

Countywide Action Plan Overview Cumberland County



Image 1. Yellow Breeches monitoring site in Cumberland County.

Plan Highlights

The Cumberland County Countywide Action Plan (CAP) provides a blueprint for the County and its partners to follow to reach the County's clean water goals. The initiatives outlined in the plan are intended to protect the future of Cumberland County's natural resources while reaching other community goals. Local improvements benefit the community while assisting the state with meeting its Chesapeake Bay obligations.

The Cumberland County CAP identifies priority initiatives and actions that support the County's goal of meaningful local water quality improvements. The CAP includes three priority initiatives that are broken into more than two dozen manageable and measurable goals. These goals will evolve over time based upon early plan implementation successes and changes in local priorities.

Priority Initiative #1: County Programmatic Initiatives (Laying the Foundation for Success)

Land use decisions have a significant impact on local waters, and those decisions are largely guided by a community's comprehensive plan.

Recognizing this, the CAP implementation team is working with municipalities and County staff to establish a consistent approach to clean water solutions across the County. In addition, the team is identifying gaps in available data, opportunities for data collection, and ways to track and monitor local clean water projects over time.



Priority Initiative #2: Achieve New Pollutant Reductions (Taking Measurable Action)

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 the Municipal Separate Storm Sewer System Permit program (MS4). The CAP implementation team works with MS4 communities to support and leverage their efforts.

Agricultural lands present another opportunity to reach Cumberland County's clean water goals. Agricultural land releases nutrients and sediment into local waterways like other land uses. Many goals in Priority Initiative #2 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 for the agricultural community

Priority Initiative #3: Monitoring, Verifying, Researching, Educating, and Training

(Building Participation, Measuring Results, and Refining the Plan)

A key to success is putting in place mechanisms to monitor implementation and refine the plan as necessary, based on results. This is a significant part of Priority Initiative #3. The initiative also includes steps to educate the community about Cumberland County's clean water efforts and provide opportunities for participation.

In support of this initiative, in December of 2021, Cumberland County was awarded \$30,000 to conduct BMP Verification. Cumberland County elected to use some of the money on the remote sensing analysis focusing on six priority BMPs including: Barnyard Runoff Controls, Animal Waste Management Systems, Forest Buffers, Grassed Waterways, Streambank Exclusion Fencing and wet ponds/detention basins. Remote sensing data analysis performed by the Chesapeake Conservancy is being finalized in August of 2022 and results are provided in an online ArcGIS Portal. Qualified 3rd party staff will begin field verification efforts to verify the remotely identified practices in Fall/Winter 2022/2023. A BMP Verification Quick Guide that will be periodically updated has been provided to the County to assist with field verification efforts.



Image 2. Elizabeth Grant, from the Cumberland County Planning Department, and her dog Roo doing water quality monitoring on the Yellow Breeches in Dickinson Township, Cumberland County, Pennsylvania

Key Findings

The CAP planning team spoke with over a hundred stakeholders in 2020 who identified dozens of actions that the County and its partners can take to improve water quality. A few key themes emerged from the feedback and included:

- Cumberland County is a community of action! Many individuals and organizations are already taking steps to clean up local waterways. The CAP can help by fostering connections and leveraging resources to reach shared goals.
- Tracking efforts matters. The County must focus on documenting existing and future efforts, so all on-the-ground projects count toward Cumberland County's goals.
- Collaboration is key. Cumberland County stakeholders appreciate the Conservation District's service-providing approach to resource conservation. Therefore, the CAP will promote collaboration between County staff and partnering organizations to support the countywide efforts to reach local clean water goals.
- Technical assistance and funding are keys to success. Unfortunately, many existing clean water initiatives in the County 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 team is working to identify actionable solutions from across the public and private sectors.



Opportunities for Success

Many opportunities for success in Cumberland County came out of CAP planning sessions and meetings with stakeholders. The most encouraging suggestions focused on leveraging existing efforts and identifying new partnerships. Here are some examples:

- Broadening the scope of the County's hazard mitigation plan to include stormwater best management practices (BMPs) that fight regional flooding and reduce sediment and nutrient pollution will contribute to CAP successes.
- Implementing the County's Local Climate Action plan in conjunction with the CAP will draw attention to the co-benefits of both initiatives. For example, planting trees prevents nutrients from entering local streams as well as mitigates the effects of greenhouse gas emissions.
- Municipal stormwater fee credit programs present an opportunity to capture data on stormwater BMPs in the County and inspire landowners to install their own BMPs.
- There are several partners in Cumberland County willing to work on clean water initiatives. Building new partnerships and solidifying existing partnerships through clean water projects will expand the CAPs impact far beyond what the County could do without such support.

Challenges to Implementation

During CAP development and through outreach to County partners, four main challenges to CAP implementation were identified:

- Cataloguing and verifying the BMPs on local farms and identifying which farmers to approach about new/additional BMPs.
- Identifying and capturing all of the relevant data being collected in the County and incorporating it into the reporting model.

- Identifying additional technical assistance and funding sources.
- Helping farmers understand the funding that is available to assist them in deciding what opportunities best meet their needs.

In addition, one of the CAP's primary strategies focuses on elevating clean water as a co-benefit of existing programs (i.e., the

Farmland Preservation Program) by enhancing clean water requirements and incentives for potential participants.

One of the biggest challenges in implementing the CAP is that, beyond basic regulatory requirements and government oversight, landowner participation in clean water improvements to 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, landowners may opt not to pursue them.

Despite these challenges, local stakeholders are motivated to make real progress, and progress have suggested many creative ideas for overcoming obstacles. The Cumberland County CAP is designed to make meaningful progress possible.



Plan Summary

Cumberland County CAP implementation centers around three (3) priority initiatives: 1) County programmatic initiatives, 2) achieving new pollutant reduction, and 3) monitoring, verifying, researching, educating, and training.

The Cumberland County CAP establishes a framework to guide implementation efforts that follows an iterative process. This structure will allow the CAP implementation team to respond to new opportunities, funding streams, and changing conditions.

Priority Initiative 1: County Programmatic Initiatives

- Action 1.1A Implement County Comprehensive Plan policies and actions
 - Development directed to established growth areas; limited development and protection of natural resources in established rural areas
 - Catalogue annual ordinance updates
 - Catalogue actions that occur at municipal level
- Action 1.1B Implement Cumberland Plans Program (CPP)
 - Countywide municipal comprehensive plan and ordinance consistency with 2017 Cumberland County Comprehensive Plan vision
 - Encourage municipalities to review their ordinances through this program to address topics such as resource overlay districts, required parking reductions, climate mitigation, warehouse landscaping and lawn reduction

- Action 1.2A Implement County Farmland Preservation Program
 - Total preservation farm goal: 30,000 acres by 2030
 - 900 acre/year to reach Commissioners' goal
- Action 1.2B Implement County Farmland Preservation WQ Project Shovel Readiness
 - Review inspection results to identify farms that could utilize technical assistance on planning or BMPs. Direct those farmers to programs/partners, as needed.
- ~~Action 1.2C Farmland preservation program incentives enhancement~~
 - ~~Increase scoring criteria for preserved farm candidates that implement WQ BMPs~~
 - ~~Include preserved farm plans and BMPs in Practice Keeper → ~100 farms~~
 - ~~Explore prioritization of these farms on the preservation waiting list that need BMPs and are willing to implement them; include research on supplemental BMP funding sources with preservation priority~~
- Action 1.2D Implement Land Partnerships Grant Program – scope = farmland preservation, water resource management, parks, ~~trails~~trails, and greenways
 - Implement Cumberland County Land Partnerships Plan by preserving priority conservation areas, riparian buffers, ridgeline, steep ~~slopes~~slopes, and other sensitive natural features. Promote landowner adoption of conservation practices.
 - Conservation landscaping – 0.25 acre per year
 - Preserved forest/environmental sensitive land – 20 acre per year
- Action 1.2E Implement the Cumberland County Hazard Mitigation Plan – to be adopted by municipalities in 2021
 - Municipal adoption (2021)
 - Green infrastructure implementation ordinance guide (2022 at the earliest)
 - Review mitigation project list for those that could have water quality co-benefits and devise a strategy to advance those opportunities (2023-2025)
- Action 1.2F Implement the Cumberland County Local Climate Action Plan
 - Public participation – plan development (survey, meetings)
 - Green infrastructure policy recommendations
 - County facility energy efficiency results
- Action 1.3A Countywide Water Quality Credit Offset Pilot
 - Demonstrate measurable success of a pilot project area where MS4s and non-MS4s can collaborate on sediment and nutrient goals
- Action 1.3B Countywide Stream Restoration Bundling Pilot
 - Bundle stream restoration design and construction activities to more cost effectively meet MS4 requirements
- Action 1.4 Water quality communication plan
 - Develop messages and audience; execute plan and distribute messaging through staff
- Action 1.5A Chesapeake Bay Technical Inspection/Plan Data Gathering
 - Collect data regarding existing farm plans and implementation progress
 - 50 farms per year → 200 farms through 2025
- Action 1.5B Other Plan Data Gathering
 - Collect data regarding existing farm plans and implementation progress
 - ~45 farms per year → 170 farms through 2025

Priority Initiative 2: Achieve New Pollutant Reduction

- Action 2.1A Existing BMP cataloguing (quantity and location) for select BMPs, expanding on general recommendations provided in Quality Assurance Project Plan (QAPP)
Target BMPs = forest buffers, urban forest buffers, grass buffers, urban grass buffers, 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 to capture agricultural BMPs that are visible
 - Back check with staff field views where required
 - Add data to Practice Keeper or another batch upload option (FieldDoc)
- ~~Action 2.1B 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~~
- ~~Action 2.1C Improve continuous data collection on urban non-structural practices~~
 - ~~Add development related BMPs to CAST/FieldDoc so that as land use data sets are updated, there are accompanying BMPs~~
- Action 2.2A Additional Technical Assistance to Serve Farm Operators
 - Hire 1 new in-house engineer/planner
- Action 2.2B Additional Technical Assistance to Serve Farm Operators
 - Advertise a request for proposal to hire an on-call contractor to assist with plan and BMP implementation backlog (design, construction)
- Action 2.3 Additional nutrient management and agriculture erosion and sediment plan development
 - 560 new/updated plans developed and added to Practice Keeper (agricultural land preservation program, Bay Technician progress, other outreach)
Soil and Conservation Plans - 58,000 acres
Core N - 49,800 acres
Core P – ~~43,300~~^{26,000} acres
N Placement - 17,000 acres
N Rate – ~~17,800~~^{43,300} acres
N Timing – ~~17,85,200~~ acres
P Placement - 17,000 acres
P Rate - 17,000 acres
P Timing - 17,000 acres
- ~~Action 2.4 Public/private Farm BMP sponsorship program~~
 - ~~Utilize Resource Enhancement and Protection Program (REAP) Program to leverage funding, sponsor farmers who perform BMPs and pay them cash from tax rebates that corporation receives from funding the program~~
- Action 2.5 Low and no-till cover crop and tillage BMPs

- Increase existing County program by 40% by leveraging existing County cost share program, transect survey, more detailed questionnaire information regarding BMP implementation versus cost share coverage
- Continue fundraising so that program can continue to expand

Conservation Tillage — ~~17,92,800~~ ac

High Residue Tillage - 60,400 ac

Low Residue Tillage - 13,000 ac

Traditional Cover Crops - 36,900 ac
 Traditional Cover Crops with Fall Nutrients - 4,000 ac
 Commodity Cover Crops - 750 ac

- Action 2.7 Conservation Landscape/Turf to Meadow Conversion/Watershed Forestry Initiative
 - Promote new program and enable three large tract landowners' participation (20 acres of conversion per property, 60 acres total; assume 190 acres occur in Cumberland through other initiatives)
 - Address weed ordinance changes in target municipalities so that conservation landscape can be adopted by landowners
- Action 2.8A Riparian buffer and re-forestation BMPs
 - Partner with Chesapeake Bay Foundation to plant 100,000 trees (portion of 500,000 trees that are sourced directly from growers)
 - 17 acres - 2 farms per year – forest buffers with fenced pasture
 - 43 acres - 3 farms per year – grass buffer with fenced pasture
 - 50 riparian forest acres – CREP CLEAR 30 renewal, CBF, Alliance for the Bay support/lead
 - 42 acres – grass buffers
 - 155 acres – urban forest buffer (19 stream miles) – 5 miles per year (22 acres in PRPs)
 - 250 acres – urban forest planting – target one large landowner in urbanized area
- Action 2.8B Wetland restoration implementation on marginal production ag land
 - 48 acres implemented by 2025, currently programmed through Natural Resources Conservation Service (NRCS)
- Action 2.8C Non-urban stream restoration
 - 4,000 feet restored with floodplain restoration scope that includes water quality credits associated with Stream Restoration Expert Panel – Protocol 3
- Action 2.8D Operation and Maintenance Performance
 - Utilize new Riparian Rangers group
- Action 2.9 Implement more prescribed grazing measures
 - 40 acres per year – new and newly reported (160 acres total)
- Action 2.10 Animal waste management BMP implementation for livestock
 - 40% of farms with livestock have appropriately sized waste management (~18,500 animal units or about 100 farms, 25 farms per year newly reported or newly constructed)
- Action 2.11 Implement more barnyard runoff control/loafing lot management/ag stormwater management

- 40 acres of treated area, assuming we map 200 more and build 20 more (5 farms per year)
- Action 2.12 Manure treatment technology
 - Track Dickinson College digester/composting project for dry ton treatment
- Action 2.13B Implement the Gold Water Cold Water Conservation Plan for LeTort Spring Headwaters
 - Implement recommended BMPs from plan and habitat study
- Action 2.14 MS4-related Pollutant Reduction Plan (PRP) Implementation
 - Plan implementation by end of current permit term
 - Stay up to date with MS4 Workgroup on their successes and needs
- Action 2.15 Wet Pond/Wetland Installation
 - Identify 1 large property owner from University of Vermont restorable wetland layer to install and preserve a 300-acre wetland
- Action 2.16 Impervious surface reduction project
 - Identify a blighted area that could be converted to a park (3-acre area)
 - Report 15 acres reduced through PRP implementation
- Action 2.17 Continue dirt and gravel road program
 - Restore 0.75-mile per year, Overall goal of 19,80043,000 feet overall by 2025

Priority Initiative 3: Monitoring, Verifying, Researching, Educating, and Training

- Action 3.1A Enhanced local monitoring program
 - CAST-21 acknowledgement of our data
 - ~~Expand monitoring based on Corridors of Opportunity area monitoring gaps~~
 - ~~Action 3.1B Enhanced local monitoring program – Mount Rock Spring Creek Watershed~~
 - ~~Set up HUC 12 level watershed monitoring program in focus watershed so that as BMPs are installed, we can monitor water quality changes~~
- Action 3.4 Enhance the capacity of local watershed associations for short-term success and long-term sustainability
 - Share each other's social media content
 - When developing water quality projects, include them in the scoping/funding process
 - When we utilize/obtain funding for outreach, reserve some for partner promotional items (hats, shirts, etc.)
 - Encourage project implementation on the watershed level so that these partners enhance their relationships with non-peers with a co-benefit of diversifying their membership

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Programmatic Initiative: Recommendations for State Programmatic Changes

- Action 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

- Action 1.2 While three models continue to be utilized for Bay and other State regulatory water quality goals, complete a CAST/Model My Watershed (MMW)/FieldDoc water quality credit prediction analysis
 - Develop BMP reduction values that can be reported by MMW so that local water quality improvements can be calculated, and municipalities have a better understanding of the value of agricultural BMP water quality improvements in their landscape
 - Integrate MMW spreadsheet watershed model with mapping module so that site specific reductions can be calculated on the fly, or work with FieldDoc Planning Module
 - Result in user confidence that no matter the tool, BMP credits are consistently applied across programs
- Action 1.3 Continue to support improvements and training programs for FieldDoc and Practice Keeper
 - Maintain a standardized centralized data collection and reporting system
 - Since two systems are currently used, continue to explore one consolidated system option and its interaction with CAST
- Action 1.4 Provide data transparency for practitioners who use Practice Keeper
 - Add DEP data inputs to Practice Keeper so that, spatially, Conservation District staff can see the plans and BMPs that are in the system above and beyond those that they input in-house
- Action 1.5 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 and identify BMPs that should be visited (indications of operation and maintenance issues).
- Action 1.6 Develop a method/model/template to capture and report non-manure nutrient management
 - A method developed to encourage, perform, capture, and report the 4R program
- Action 1.8 Utilize Bay Model to establish assigned MS4 Permit baseloads/reduction requirements/BMP credits to eliminate the need for permittee calculations, justifications, and rationale
 - Permit assignment issued directly to permittees based on Bay Model so all Chesapeake Bay efforts are based on uniform criteria
 - Identify and improve data sets that limit the CAST model to run at local scales
- Action 1.9 Countywide Water Quality Credit Offset Pilot
 - Demonstrate measurable success of a pilot project area where MS4s and nonMS4s can collaborate on sediment and nutrient goals
- Action 1.10 Enforce Act 167
 - All municipal SWM Ordinances consistent with County Stormwater Management Plan and being enforced.
- Action 1.11 Create/establish incentives (positive – economic/water quality; negative – non-compliance penalties) for all stakeholders to comply with State law
 - Funding to implement BMPs and funding for regulatory agencies to meet responsibilities under established laws/regulations

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.

Cumberland County CAP Initiatives:

- Action 1.1A Implement County Comprehensive Plan policies and actions
 - Develop a process to calibrate the land use changes on the landscape to long-term land use change prediction in CAST
- Action 1.1C Model ordinances (stormwater water management)
 - Agriculture erosion and sediment/nutrient management plan local requirement (plans need to exist, local municipality doesn't review) – trigger mechanism (building permit); collect by municipality, pass onto Conservation District for input into Practice Keeper – stormwater permits for ag engineers – boilerplate BMP design options
- Action 1.2B Implement County Farmland Preservation WQ Project Shovel Readiness
 - Hire a shared contract employee with NRCS (soil conservationist) to perform planning activities on preserved farms that comply with NRCS standards
 - Pre-inspection form data improvements
- Action 1.2C Farmland preservation program incentives enhancement
 - Increase scoring criteria for preserved farm candidates that implement WQ BMPs
 - Include preserved farm plans and BMPs in Practice Keeper → ~190 farms
 - Explore prioritization of those farms on the preservation waiting list that need BMPs and are willing to implement them; include research on supplemental BMP funding sources with preservation priority.
- Action 1.2G Implement Return on Environment Report
 - Utilize data as part of clean water communications
 - Help Penn Township carry out recommendations and landowner outreach training
 - Identify priority areas for implementation and assess municipal interest in further ROE applicability
- Action 2.1B 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
- Action 2.1C Improve continuous data collection on urban non-structural practices
 - Add development-related BMPs to CAST/FieldDoc so that as land use data sets are updated, there are accompanying BMPs
- Action 2.1D Implement a documentation program for commercial and homeowner nutrient applications in developed lands
 - Support fertilizer legislation – where legislation requires reporting, be the data clearinghouse
- Action 2.4 Public/private Farm BMP sponsorship program

- Utilize Resource Enhancement and Protection Program (REAP) Program to leverage funding, sponsor farmers who perform BMPs and pay them cash from tax rebates that corporation receives from funding the program
- Action 2.6 4R Practice Education and Implementation
 - Transition manure management plans to nutrient management plans and incentivize implementation
 - Increase existing 4R practice (primarily nitrogen rate and timing) adoption by 6,000 acres
- Action 2.8D Operation and Maintenance Performance
 - Pair up Master Watershed Stewards with new buffers to enhance landowner acceptance
- Action 2.13A Implement the Cold Water Conservation Plan for LeTort Spring Headwaters
 - Complete habitat study
- Action 2.18 Utilize stormwater fee credit programs (where they exist) to collect existing farm BMP information
 - Catalogue farm BMP information collected by municipalities with stormwater fees
- Action 3.1B Enhanced local monitoring program – Mount Rock Spring Creek Watershed
 - Set up HUC-12 level watershed monitoring program in focus watershed so that as BMPs are installed, we can monitor water quality changes
- Action 3.2A Continue farm decision maker trips to showcase BMPs that work
 - Two trips per year, increase participation by 10% each year

- Action 3.2B Farm outreach town halls
 - Three per year, increase participation by 10% each year, sign farmers up for plans and project site visits
- Action 3.3 Utilize Restoration Reports for landowner outreach
 - Assist with development of Restoration Reports for Cumberland County
 - Train lead stakeholders on it
- Action 3.5 Conservation Excellence Grant Planning Tool
 - Develop a spreadsheet decision tool or web-based “Turbo Tax”-like tool so a practitioner or farmer can decide what the right mix of grant/loan/tax credits is for their farm based on their income statement, balance sheet, and other factors to be determined

State Programmatic Recommendations:

- Action 1.7 Implement a documentation program for commercial and homeowner nutrient applications in developed lands
 - Support fertilizer legislation – where legislation requires reporting, be the data clearinghouse

