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SNYDER AND UNION COUNTIES' 2024 COUNTYWIDE ACTION PLAN PROGRESS REPORT UPDATE NARRATIVE

Submitted to:
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Submitted: 2024

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Engineering | Planning | Infrastructure Solutions

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PennState Extension

Merrill W. Linn Land & Waterways Conservancy

pec pennsylvania environmental council

Trout Unlimited PA Council

Chesapeake Bay Foundation — Saving a National Treasure

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Buffalo Valley Recreation Authority

Kelly Township — Established 1824

USDA

Middle Susquehanna Riverkeeper Association, Inc

DCNR

Pennsylvania Fish & Boat Commission

Pennsylvania Game Commission 1895

Local Farmers from across Union and Snyder County

USGS

ALLARM — Alliance for Aquatic Resource Monitoring — est. 1986

SEDA COG

Central Keystone Council of Governments

Pennsylvania Farm Bureau

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 protects natural resources, promotes agriculture sustainability, and increases conservation efforts. Local conservation efforts 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
Reduction Target	*2,747,000*	*130,000*

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 works 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 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 Lower Middle Creek 319 WIP.
- Begin a BMP verification remote sensing effort to analyze existing conservation practices implemented by landowners to report and document for credit.
- 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 were estimated to cost approximately $160 million over 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 within the CAP planning template; however, these are the common themes that arise. Despite these challenges, local stakeholders have made 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. The CAP is a multiyear implementation effort that will adapt over time. 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

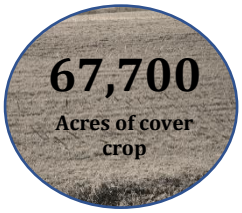
Priority Initiative 3: Achieve New Pollutant Reductions – Existing Programs, Watershed Plans

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 a 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.

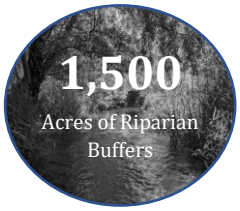


Cover Crops help to improve soil stability and soil health in agricultural operations. Increasing cover crops not only benefits water quality, but also helps to increase overall productivity of crop fields and long-term soil health. Cover crops can be incentivized through payment programs and continued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

The following Actions have either been completed or are no longer a priority between now and 2025. For details regarding the status of these Actions, see the detailed Progress and Milestone Template.

Snyder & Union County CAP Initiatives:

- Action 2.4 – Implement a documentation program for commercial and homeowner nutrient applications in developed lands.
    - Support fertilizer legislation – where legislation requires reporting, be the data clearinghouse.
    - Legislation will support the implementation of Urban Nutrient Management – 1,600 acres.
- Action 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. Improved reporting standards would allow 3,400 Animal Units of Dairy Precision Feeding.
- Action 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.

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.

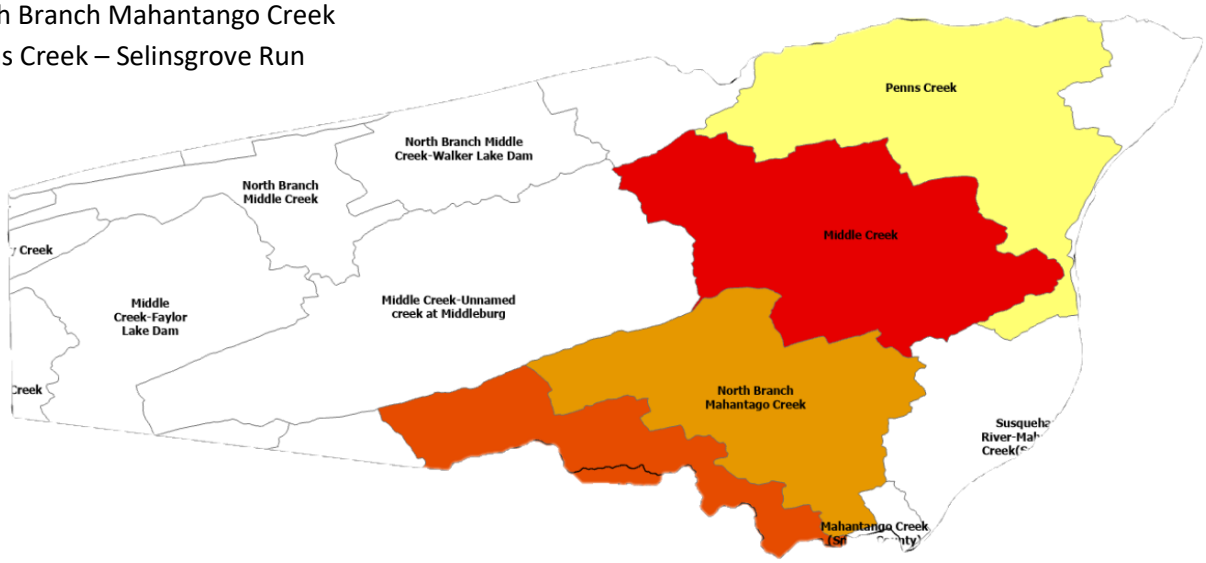
3. *Connecting CAP Goals with Opportunities for Implementation*: Comparing existing land use with numeric BMP goals and programmatic goals in the CAP, how much opportunity exists in the watershed to implement BMPs?

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