p>DEP/DCNR</p> <p>DEP/DCNR/PA FBC/USGS</p> <p>DEP/DCNR/USDA Conservation Reserve Program (CRP) or NRCS Wetlands Reserve Program (WRP)</p>

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3.10	Stream Restoration (Urban and Agriculture)	<p>10,400 Linear feet (2 miles) Urban Stream Restoration</p> <p>15,000 Linear feet (~3 mile) Agriculture Stream Restoration</p>	CBF, Chesapeake Conservancy, TU National, NFWS, Buffalo Creek Watershed Alliance, MLC, PFBC Stream Restoration Team, NRCS	Rapid delisting areas are the top priority, and Countywide	2022 – 2025	<p>Design/permit/construction cycle seems to work in two-year increments, there is an assumption that eroded/degraded streams exist based upon 403(d) listing – should that not be the case in the field, adjust quantitative goal down and ensure buffers are in place.</p> <p>Lack of funding to cover engineering design.</p>	GIS	Chesapeake Conservancy and partners			Design, permit, construction services	Private sector, USFWS, TU	Assume \$900/LF - \$9.36M – Urban	Growing Greener, NFWS, DEP, DCNR, PAFBC, USGS
							Design/GP-1 permit	Trout Unlimited, Municipalities			2 – Municipal Engineers	Municipalities, UCPC, CKCOG, SEDA-COG	\$280,000 per year	DEP/NRCS/SCC/PDA
											3 – FTE Design, Permit construction Services	Private Sector/ UCCD	\$420,000	DEP/DCNR
											2 – stream biologist	UCCD/ Environmental Group	\$280,000	DEP/DCNR/PA FBC/USGS

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3.11	Implement more barnyard runoff control/loafing lot management	32 acres of barnyard runoff controls. (18 acres need reverified)	UCCD, Chesapeake Conservancy, NRCS, Union County Farm Bureau, NRCS	Countywide Farms	2022-2025	Lack of Technical assistance to support agriculture planning and implementation Lack of funding to cover engineering design Increasing construction costs are cancelling NRCS contracts					6 – additional Ag Planners to provide technical assistance and ag planning 3 – FTE Design, Engineer. Permit 3 – FTE inspector construction Services	District/NRCS/Private Sector Farm Visits Private Sector/UCCD Private Sector/UCCD	\$780,000 per year \$420,000 per year \$315,000 per year	DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA

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3.12	Animal Waste Storage Systems	20,000 Animal Units of Animal Waste Management Systems (10,000 new AUs of livestock & 10,000 new AUs of poultry)	UCCD, SCC, CEG Program, County Farm Bureau, NRCS, Private Farm Visits, Ag Land Preservation, Chesapeake Conservancy, Integrators	Livestock & Poultry farms	2022-2025	Time to get through planning, design, and construction; outreach to smaller farms that likely need the assistance; match cash value for small farms; readiness to plan/implement projects when outreach efforts yield willing landowners. Lack of funding to cover engineering design.	Project implementation – 5 farms per year	NRCS, UCCD, Private Ag Sector			6 – additional Ag Planners to provide technical assistance and ag planning 3 – FTE Design, Engineer. Permit 3 – FTE inspector construction services	District/NRCS/Private Sector Farm Visits Private Sector/UCCD Private Sector/UCCD	\$780,000 per year \$420,000 per year \$315,000 per year Animal waste management system \$175,000 per project, assume 100 AUs per project \$35M in total	DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA DEP/NRCS/SCC/PDA

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3.13*	Urban SWM Non-Regulated Communities	Document existing ordinances and BMPs associated with implementation at local municipal level Catalogue existing BMPs that fit into this category and newly built ones Stormwater Treatment Performance Standard – 80 acres treated	UCPC, UCCD, developing municipalities, CKCOG	Countywide	Ongoing 2022-2025	Coordination/training for municipal staff, FieldDoc batch upload opportunity, non-MS4 engagement (what’s in it for them?), difficulty obtaining past information (MS4s typically have databases from 2003-present).	Reporting platform	FieldDoc			5 – Summer interns for reporting and verification 2 – Municipal Engineers 1 – municipal planner	Bucknell Student or local student attending nearby university etc. Municipalities, UCPC, CKCOG, SEDA-COG UCPC, CKCOG, SEDA-COG, Municipality, etc.	\$50,000 – paid internships \$280,000 per year \$130,000 per year Stormwater Treatment \$1,815 → \$145,200	NRCS/PDA/DEP TBD DEP DEP
3.14	Conservation Landscaping/Turf to Meadow Conversion	Promote new program and enable one large tract landowners’ participation 80 new acres of Conservation Landscaping	UCPC, DCNR, UCCD, Chesapeake Conservancy, Buffalo Creek Watershed Alliance, MLC	Developed areas in County municipalities	2022 - 2025	Landowner education and acceptance Existing mowing ordinances and weed ordinances can be a challenge to implementation	Planting plan assistance	Alliance for the Bay (in-kind)			1 – FTE Municipal Planner 3 – additional FTE environmental technician	UCPC Chesapeake Conservancy, CBF, Clearwater Conservancy, etc.	\$130,000 per year \$130,000 per year \$2,500 per acre meadow → \$200,000 budget for all	DEP/DCNR DEP/DCNR/SCC/PDA/NRCS DCNR

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3.15*	Continue dirt and gravel road program	21 miles overall restored through past projects Continue to implement the program annually	UCCD, Trout Unlimited	Countywide	2025	Continue D&G Road program funding Expand Dirt and Gravel Road Program to include farm lanes	Education, technical assistance, project oversight 1 – technical staff administering the program	UCCD, Center for Dirt & Gravel Road Studies, SCC	\$1.4 Million since 1998	State Conservation Commission	1 – FTE Clean Water Coordinator for UCCD	UCCD	\$130,000 per year Dirt and Gravel Roads \$10 per foot → TBD	DEP/PDA/ SCC SCC
3.16*	Work with PennDOT and local municipalities to improve roadside ditch and embankment maintenance programs	Educate local municipal leaders and work with PennDOT to address state owned roads on the importance of maintaining healthy vegetation along roadside ditches and embankments to prevent erosion and increase nutrient uptake and reduce Invasive species.	Municipalities, DEP and PennDOT	Countywide	2023	PennDOT's and Municipal willingness to cut back on mowing programs. DEP Chesapeake Bay Program will need to assist in the education of PennDOT.					1 – FTE Clean Water Coordinator for UCPC 1 – FTE Clean Water Coordinator for UCCD	UCPC UCCD	\$130,000 per year \$130,000 per year	DEP DEP/PDA/ SCC

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3.17*	Work with PA Game Commission to establish BMPs and conservation easements within Game Lands. Require farmland lessees to implement Comprehensive Nutrient Management Plan (CNMP) and Ag E&S plans	Approximately 3,200 acres of state Game Lands are managed in Union County.	PA Game Commission, UCCD, MLC	PA Game Lands 193, 201, 252 and 317	2025	Coordination with Game commission often challenging, requiring leases to implement plans when not currently required by lease contract.					1 – FTE Clean Water Coordinator for UCCD	UCCD	\$130,000 per year	DEP/PDA/ SCC
3.18	Private Funding & Grant Administration	Identify some private funding sources that may be able to supplement public funding sources/existing sources utilized for stakeholders, continue to work with partners to facilitate additional funding.	Existing project implementer networks	Countywide	2022-2025	Need to expand network, educational aspect of less common funders, logistics of utilizing unproven funding sources (or lesser known). Grant administration is a challenge due to limited staff and time-consuming nature of grant reporting and administration.	Financial services	HRG (CAP coordinator)			1 – FTE UCCD Grant Manager	UCCD	\$130,000	TBD
										1 – FTE UCPC Grant Manager	UCPC	\$130,000	TBD	
										2 – staff accountants	UCPC & UCCD	\$140,000 per year	TBD	

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Priority Initiative 4: Research, Education, and Training														
4.1*	<p>Incorporate existing water quality monitoring data into Chesapeake Data Explorer/ Chesapeake Monitoring Cooperative database</p> <p>&</p> <p>Initiate additional water quality monitoring sites that promote long-term trend evaluation at key locations in Union County</p>	<p>Location identification, financial and volunteer budget analysis, and initial landowner communication by end of 2021</p> <p>CAST-21 acknowledgment of our data</p> <p>Map existing monitoring locations</p> <p>Expand monitoring based on Corridors of Opportunity (COO) area monitoring gaps</p> <p>Buffalo Creek Watershed Association shared 10+ years of data with ALLARM</p> <p>Work with Bucknell to establish monitoring in Turtle Creek Watershed</p>	<p>ALLARM, Keystone Water Resources Center, Bucknell, Buffalo Creek Watershed Association, USGS, Susquehanna University</p>	Countywide	2022	<p>Land access, expanded volunteer need, equipment/materials budget, Consistent data collection, Quality Assurance Quality Control (QAQC) continuation.</p> <p>Data precision, QAQC, opportunity to educate landowners about local stream health and what they can do about it.</p> <p>Ensure USGS/DEP/SU continue monitoring in Turtle Creek.</p>	<p>\$30,000 intern salary budget</p> <p>QAQC</p>	<p>Bucknell</p> <p>Bucknell /ALLARM</p>			<p>Volunteers for Water quality monitoring</p> <p>New monitoring equipment</p> <p>3 – additional FTE environmental technician</p> <p>2 – stream biologist</p>	<p>Local environmental groups</p> <p>UCCD</p> <p>Chesapeake Conservancy, CBF, Clearwater Conservancy, etc.</p> <p>UCCD/ Environmental Group</p>	<p>N/A</p> <p>\$10,000</p> <p>\$130,000 per year</p> <p>\$280,000 per year</p>	<p>TBD</p> <p>ALLARM</p> <p>DEP/NRCS/DCNR/PDA</p> <p>DEP/DCNR/PAFBC/USGS</p>

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
4.2	Supporting watershed associations for short-term success and long-term sustainability aligning with their goals	Develop new or reestablish existing watershed associations to support with CAP implementation. Watershed organizations can support with outreach, engagement, new project identification and implementation. Enhance the capacity of local watershed associations for short-term success and long-term sustainability.	Buffalo Creek Watershed Alliance, MLC, Trout Unlimited, National Trout Unlimited	Countywide	Ongoing	Continued coordination among a lot of active groups, keep project leads list active so that watershed approach to grant applications can be developed well in advance of submittal deadlines.	Social media shares Project development support	County – department to be determined CAP Coordinator (HRG)			1 – FTE Clean Water Coordinator for UCPC 1 – FTE Clean Water Coordinator for UCCD	UCPC UCCD	\$130,000 per year \$130,000 per year \$5000 per organization to produce promotional materials (hats, shirts, stickers) for members → \$15,000 total per year	DEP DEP/PDA/ SCC Budget to be included in project-related grant applications

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template

Each county-based local area will use this template to identify:

1. Inputs – These are both existing and needed resources, public and private, to implement the identified priority initiative. These include both technical and financial resources, such as personnel, supplies, equipment, and funding.
2. Process – what is each partner able to do where and by when. These are the action items listed under each priority initiative.
3. Outputs and outcomes – both short and long-term. These are the priority initiatives identified by each county. The performance targets are the intermediate indicators that will measure progress.
4. Implementation challenges – any potential issues or roadblocks to implementation that could impede outputs and outcomes.

Asterisk: Place an asterisk next to the action number(s) for action items that appear in both the County Planning and Progress Template and the Programmatic Recommendations Template.

For each Priority Initiative or Program Element: Use the fields, as defined below, to identify the inputs and the process that will be followed to achieve each priority initiative. This is the “who, what, where, when and how” of the plan:

Description = What. This may include programs that address prevention, education, or as specific as planned BMP installations that will address the Priority Initiative. A programmatic or policy effort will require some ability to quantify the anticipated benefits which will allow calculation of the associated nutrient reductions.

Performance Target = How. This is an extension of the Description above. The Performance Target details the unique BMPs that will result from implementation of the Priority Initiative and serves as a benchmark to track progress in addressing the Priority Initiative. Performance Targets may be spread across multiple Responsible Parties, Geographies, and Timelines based on the specifics of the Initiative.

Responsible Party(ies) = Who. This is/are the key partner(s) who will implement the action items through outreach, assistance or funding, and who will be responsible for delivering the identified programs or practices.

Geographic Location = Where. This field identifies the geographic range of the planned implementation. This could extend to the entire county or down to a small watershed, based on the scale of the Priority Initiative, range of the Responsible Party, or planned funding/resources. *NOTE: Resource limitations alone should not limit potential implementation as additional funding may become available in the future.*

Expected Timeline = When. Provide the expected completion date for the planned activity. This should be a reasonable expectation, based on knowledge and experience, that will aid in tracking progress toward addressing the Priority Initiative.

Resources Available: Technical & Funding = This field will note technical and financial resources secured/available to implement the program (Description). This is the total of the resources identified in the County Resources Inventory Template below allocated to the priority initiative as a whole; or, if available, to each action.

Resources Needed: Technical & Funding = This field will note technical and financial resources needed/outstanding to implement the program (Description). This is the total of the additional resources projected and identified as needed in the County Resources Inventory Template below allocated to the priority initiative as a whole; or, if possible, to each action.

Potential Implementation Challenges/Issues = This field will note challenges and issues that may delay program implementation (Description).

GLOSSARY

- ACT 167 Plan** – The Pennsylvania SWM Act of 1978, or Act 167, required that each county must prepare and adopt a watershed SWM plan for each watershed located in the county as designated by DEP, in consultation with the municipalities located within each watershed.
- Ag E&S – Agricultural Erosion and Sedimentation Plan.** Agricultural Erosion and Sedimentation plans document best management practices on crop and pasture fields to mitigate erosion and protect soil health. Any landowner that disturbs the soil (including no tillage) more than 5,000 square feet (~ 1/10 acre) must have a written Agricultural Erosion & Sediment Control Plan according to Pennsylvania State law, Chapter 102.
- BMP – Best Management Practice.** Best management practices describe a type of water pollution control. Using agricultural BMPs can help to prevent or minimize the effects of nonpoint source pollution.
- CAST – Chesapeake Assessment Scenario Tool.** CAST is a web-based nitrogen, phosphorus and sediment load estimator tool that streamlines environmental planning.
- CBF – Chesapeake Bay Foundation.** The Chesapeake Bay Foundation is a non-profit organization devoted to the restoration and protection of the Chesapeake Bay in the United States.
- UCCD – Union County Conservation District.** The Union County Conservation District serves as the primary local source of assistance to all individuals and organizations who benefit from the county's natural resources that we collectively strive to sustain and improve.
- UCPC – Union County Planning Commission.** The Union County Planning Commission makes recommendations and decisions to maintain and enhance the high quality of life for all residents, in accordance with the Pennsylvania Municipalities Planning Code, and other laws and regulations of the Commonwealth of Pennsylvania and the County of Union.
- CHMP – County Hazard Mitigation Plan.** The Union County Hazard Mitigation Plan was developed for the purpose of providing a blueprint for reducing property damage and saving lives from the effects of future natural and human-caused disasters in Union County; Qualifying the County for pre-disaster and post-disaster grant funding; Complying with state and federal legislative requirements related to local hazard mitigation planning; Demonstrating a firm local commitment to hazard mitigation principles; and Improving community resiliency following a disaster event.
- CKCOG – Central Keystone Council of Governments.** The Central Keystone Council of Governments is an organization of municipalities pooling resources to more efficiently administer services for residents of local municipalities, thus providing services that would not otherwise be economically practical. They provide inspection and permitting services.
- CNMP – Comprehensive Nutrient Management Plan.** A Comprehensive Nutrient Management Plan is a whole farm, progressive document. It contains records of the current activities on a livestock operation, an evaluation of the existing environmental risks, and proposals to reduce the risk of negative impacts to the environment. The objective is to ensure both farm production and environmental goals (clean water, clean air, and healthy soils) are achieved on the farm.
- COO – of Opportunity.** Analysis completed comparing the County Comprehensive Plan goals to potential for co-benefits for local water quality. Since there are elevated nitrogen levels throughout Union County, the analysis helped focus the planning team on particular HUC12 watersheds for the most global benefit. Once the HUC12 watersheds are identified, the next step is to identify regulatory compliant (or in progress) farms, their neighbors, and preserved farms for targeted outreach and specific BMP installation options.
- DCNR – Department of Conservation and Natural Resources.** DCNR is responsible for maintaining and preserving state parks and forests; providing information on the state's natural resources; and working with communities to benefit local recreation and natural areas.
- DEP – Department of Environmental Protection.** The Department of Environmental Protection's mission is to protect Pennsylvania's air, land, and water from pollution and to provide for the health and safety of its citizens through a cleaner environment.
- EPA – Environmental Protection Agency.** The Environmental Protection Agency is a United States federal government agency whose mission is to protect human and environmental health.
- FEMA – Federal Emergency Management Agency.** FEMA supports citizens and emergency personnel to build, sustain, and improve the nation's capability to prepare for, protect against, respond to, recover from, and mitigate all hazards.
- FieldDoc – FieldDoc** is a protected, online database that uses geographic information to generate baseline nutrient and sediment loading information and calculate load reductions for planned BMPs.
- GIS – Geographic Information System.** GIS is a computer system that analyzes and displays geographically referenced information.
- HUC12 – Watershed.** A local sub-watershed level delineation that captures tributary systems draining into the larger Chesapeake Bay watershed.
- MLC – Merrill Linn Conservancy.** Local non-profit conservation organization serving the Central Susquehanna Valley.
- MMP – Manure Management Plan.** Manure management plans document how a landowner plans to capture, store, treat, and utilize animal manures in an environmentally sustainable manner. Every landowner that has livestock or spreads manure on their property must have a written Manure Management Plan according to Pennsylvania State law, Chapter 91.
- MS4 – Municipal Separate Storm Sewer System.** A separate storm sewer system is a collection of structures, including retention basins, ditches, roadside inlets, and underground pipes, designed to gather stormwater from built-up areas and discharge it, without treatment, into local streams and rivers.
- NFWF – National Fish and Wildlife Foundation.** NFWF works towards sustaining, restoring, and enhancing the nation's fish, wildlife, plants and habitats for current and future generations through innovative public and private partnerships, and by investing financial resources and intellectual capital into science-based programs designed to address conservation priorities and achieve measurable outcomes.
- NMP – Act 38 Nutrient Management Plan.** Nutrient management plans are required under Pennsylvania State law Act 38 which applies to operations with more than 2,000 pounds live animal weight per acre of pasture and crop fields.
- NRCS – Natural Resource Conservation Service.** NRCS's programs help farmers reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters.
- PACD – Pennsylvania Association of Conservation Districts.** Provides support for Pennsylvania's conservation districts.
- PEMA – Pennsylvania Emergency Management Agency.** PEMA is tasked with the response to, preparedness for, recovery from, and the mitigation or prevention of disasters and other emergencies.
- PK – PracticeKeeper.** PracticeKeeper is a protected, online database Used for reporting conservation plans, BMPs, E&S plans, nutrient management plans, watershed plans, complaints, DEP inspection reports and data exports to DEP.
- QAPP – Quality Assurance Project Plan.** A QA Project Plan documents the technical and quality aspects of a project, including project management, implementation, and assessment. It specifies responsibilities, monitoring objectives, sampling design, sample collection methods, analytical methods, quality control, data management and data validation activities. It is required by EPA prior to any monitoring or data collection.
- QAQC – Quality Assurance Quality Control.** QA/QC is the combination of quality assurance, the process or set of processes used to measure and assure the quality of a product, and quality control, the process of ensuring products and services meet consumer expectations.
- 4R Nutrient Stewardship – Precision Conservation.** Right fertilizer source at the Right rate, at the Right time and in the Right place for optimal crop management.

SEDA-COG – SEDA – Council of Governments. SEDA -Council of Governments is a public organization whose focus is related to economic development, community life, and the environment in Central Pennsylvania.

SRBC – Susquehanna River Basin Commission. SRBC’s mission is to enhance public welfare through comprehensive planning, water supply allocation, and management of the water resources of the Susquehanna River Basin.

SWM – Stormwater Management. Stormwater management is the effort to reduce runoff of rainwater or melted snow into streets, lawns and other sites and the improvement of water quality.

SWP – Source Water Protection. Source Water Protection is a planning process conducted by local water utilities, as well as regional or national government agencies, to protect drinking water sources from overuse and contamination.

USGS – United States Geological Survey. USGS provides science about the natural hazards that threaten lives and livelihoods; the water, energy, minerals, and other natural resources we rely on; the health of our ecosystems and environment; and the impacts of climate and land-use change.

WIP – Watershed Implementation Plan. Watershed Implementation Plans (WIPs) are the roadmap for how the Bay jurisdictions (including Pennsylvania), in partnership with federal and local governments, will achieve the Chesapeake Bay TMDL allocations.

WWTP – Wastewater Treatment Plant. Wastewater treatment plants process contaminants from wastewater or sewage and convert it into an effluent that can be returned to the water cycle with acceptable impact on the environment or reused for various purposes.

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
Programmatic Initiative: Recommendations for State Programmatic Changes									
1.1	Retain funding and technical support for the Chesapeake Bay Office to spearhead implementation of the County-recommended programmatic changes and support County-led initiatives.	Continued operation of Chesapeake Bay Office and DEP Regional Support Teams through Phase 3 WIP Implementation	2020-2025	Costs associated with staffing, meeting, planning, and supporting implementation efforts. Convincing regulatory/political agencies of the need/benefit for sound integrated planning/implementation so that an appropriate budget is allocated.	Expand the CBO team to be more interdisciplinary, direct involvement by Department of Agriculture, so that messaging is more effective with the agricultural community Support for non-governmental organizations who are already at capacity and need support on expansion.	More dedicated staff to assist coordination and implementation of projects and funding opportunities		At least 6 dedicated staff at DEP and 1 at each County. Participation by other State departments	
1.2	Fund Regional Technical Assistance Positions to work with a group of counties	Fund “circuit rider” technical assistance, engineer positions to support CAP implementation goals	2022-2024	Lack of technical assistance is a challenge and funding positions in every county will be a challenge with limited space and funding. Look to fund circuit rider positions to support large county groupings.	Fund “Circuit Riders” for engineering, technical assistance and other implementation support positions. Partner with state universities with ag engineering, surveying, CAD and or GIS departments to develop work force and connect prospective employees with public and private employment opportunities	Multi-year regional Engineering Contract		\$5,000,000	NFWF INSR
Department of Environmental Protection									
1.4	Act 167	DEP increase enforcement of Act 167. All municipal SWM Ordinances consistent with County Stormwater Management Plan and being enforced. DEP provide additional funding to support the implementation of Act 167 plans along with new funding to develop Act 167 plans.	2024	DEP staffing; Act 167 consistent criteria definition.; Act 167 funding is currently inadequate and needs to be increased to support funding for plan development and implementation.	Act 167 plan development cost could be greatly reduced if existing Act 167 Plans & Flow Chart Tool were used as a model.	4 Act 167 enforcement staff - plan development 2 Act 167 enforcement staff - approved plans	DEP	\$5,000,000	ACT 167 Block Grant Fund to support new and implementation

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
1.5	Model My Watershed (MMW) & MS4 Program Permit Based Loads	Work with Model My Watershed to ensure reduction values and efficiencies are similar or predictable between MMW, FieldDoc and CAST. Consider using Model My Watershed to ensure consistency in the 2023 Permit (or future permits) for MS4 Municipalities. Use MMW to assign permit baseloads, reduction requirements, and BMP credits to create consistency statewide. This will begin to make a connection between CAP related goals and MS4s.	2022	Currently results vary between MMW and FieldDoc/CAST. In addition, there is a disconnect between MS4 regulations and CAP goals that can create confusion. To begin aligning goals, systems used by various programs need to align to produce similar and predictable outputs. Current MS4 permit provides municipal level data but requires costly calculations to determine local scale efforts that meet calculated goals. Various DEP/State programs attempt to manage/administer programs at differing scale which isolates these programs into “silos”.	Improve MMW to produce similar outputs to FieldDoc so that CAP projects completed by MS4s result in similar sediment reduction goals, and correlating nitrogen and phosphorus reductions.			\$500,000 for improvement to MMW and FieldDoc	DEP
1.6	MS4 Program Expansion of Designated Implementation Area	Demonstrate measurable success of a pilot project area where MS4-regulated areas and non-regulated areas can benefit from achieving sediment and nutrient goals. Currently the guidelines indicate a 1-mile radius around the U.S. Census urbanized area is the expanded area to work in. Continue to consider proposals from municipalities that are developing creative ways to address Pollutant Reduction Plan implementation, especially on agricultural lands that benefit urban land downstream.	2023-2024	PADEP/EPA technical capacity to develop approach with County partners, a comprehensive understanding of the implications of potentially diverting BMPs to more upstream areas rather than constrained urban areas	Recognition of the value of BMPs located at the source of the pollution rather than attempting to reduce pollution after the discharge occurred, opportunity for collaboration among urban and rural sectors for cost effective solutions. Impairments can be a result of upstream pollution or storm velocities, so the watershed should be considered rather than the arbitrary urbanized area.	Engineering/MS 4 permit requirement coordination 1 FT MS4 Coordinator, 1 PT ag Coordinator	HRG (CAP coordinator) Municipal staff Municipal engineers, consultants		
1.7	Act 38 Program	Update Act 38 Program to require Ag E&S or Conservation Plans to be entered into PracticeKeeper on an annual basis to close reporting timing “gaps” and improve reporting precision. Nutrient management plans are already part of this process.	2022	Additional time for County Conservation District staff to enter plans in PK that they collect through their outreach to farmers.	Require plans be entered into PK to improve reporting. DEP should provide staff hours to assist with Act 38 plan reporting.	200-hour staff hours to support PK Reporting	DEP	See 1.12 for funding needs	

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
1.8	Improve Wellhead Protection Statewide	Pennsylvania develops a more robust statewide recommendation to protect wellheads while incorporating WIP goals where feasible.	2024	Current standards are set by local jurisdictions and can range in effectiveness. There is no dedicated funding for BMP implementation or land acquisition where groundwater protection would benefit.	DEP compiles a GIS application that maps all of the wellhead protection areas across the state. That information is shared with CAP coordinators so that precision agriculture education and outreach, and dedicated funding, can be focused in these areas. Provided dedicated funding for groundwater monitoring to recognize the resulting improvements in nitrogen over following decades.	Additional Staff time, mapping, precision ag education/technical resources, groundwater monitoring equipment and maintenance	DEP		
1.9	DEP Staff Support in development of Source Water Protection Plans where feasible	Work closely with DEP regional staff to develop Source Water Protection Plans where feasible. Recommended to have additional funding available to support the development of Source Water Protection Plans. Recommended to have money for Source Water Protection Plan implementation.	2022	Lack of funding currently available to develop Source Water Protection Plans.	DEP compiles a GIS application that maps all of the wellhead protection areas across the state. That information is shared with CAP coordinators so that precision agriculture education and outreach, and dedicated funding, can be focused in these areas. Provided dedicated funding for groundwater monitoring to recognize the resulting improvements in nitrogen over following decades. Funding available for implementation of Source Water Protection Plans	DEP Staff	DEP Regional Offices	\$5,000,000 to assist with plan development and implementation	DEP
1.10	Nutrient Trading Program	Pennsylvania improve education and outreach of nutrient trading program to include more participants. Look to incentivize new partners willing to participate in the program. Accurately document credits that are traded out of the Chesapeake Bay Watershed to represent reductions for the county trading credits.	2022-2024	Many of the wastewater and non-point source (farms) facilities within the Chesapeake Bay Watershed actively trade credits outside of the Watershed. Make sure to accurately document these trading credits and credit is given to counties trading away credits. More education is needed on the perks of the program.	Work with EPA/water pollution control facilities to document when credits are traded, how much is traded, and how to accurately count those reductions toward CAP goals. Look for ways to incentivize more BMP implementation through the program guidelines including a connection to MS4 and a reduction in stormwater fees for farmers. Work with generators who are selling credits outside the Bay watershed to function as a credit for the WIP goals. Another concept would be to create a tiered system of credits based on geographic location (River basin) where the credits are generated.				

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
1.11	PA One Stop	PA One Stop offers the ability to educate farmers on how to write and develop their own plan. Current PA One Stop classes do not offer all modern farming techniques and practices. Work with PA One Stop to update program to current practices.	2023	PA One Stop developed private plans are not reported in the model. Work with PA One Stop to require those who attend the class and develop a plan report this plan to PA One Stop for reporting in CAST.	Update PA One Stop Class to include current practices and operational standards. Work with PA One Stop to require reporting of privately developed Ag Plans.	Additional PA One Stop Staff to make training improvements	PA One Stop	\$500,000 to provide improved training and make program changes	PDA/DEP
1.12	Capital RC&D	Revise current Capital RC&D cover crop and tillage reporting to be more robust and up to date. Due to current methods, there is a two-year reporting cycle with the Capital RC&D Transect Survey and Model update. There is an expectation that the Capital RC&D transect survey is significantly underrepresenting no-till and cover crops that are reported.	2022	Farmer meetings resulted in a general consensus that more than 60-70% of farmers are no-tilling with a significant portion cover cropping in addition. Numbers reported to CAST significantly underrepresent consensus by the ag community. Numbers submitted by Capital RC&D are either not accepted in their entirety or Capital RC&D needs to produce more robust and realistic numbers.	Work with Capital RC&D and EPA to ensure numbers are not lost in translation. Work with EPA to update numbers on a more timely basis. Overall look to match consensus in the ag community that more than 60-70% of fields are operated under full no-till. State incentive program/FSA crop insurance information could be connected to cover crop implementation on an annual basis. No-till equipment is a capital improvement for producers, so assurance with the producer that they continue to use the equipment on a rotating basis (5-years) should serve to reverify that no-till is being implemented. Research feasibility that aerial photography or other remote sensing options are available to accurately capture cover crop usage.	Additional staff for Capital RC&D	Capital RC&D	\$1,500,000 to complete more robust reporting and begin utilizing aerial remote sensing information	DEP
1.13	Provide internship Program to County Conservation Districts to support with PracticeKeeper data entry	Provide 1-2 interns per county Conservation District for the summer of 2022 to support data entry into PracticeKeeper.	2022	Conservation Districts need enough time to hire and support interns in summer of 2022. Conservation District staff do not have time to train interns. Funding available to support interns.	Recommended that DEP provide a 1–2-week intro training to all Conservation District interns to free up staff time. District employees can then support interns once trained. Must be a paid internship. Year 1 – desktop work – PK data entry, GIS mapping, plan administrative reviews Year 2 – begin field inspections with professional staff, BMP verification field work, entry level plan development	40 interns	PACD/ Conservation Districts	\$400,000	DEP

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
1.14	Establish Pre-application permit meetings with CAP counties on monthly basis	Work with DEP Chesapeake Bay Office and Regional Offices to establish pre-application meetings for Chapter 105 and NPDES permits related to manure storage to ensure projects are permitted in a timely manner	Ongoing	Permit review time can take months to years for some projects, with stream restoration projects taking the longest. We need to ensure projects are permitted quickly to accelerate nutrient reductions and result in predictable construction schedules.	Establish a standing monthly day and time that a region of CAP counties can attend a pre-application meeting.	DEP South Central and North Central Office Staff	DEP		
1.15	Increase funding for Act 537 program to support plan development	Increase funding to the Act 537 programs to support additional plan updates or development	2023	Current lack of funding prevents local governments from developing Act 537 programs, especially for special study areas.	Increase funding to program to support the development of new or updated Act 537 plans.	Additional staff to support the Act 537 program	DEP	\$5,000,000 to support updated plans or new plans	DEP
Funding									
1.16	Relax the Prevailing Wage requirement when private landowners invest their own money in water quality projects between now and 2025	Relax the requirement of prevailing wage from grant programs from now to 2025 when private landowners invest their own money to bring the cost of projects down and increase the willingness of landowners to implement projects.	2022-2025	Increased construction material costs along with required prevailing wage is turning landowners away from implementation, especially while it is expected that landowners have a share of the cost. Stakeholder meetings have recommended that without the requirement of prevailing wage, more landowners would be willing to implement projects because of lowered overall construction costs.	It is recommended to remove the requirement of prevailing wage from grant programs to reduce the overall cost of a project where landowners invest in the project, and for a finite period of time (2025 or the prevailing Chesapeake Bay Agreement timeline). Landowners do not want to complete a project with prevailing wage, because non-cost shared cost on the farmer drastically increases due to wages associated with prevailing wage. More projects would be fundable without prevailing wage. The trigger for the relaxation of the Prevailing Wage requirement should be based upon a percentage of the total cost of the project up to \$10,000 or 10%.				
1.17	Allow Regional Entities to Administer Grant Funding	Change state and federal grant programs to allow award recipient to be outside of county government with a release form signed by county government. This will remove the burden of grant administration from county government. The following funding sources are potential impactors (Chesapeake Bay Block Grant, Growing Greener, NFWF, RCPP)	2022-2025	Current grant programs are primarily designed to support county government. With limited staffing capacity at county government grant administration is becoming a burden and county government cannot take on additional funding due to administration concerns.	Allow regional entities to manage grant programs working very closely with implementation counties. Common organizations can be Tri-County Regional Planning Commission, Southern Allegheny Planning Commission, non-profit organizations, and private entities. These organizations are already established to handle grant administration and remove the burden from recipient county government organizations.				

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
1.18	Expansion of MS4 Grant Funding	Create a new “block grant” fund to solely support MS4 implementation. Currently MS4 municipalities are competing with other priority sectors and participants for MS4 Funding. To support the MS4 community develop a specific pot only eligible to MS4 communities.	2023	Securing funding for pot of money solely for MS4 communities. With increasing usage of local stormwater fees to fund stormwater infrastructure, this makes a great opportunity to create match sources to fund water quality projects and for communities to utilize their fees for infrastructure operation and maintenance.	Recommended to expand environmental stewardship funding to separate pot of money specifically for MS4 communities to fund PRP projects.	Staff support to administer program	DEP	\$15,000,000 to support project implementation	DEP Environmental Stewardship Fund
1.19	Real estate tax Incentives statewide for BMP Implementation	Support legislative action that would credit landowners with a tax credit for the implementation of long term BMP implementation.	2023	Legislative will to pass an incentive program for landowners to provide tax incentives. Setting program rules for tax incentives.	Review REAP tax credit program for addition of real estate tax credits for BMPs that remove land from production (buffers, grassed waterways). This would function as an alternative to the CREP program, which has fallen out of favor with farmers.				
1.20	Conservation Excellence Grant	Ensure the Conservation Excellence Grant program is available for Tier 3 & 4 counties to fund project implementation. Conservation Districts need block grant and CEG funding to leverage relationships with farmers and have the ability to engage more landowners.	2022	Most funding is dedicated toward Tier 1 & 2 counties. It is crucial that Tier 3 & 4 counties have the same opportunities for funding. With Conservation District funding remaining flat for +10 years, it is crucial to have readily available funds to promote education, outreach and accelerate work.	It is recommended that each district receive a minimum of \$500,000 dollars each year to administer for agricultural projects.	Staff to support CEG Administration	Conservation District	\$20,000,000 to support additional staff and project implementation	SCC/PDA
1.21	REAP Program	Work with REAP Program to remove the funding for vertical tillage equipment. Work with REAP to promote more incentives for true no-till equipment.	2022	Some farmers are using vertical tillage for operational purposes. Educate farmers on the impact of vertical tillage (seed bed preparation on the short-term versus compaction and erosion on the long-term). Vertical tillage is being reported as conservation tillage and does not receive as much credit as no-till.	It is recommended that no-till preparation and seeding equipment is more incentivized than vertical tillage equipment through the REAP program.	Program revision	SCC staff		
1.22	Support new and innovative ways to fund Countywide Action Plan Implementation	Support Senate Bill 525 – expanded Growing Greener Program Support Senate Bill 465 – Agriculture Conservation Assistance Program	2022	Support new and innovative ways to fund Countywide Action Plan Implementation. Legislative will to pass additional funding options have failed to pass in recent sessions and a need for sustainable, long-term funding is critical for WIP implementation success.					

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
Pennsylvania Department of Agriculture and State Conservation Commission									
1.23	Cover Crop Incentive Program – Statewide Funding	Pennsylvania Department of Agriculture and State Conservation Commission administer a statewide program to fund a Cover Crop Incentive Program. Provide block grant funding to each County Conservation District to allow each district to establish parameters based on growing season, species types and plant by dates. Funding must be provided long term and have limited statewide regulation to allow for differences in farming techniques by county. Currently, the farming community assumes that 30-40% of crop acres receive cover crops each year.	2022-2025	<p>Many farmers across Pennsylvania are harvesting cover crops for forage. Current commodity cover crop BMP efficiencies do not accurately credit nitrogen and phosphorus reductions associated with the practice. In addition, many cover crop programs do not allow for harvest in the spring.</p> <p>Cover crop program must pay for incentives to both existing farmers who have been implementing cover crops and new farmers.</p> <p>Establishing planted by dates can be challenging with changing climate and increased precipitation years, especially for multispecies cover crops. Dates and multispecies requirements must be flexible based on climate and precipitation during the growing season.</p>	Local farm outreach meetings provided recommendations to increase cover crop through incentivizing payments similar to Maryland’s program. A statewide program would be inadequate due to differences in farming season length and types by county across Pennsylvania. It is recommended Pa providing funding to Conservation Districts to establish cover programs with county specific rules on date of planting, species type and other requirements that fit county farming standards.	County Conservation District staff to administer program	Conservation District	\$15,000,000 annual	PDA, SCC, DEP, FDA
1.24	Dirt and Gravel Roads Program	Expand Dirt and Gravel Roads program to include private farm roads/lanes as part of funding program, look to cost share with forested and agricultural landowners. Ensure funding exists for low volume roads. More funding is dedicated to Dirt and Gravel Roads opposed to Low Volume Roads.	2023	Stakeholder meetings have identified farm lanes as a major source of sediment and runoff from farming operations. With limited income many of these farmers are unable to fund lane improvement projects.	Dirt and Gravel Roads is a proven grant program that landowners are willing to work with. It is recommended to expand this to including severely impaired farm lanes and roads that are a leading source of sediment runoff. It is recommended to administer a portion of cost share with farmers.	Administration Support	SCC/ Conservation Districts	\$10,000,000 per year	Money from outside of transportation funds to bolster the overall budget

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
1.25	Work with Integrators and Producers to Communicate WIP Goals	PDA and SCC convene bi-annual meeting with integrators to communicate the goals of the Phase 3 WIP and how integrators can help to achieve agricultural related implementation goals including reporting their producers' activities and helping to advance additional activities on agricultural land. Also, it is encouraged to recommend that integrators require agricultural compliance plans and BMPs, in addition to sharing success stories of how integrators can help fund and implement BMPs that promote agricultural sustainability and water quality improvements.	2022-2024	<p>Integrators are directly linked to producers throughout the agricultural industry. It is important to educate integrators to get them to understand the issues surrounding water quality and the importance of agriculture's involvement is conservation practice implementation. Convincing integrators to, at a minimum, require agriculture compliance of operations may be a challenge. The total number of integrators across the state of Pennsylvania can be challenging to coordinate, and they function regionally.</p> <p>Many farmers who work directly with integrators do not report practices implemented to either NRCS or County Conservation District. Integrators must work with farmers and County Conservation Districts to report BMPs implemented.</p>	<p>The following is a list of potential integrators to meet with: Bell and Evans, The Hershey Company, Empire Kosher, Country View, Kramer's, Pilgrims Pride, Purdue, DFA, Ritchey, Galliker Dairy Company, Farmers Assuring Responsible Management (FARM), Maryland Virginia Dairy, Turkey Hill, Organic Markets, Land O'Lakes, Dairy Farmers of America, Maryland and Virginia Milk Producers Cooperative, BJE Poultry, Chick to Chicken, Tyson, Purdue, Eggs for Vaccines, Smithfield Hatfield, Swift, etc.</p> <p>Local farm outreach/meetings have identified integrators and producers as one of the best methods to communicate with farmers. Due to the number of integrators and geographic locations they serve, it is recommended that state agencies convene these businesses to communicate consistent messaging, share why some integrators are pushing conservation, and needed results.</p>	Staff Support time	PDA/SCC/DEP/NRCS		
1.26	Farmland Preservation Program	<p>Update Farmland Preservation Program to require NRCS Conservation Plan to be entered in PracticeKeeper on an annual or bi-annual basis to close reporting "gaps" and improve reporting.</p> <p>Increase farmland preservation program funding to increase number of farms preserved per year. Current waiting lists are growing larger in each county.</p>	2022	<p>Additional time for county conservation district staff to enter plans in PK. Sharing of NRCS data and plans can be challenging.</p> <p>Funding currently available to support farm preservation is inadequate. Must increase to support number of farmers wanting to enter preservation.</p>	<p>Require plans be entered into PK to improve reporting. Potential for DEP to provide staff hours to help enter NRCS plans into PracticeKeeper.</p> <p>Increase funding allotment per year to increase rate of preserving farms. Supply additional staff support to counties.</p>	Farmland preservation program staff	Conservation Districts	Increase budget per year by \$10,000,000 to support additional staff and more preserved farms	PDA
1.27	Organic Farms	Work with organic farming industry to educate them on the importance of no-till and come up with innovative ways to reduce tillage for weed control.	2022	With increased organic markets additional tillage is required to manage weeds.	PDA and SCC work with organic farmers to reduce tillage and return to no-till farming in a method that is consistent with organic standards.	Staff Support time	PDA/SCC/DEP/NRCS		

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
Chesapeake Bay Model - CAST									
1.28	Commodity Cover Crops	Commodity cover crops receive little to no credit for nutrient reductions. Modified credit is needed to achieve pollution reduction goals.	2023	Receiving credit approval by EPA's Chesapeake Bay Program and Workgroups.	Recommended to classify all cover crops that receive nutrients and are harvested as cover crops will fall nutrients. Many farmers are harvesting cover crops for forage and seeing an increased benefit from harvesting cover crops opposed to burning them down in the spring. Increased reduction efficiency value are necessary.	Staff support from DEP to assist with CAST changes	DEP		
1.29	Dirt and Gravel Roads	No nutrient reductions are associated with dirt and gravel road implementation. Additional studies are needed to prove nutrient reductions are occurring	2023	Receiving credit approval by EPA's Chesapeake Bay Program and Workgroups.	Recommended to work with dirt and gravel road program to conduct studies to prove nutrient reductions are occurring with road improvement projects.	Staff support from DEP to assist with CAST changes	DEP		
1.30	Acid Mine Drainage in Stream Benefits	Work with AMD impaired stream segments to monitor pre-treatment and post-treatment to identify the nutrient uptake benefits from improving a degraded stream by AMD to a healthy stream segment that can process nutrients.	2025	Receiving credit approval by EPA's Chesapeake Bay Program and Workgroups. Producing water quality monitoring that is acceptable and identifies clear improvements. Time associated with monitoring improvements.	Recommended DEP Bureau of Mining work with USGS/SRBC and other DEP Bureaus to monitor a heavily impaired stream segment pre and post treatment.	Staff support from DEP to assist with CAST changes	DEP		
1.31	Combined Sewer Overflow Systems	Current CAST reported loads from CSO systems do not accurately capture estimated volumes/loads from CSO systems. Work with CSO permittees to report system performance estimates to inform load estimates and work to reduce finger pointing to other sectors. Continue to improve accuracy of wastewater reporting numbers with significant and non-significant facilities.	2022	Increased storm events are frequently producing overflow stormflows systems cannot handle leading to combined sewage discharges. It appears these discharges are not accurately captured in CAST by smaller CSO permittees in the Pennsylvania portion of the Watershed. By not accurately capturing CSO facilities finger pointing can be contributed to other sectors. It is important to accurately establish crediting to appropriately address the issue.	Use estimated discharges from CSO permittee annual reports. Support CSO management programs with additional funding, similar to suggested MS4 program implementation support grants, thereby preventing further nutrient loads to streams.	Staff support from DEP to assist with CAST changes	DEP		
1.32	Barnyard Runoff Controls	A few counties are listed as 100% implementation of all barnyard runoff controls. Counties have identified this number as inaccurate and needs revision.	2022	Juniata and Mifflin Counties are not accurately represented in CAST in respect to barnyard runoff controls.	Work with EPA and CAST representatives to fix the issue in Juniata and Mifflin Counties.	Staff support from DEP to assist with CAST changes	DEP		

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
Reporting and Verification									
1.33	Institute a bi-annual remote sensing program for BMP verification	Fly counties on odd years and process data on even years to verify installation of BMPs Utilize existing BMP location data to verify those BMPs	2021	Funding, staff for sample of field verification, see if MS4s would be willing to cost share if we can demonstrate that we can reduce their BMP inspection burden with this method. EPA acceptance of remote sensing approach is challenging. EPA has shown in the past they are reluctant to immediately accept new approach ideas.	Utilize counties to pilot BMP verification hurdles; refer to Cumberland County and Centre County 2021 Block Grant request that includes Chesapeake Conservancy funding/methodology for select BMP cataloguing.	GIS processing methods		\$100,000 per year per county for BMP cataloguing	
1.34	Develop a method/model/template to capture and report non-manure nutrient management plans	Develop a method to encourage, perform, capture, and report the 4R nutrient management practices along with nutrient management plans for farmland acres receiving fertilizer.	2022	Will require close coordination and cooperation between regulatory agencies, private fertilizer companies, and farmers to achieve a statewide model.	Dept of Ag/DEP/farmers to coordinate at State level with the fertilizer industry; State or Bay-wide system needed for consistency. Coordinate with ag consultants	State ag/farming/fertilizer industry experts		Reporting expenses not offset by increased production	
1.35	Implement a reporting program for commercial and homeowner nutrient applications	Support fertilizer legislation – where legislation requires reporting, be the data clearinghouse	TBD – based upon passage of legislation	Education of responsible parties, receiving timely information, training on reporting system	Pair reporting with another generally used reporting mechanism to State Government	Landowner education		\$1,000,000 for reporting mechanism	Refer to other states with similar program
1.36	PracticeKeeper	Expand PracticeKeeper to include in field GIS Spatial abilities to map projects in the Field using GPS coordinates to simplify reporting process Continue to expand PK to allow additional 3 rd party planners have access to enter manure management and AG E&S plans Ensure Conservation District is able to see all data enter by Private sector and DEP	2021-2025	Will need to address privacy concerns; may need changes to Right to Farm Act. Coding Issues, and seat license for private Ag planners.	Work with outside organizations to develop a GIS system that can connect with PK Data in Practice Keeper should be utilized for more than reporting to DEP. CD staff should be able to use it for program management so that BMPs are timely re-verified and farms that are compliant/on-schedule aren't revisited prematurely	State Ag staff/CD's/County/municipal planners/software experts		\$1,500,000 Software costs/staff costs	DEP/PDA/SCC

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
1.37	FieldDoc	Ensure FieldDoc displays transparent progress to “live” track the progress each county is making toward achieving their goals Ensure each county has a FieldDoc Profile established in a timely manner	2022	Multiple systems working together to communicate progress.	Recommended to continue updating FieldDoc to be a transparent program that displays data “live”			\$1,500,000 Software costs/staff costs	DEP
1.38	Manure Haulers and Brokers – Manure Transport Reporting	Recommended to require all manure brokers and haulers to report on an annual basis the amount manure transported to and from a county.	2022	Requiring all haulers and brokers to submit data timely and on an annual basis.	Recommended DEP gather this information and report this to CAST on an annual basis	Additional Staff to work with haulers and brokers	DEP	\$1,000,000 Software costs/staff costs	DEP/PDA/SCC
Department of Conservation and Natural Resources									
1.39	Buffer Incentive Programs	DCNR revise buffer programs to include 5-10 year maintenance agreements to take the lift off of implementing landowners. Look to incentivize landowners up to \$5K per acre of buffer installed. Must include volunteers or staff to help implement buffers. Buffer incentive programs should allow landowners to flash graze with livestock when feasible around buffer plantings.	2022-2025	Finding willing landowners to implement buffers is a challenge. In order for buffers to be more palatable they must include maintenance, incentives, and support for planting. Education and time associated with each buffer is a challenge. Maintenance of buffers is challenging. Flash grazing with livestock can assist with helping to maintain buffers over time.	It is recommended that DCNR contract with a maintenance organization to provide full buffer maintenance across the state of PA. It is recommended to develop a similar program to the Alliance for the Chesapeake Bay in order to “sell” more buffers. Program changes to allow flash grazing in buffers to maintain vegetation.	Additional Staff to work landowners on buffer implementation	DCNR, DEP, PDA, SCC, NRCS	\$25,000,000 to assist with implementation and maintenance	DCNR, DEP, PDA, SCC, NRCS
PennDOT									
1.40	Reduce mowing of rights-of-way and roadside ditches	PennDOT work with mowing contracts to reduce the number of times per year of mowing roadside ditches and rights-of-way, especially targeting environmentally sensitive areas.	2022	Higher weeds visually look “messy,” however environmental benefits will help with nutrient and sediment reductions.	Recommended to cut mowing back to 1-2 times per year while maintaining soil health and noxious weeds.	Review operation and maintenance procedures for reduced mowing and invasives control	PennDOT		

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
1.41	Plant seed and erosion control matting immediately after grading and berm maintenance occurs	PennDOT requires crews to perform seed spreading or other vegetative establishment efforts when berms are graded or cut back. This effort exposes loose soil and creates runoff issues in the absence of matting, straw, and seeding.	2022	Ensure accurate E&S CAST model credit is documented with maintenance efforts.	Also work with municipalities to educate them on the importance of properly managed roadways, rights-of-way and other environmental sensitive areas.	Review operation and maintenance procedures for reduced mowing and invasives control	PennDOT		
Pennsylvania State Game Commission									
1.42	Pennsylvania Game Commission – Rented/Farmed Acres	PA Game Commission work with farmers to require conservation practices be included with farming operations (no-till, cover crops, filter strips, vegetative strips, buffers, etc.) PA Game Commission require farmers and/or game commission to document Conservation and Nutrient Management compliance – work with County Conservation District	2022	Many of the Game Commission-owned acres are rented out and may switch hands each year. Game Commission needs to require plan compliance and documentation each year. Bird habitat farming is becoming more popular and does not have conservation plans.	Game Commission develop a conservation plan for all farming acres that PA Game Commission implements/farms. PA Game Commission work with county conservation districts to ensure farmers renting ground are in compliance and documenting acres annually. Work with game commission officers located in Harrisburg and work with local Game Commission land managers for Union and Snyder.	Staff to support implementation and ensure compliance	PA Game Commission	\$1,500,000 to support implementation on game lands	PA Game Commission
National Resource Conservation Service (NRCS)									
1.43	Fund NRCS Regional Resource Conservation and Development (RC&D) Coordinators	Provide funding to support NRCS Regional RC&D Coordinators to support BMP Implementation across regional groupings	2023	Challenge to convince NRCS to provide additional funding to RC&D Program	Provide 2 – regional RC&D Coordinators per grouping of 3-4 County Coordinators. DEP/SCC/PDA work with NRCS to provide funding to support RC&D coordinators.	RC&D Coordinators	NRCS	\$5,000,000 to support regional RC&D Program	NRCS
1.44	Flexibility for farmers utilizing NRCS programs for implementation	The guidelines set for in NRCS programs including but not limited to CREP, REAP, Conservation Planning, RCPP, etc. are constraining on implementation.	2023-2024	The need for more flexible funding and program guidelines. NRCS does not always work with local stormwater ordinances in advance. Many times, this will fall to the Conservation District and can be time consuming. Recommendations: to encourage NRCS to comply more with local ordinances.	It is recommended that NRCS, EPA, and USGS advance the findings of the “Coordinating NRCS and EPA Agricultural Conservation Funding Programs in the Chesapeake Bay Watershed” report (January 8, 2021). The mission of the group should be to allow more flexibility to improve the willingness of landowners to utilize public funding.	Utilize local partners to continue a 365-degree review of program optimization needs	NRCS, EPA, USGS		

**Phase 3 Watershed Implementation Plan (WIP) State Programmatic Recommendations Template –
Blair, Cambria, Dauphin, Fulton, Huntingdon, Juniata, Mifflin, Northumberland, Perry, Snyder, and Union County**

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed				
						Technical	Suggested Source	Financial	Suggested Source	
1.45	NRCS shared data	Coordinate the needs of NRCS, Pennsylvania’s Right to Know L, and Federal Article 1619 to improve the possibility of more shared information between agencies and their designated assigns. In order to effectively implement projects, NRCS data must be shared with on the ground implementors in coordination.	2022-2024	Right to Know law and Article 1619 present challenges with sharing data and true conservation/water quality program management. Privacy concerns with farmers information persist. Current data sharing is inadequate for WIP success.	Recommended to make changes to Right to Know and current standards of sharing information with NRCS data. Review Federal Article 1619 and draft recommendations that result in protection of data, and access to those with security clearances.	Legal review, practitioners’ input, data compatibility technical review, legislative review/support				

Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template

Each county-based local area will use this template to identify:

1. Inputs – These are both existing and needed resources, public and private, to implement the identified priority initiative. These include both technical and financial resources, such as personnel, supplies, equipment and funding.
2. Process – what is each partner able to do where and by when. These are the action items listed under each priority initiative.
3. Outputs and outcomes – both short and long-term. These are the priority initiatives identified by each county. The performance targets are the intermediate indicators that will measure progress.
4. Implementation challenges – any potential issues or roadblocks to implementation that could impede outputs and outcomes

For each Priority Initiative or Program Element: Use the fields, as defined below, to identify the inputs and the process that will be followed to achieve each priority initiative. This is the “who, what, where, when and how” of the plan:

Description = What. This may include programs that address prevention, education, or as specific as planned BMP installations that will address the Priority Initiative. A programmatic or policy effort will require some ability to quantify the anticipated benefits which will allow calculation of the associated nutrient reductions.

Performance Target = How. This is an extension of the Description above. The Performance Target details the unique BMPs that will result from implementation of the Priority Initiative and serves as a benchmark to track progress in addressing the Priority Initiative. Performance Targets may be spread across multiple Responsible Parties, Geographies, and Timelines based on the specifics of the Initiative.

Responsible Party(ies) = Who. This is/are the key partner(s) who will implement the action items through outreach, assistance or funding, and who will be responsible for delivering the identified programs or practices.

Geographic Location = Where. This field identifies the geographic range of the planned implementation. This could extend to the entire county or down to a small watershed, based on the scale of the Priority Initiative, range of the Responsible Party, or planned funding/resources. *NOTE: Resource limitations alone should not limit potential implementation as additional funding may become available in the future.*

Expected Timeline = When. Provide the expected completion date for the planned activity. This should be a reasonable expectation, based on knowledge and experience, that will aid in tracking progress toward addressing the Priority Initiative.

Resources Available: Technical & Funding = This field will note technical and financial resources secured/available to implement the program (Description). This is the total of the resources identified in the County Resources Inventory Template below allocated to the priority initiative as a whole; or, if available, to each action.

Resources Needed: Technical & Funding = This field will note technical and financial resources needed/outstanding to implement the program (Description). This is the total of the additional resources projected and identified as needed in the County Resources Inventory Template below allocated to the priority initiative as a whole; or, if possible, to each action.

Potential Implementation Challenges/Issues = This field will note challenges and issues that may delay program implementation (Description)

COUNTY: Snyder County

Detailed BMP Entry Form FINAL 9/30/2021

Sector	BMP Name	BMP Quantity	Measurement Unit	New or Total Acres
Agriculture	Soil Conservation and Water Quality Plans	20,000	acres	New Acres
Agriculture	Nutrient Management Core N	13,000	acres	New Acres
Agriculture	Nutrient Management Core P	14,500	acres	New Acres
Agriculture	Nutrient Management N Placement	2,530	acres	New Acres
Agriculture	Nutrient Management N Timing	15,000	acres	New Acres
Agriculture	Barnyard Runoff Control	32	acres	New Acres
Agriculture	Tillage Management-Conservation	4,000	acres	Total Acres
Agriculture	Tillage Management-Continuous High Residue	40,000	acres	Total Acres
Agriculture	Tillage Management-Low Residue	2,000	acres	Total Acres
Agriculture	Cover Crop Traditional Rye Normal Drilled	4,000	acres	Total Acres
Agriculture	Cover Crop Traditional with Fall Nutrients Rye Normal	32,600	acres	Total Acres
Agriculture	Precision Intensive Rotational/Prescribed Grazing	700	acres	New
Animals	Animal Waste Management System	15,000	animal units	New
Manure	Manure Transport	14,500	dry tons	New
Agriculture	Forest Buffer	510	Acres	New
Agriculture	Forest Buffer-Streamside with Exclusion Fencing	15	Acres	New
Agriculture	Grass Buffer	130	Acres	New
Agriculture	Grass Buffer-Streamside with Exclusion Fencing	15	Acres	New
Agriculture	Tree Planting	15	acres	New
Developed	Forest Buffer	60	acres	New
Developed	Conservation Landscaping Practices	80	acres	New
Developed	Forest Planting	100	acres	New
Developed	Tree Planting - Canopy	2	acres	New
Natural	Urban Stream Restoration	10,400	feet	New
Natural	Non Urban Stream Restoration	4,600	feet	New
Natural	Wetland Rehabilitation	20	acres	New
Agriculture	Wetland Restoration - Floodplain	22	acres	New
Developed	Wet Ponds and Wetlands	80	acres treated	New
Developed	Nutrient Management Plan	2,000	acres	New
Agriculture	Farmland Conservation	1,500	acres	New

Natural
Natural

Forest Conservation
Wetland Conservation

1,600 acres
60 acres

New
New

COUNTY: Union County

Detailed BMP Entry Form FINAL 9/30/2021

Sector	BMP Name	BMP Quantity	Measurement Unit	New or Total Acres
Agriculture	Soil Conservation and Water Quality Plans	10,000	acres	New Acres
Agriculture	Nutrient Management Core N	10,500	acres	New Acres
Agriculture	Nutrient Management Core P	13,000	acres	New Acres
Agriculture	Nutrient Management N Placement	4,300	acres	New Acres
Agriculture	Nutrient Management N Timing	7,200	acres	New Acres
Agriculture	Nutrient Management N Rate	3,450	acres	New Acres
Agriculture	Barnyard Runoff Control	32	acres	New Acres
Agriculture	Tillage Management-Conservation	3,600	acres	Total Acres
Agriculture	Tillage Management-Continuous High Residue	30,300	acres	Total Acres
Agriculture	Tillage Management-Low Residue	1,800	acres	Total Acres
Agriculture	Cover Crop Traditional Rye Normal Drilled	900	acres	Total Acres
Agriculture	Cover Crop Traditional with Fall Nutrients Rye Normal C	30,200	acres	Total Acres
Agriculture	Precision Intensive Rotational/Prescribed Grazing	350	acres	New
Animals	Animal Waste Management System	20,000	animal units	New
Agriculture	Forest Buffer	500	Acres	New
Agriculture	Forest Buffer-Streamside with Exclusion Fencing	75	Acres	New
Agriculture	Grass Buffer	400	Acres	New
Agriculture	Grass Buffer-Streamside with Exclusion Fencing	26	Acres	New
Agriculture	Tree Planting	15	acres	New
Developed	Forest Buffer	60	acres	New
Developed	Conservation Landscaping Practices	80	acres	New
Developed	Forest Planting	100	acres	New
Developed	Tree Planting - Canopy	2	acres	New
Natural	Urban Stream Restoration	10,400	feet	New
Natural	Non Urban Stream Restoration	15,000	feet	New
Natural	Wetland Rehabilitation	25	acres	New
Agriculture	Wetland Restoration - Floodplain	65	acres	New
Developed	Stormwater Performance Standard-Stormwater Treatm	80	acres treated	New
Developed	Nutrient Management Plan	2,000	acres	New
Agriculture	Farmland Conservation	1,300	acres	New

Natural
Natural

Forest Conservation
Wetland Conservation

1,500 acres
125 acres

New
New

HRG

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Snyder County

PENNSYLVANIA

SNYDER COUNTY COUNTYWIDE ACTION PLAN (CAP)



Clean Water Begins Locally

The Countywide Action Plan is a collaborative plan devoted to improving and restoring the regions streams and rivers, increasing opportunities for recreation, promoting farm sustainability and improving the health of local communities. Working together, partners throughout the region have come together to identify what efforts can be accomplished over the next four years to improve the health of our local streams.

This plan provides the opportunity to work with local governments, farmers, water authorities and private industries to promote long term sustainability and healthy waters. We have identified what resources state and federal partners can assist in providing in order to achieve our goals related to our local streams.

Together we can clean up and improve the health of the water we all enjoy.

50+

Local community members were involved with plan development

20+

New job opportunities are proposed to support with implementation



SNYDER COUNTYWIDE ACTION PLAN (CAP)

What are the priority initiatives that improve water quality?

The Countywide Action Plan identifies many Best Management Practices (BMPs) that help improve water quality. Below are the five most cost effective BMPs that improve our local streams. Numbers represented below are representative of Snyder County.



Cover Crops help to improve soil stability and soil health in agricultural operations. Increasing cover crops not only benefits water quality, but also helps to increase overall productivity of crop fields and long-term soil health. Cover crops can be incentivized through payment programs and continued education/outreach.

Agriculture Conservation or Agricultural E&S Plans are required by state and federal regulation when disturbing more than 5,000 sq feet of soil. Agriculture Conservation Plans are a great way to plan for long-term farm sustainability and improve economic benefits through conservation practices. Conservation Districts and USDA's Natural Resources Conservation Service (NRCS) support by writing Ag E&S and Conservation Plans, along with private sector plan writers.



Nutrient Management or Manure Management Plans are required by state and federal regulation for farmers and landowners who have livestock animals. Nutrient Management Plans help with properly applying animal manure to cropland while maximizing the benefits to soil health. Conservation Districts and NRCS, and private sector plan writers are available to develop Nutrient Management and Manure Management Plans.

Forest and grass riparian buffers are excellent ways to address flooding and provide additional habitat for wildlife. Buffers help to provide vital shade for instream life, while also filtering nutrients and sediment from stormwater runoff. Various existing programs help to fund the implementation of riparian buffers while paying incentives to landowners willing to implement them.



Manure storage tanks are an excellent way to properly store manure until croplands are in need of nutrients. Manure pits, stacking pads, and in-barn systems are a few examples of ways to properly store manure. Manure storage structures are effective when sized according to a Nutrient Management or Manure Management Plan. Many cost share programs are available to assist with funding the design and construction of properly sized manure storage facilities.

Are you interested in becoming involved?

For additional information please visit ([Coming Soon](#)). If you would like to become involved in our process, please fill out the survey and we will be in contact with you.

HRG

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COUNTY of UNION
PENNSYLVANIA



UNION COUNTY COUNTYWIDE ACTION PLAN (CAP)



Clean Water Begins Locally

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New job opportunities are proposed to support with implementation



UNION COUNTY COUNTYWIDE ACTION PLAN (CAP)

What are the priority initiatives that improve water quality?

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Are you interested in becoming involved?

For additional information please visit <https://storymaps.arcgis.com/stories/5b0f82a807c648218f0c0f8571e4bfc1>. If you would like to become involved in our process, please fill out the survey and we will be in contact with you.