

Phase 3 Watershed Implementation Plan (WIP) Annual Progress Update – CUMBERLAND 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)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
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Priority Initiative 1: County Programmatic Initiatives											
1.1A	Implement County Comprehensive Plan policies and actions	<p>Development directed to established growth areas; limited development and protection of natural resources in established rural areas</p> <p>Develop a process to calibrate the land use changes on the landscape to long-term land use change prediction in CAST</p> <p>Catalogue annual ordinance updates</p> <p>Catalogue actions that occur at municipal level</p>	CCPC, CCPD, municipalities	Cumberland County	Ongoing	Need to level the municipal knowledge base on the interplay between land use and water quality, updating local plans and ordinances, growth areas not consistent with Census Urbanized Areas and their contributing storm sewersheds, limited resources to address diverse needs from east to west	Education, outreach	N/A	Local planning coordination	N/A	2021 – 26 ordinance reviews were conducted by CCPD in the first half of 2021; significant submissions included a new stormwater management ordinance for Silver Spring Township, New Zoning Ordinance for the Borough of Newville and Newburg, New Subdivision and Land Development Ordinance for West Pennsboro; the county was involved with guiding the drafting of these ordinances for compatibility with county Comprehensive Plan and the local goals of the municipality. Three significant rezoning requests were submitted to the county Planning Commission to rezone a total of 250 acres in two municipalities from Agriculture to Industrial use. Two of the rezoning requests were recommended for disapproval by county and municipal planning commissions, and the third has been postponed. We'll need to work with the Chesapeake Bay Office Technical Team to see if the County's long-term land use layer can be used to calibrate CAST in addition to the existing land use data sets that are developed by the County GIS department. This is not a time sensitive item, but the County is willing to work with Technical Team on data compatibility.

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1.1B	Implement Cumberland Plans Program (CPP)	Countywide municipal comp plan and ordinance conformance with 2017 comp 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	CCPC, CCPD, municipalities	Cumberland County	Ongoing	Municipal investment in reviewing/updating comp plans and ordinances	Education, outreach, ordinance review, comp plan review	\$100k (county grant 50%, municipal 50% match)	Local planning coordination	N/A	2021 – A review of riparian buffer standards in municipalities throughout the county, and research on best practices on green infrastructure and conservation landscaping measures is currently underway. Planning grants awarded in the last round include a Zoning Ordinance update for Newville, Newburg and New Cumberland Boroughs, and an ordinance Codification for Mt. Holly Springs Borough. County Planning staff and Planning Commission have been involved with these updates and have provided thorough review of the new standards.
1.1C	Model ordinances (SWM)	Ag E&S/NM plan local requirement (plans need to exist, local muni doesn't review) – trigger mechanism (building permit); collect by muni, pass onto CD for input into Practice Keeper; stormwater permits for ag engineers – boilerplate BMP design options	CCPD, CCCD, municipalities	Start with select municipalities where stormwater fees exist (Monroe Twp, Silver Spring Twp, Upper/Lower Allen Twp)	Ongoing	Municipalities understanding the value of these actions, provide support on data sharing to keep the paperwork burden low, opportunity reduce review time if boilerplate BMP designs are widely adopted by practitioners	Receive plans if submitted through SBD/LD process	N/A	Plan review capacity Practice Keeper data input/management Building Permit Approval Process Update/Training Boilerplate BMP design development	\$100,000 per year \$60,000 per year Variable based on municipalities willing to participate and whether or not it can be incorporated into existing job description	2021 – Cumberland County needs FieldDoc to be established to have a place to store urban/suburban BMP data before we conduct municipal outreach and solicit BMP information. Further, if PracticeKeeper will continue to be restricted in terms of users, to pursue this initiative with an outcome of additional reported plans and BMPs, we would need a module to be built in FieldDoc to house the data or additional data input support with a PracticeKeeper license. Since there are several complexities to the initiative, including potential model ordinance development, mechanisms for municipalities to share information with County Planning/Conservation District, and the potential for boilerplate BMP design templates, the ongoing timeline is appropriate so we can focus our efforts where there can be the most benefit to CAP goals.

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1.2A	Implement County Farmland Preservation Program	Total preservation farm goal 30,000 acres by 2030 900 ac/year to reach commissioners' goal	CCPD, PDA, municipalities	Ag land use area that fits farmland preservation criteria	2020-2025	Operator/landowner acceptance, additional staff capacity	Overall program management Easement purchase Ombudsman – future consultant hire	\$750,000 PER YEAR Portion of 2021 NFWF INSR Grant (\$500,000)	Program management support Easement purchase	\$2,250,000 PER YEAR (PRESERVATION) + \$60,000 per year for staff	<p>2021 – In 2021, a total of \$3.4M in state and county funding was made available to the farmland preservation program. Silver Spring Township is expected to partner on two joint easements bringing supplemental funding into the program. Additionally, the County intends to apply for Federal RCPP funding in the fall to bring in additional funding. The Agricultural Land Preservation Board expects to preserve approximately 1200 acres on 10 farms through the 2021 round of selections, exceeding the annual goal of 900 acres/year. Total farmland preserved between 1992-2021 is 23,137 acres on 209 farms.</p> <p>An informational workshop will be held on September 14 to recruit potential applicants to the program. Information on conservation planning and BMPs will be provided at that meeting.</p> <p>In Spring of 2021, the Planning Department was able to hire a part-time staff person to add additional capacity to the program.</p>

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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	CCPD, NRCS	Countywide	Annual contract (Oct 1 – Sept 30)	50% match to NRCS contribution, training, onboarding time, planner certification	Staff training	N/A	N/A	\$20,000 PER YEAR	<p>2021 – The opportunity to partner with NRCS on a shared conservation planner was determined not feasible at this time. Instead, we are moving in a different direction because a NFWF INSR grant was awarded in July 2021 to advance work under this goal. Tasks to include inventory existing conservation plans, prioritize planning needs, outreach with landowners to update plans and advance BMP implementation. Funding for plan writing is also included.</p> <p>During the 2021 inspection process, conservation planning data was requested from all farmers. Numerous updated plans were received during the inspection cycle and logged into internal databases. As needed and/or requested, landowners were referred to the Conservation District for conservation planning and BMP assistance.</p> <p>The pre-inspection data form will be updated for the 2022 inspection cycle to enhance conservation data reporting.</p>

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1.2C	Farmland preservation program incentives enhancement	<p>Increase scoring criteria for preserved farm candidates that implement WQ BMPs</p> <p>Include preserved farm plans and BMPs in PracticeKeeper → ~190 farms</p> <p>Explore prioritization of those farms on the preservation waiting list that need BMPs and are willing to implement them if proceeds above and beyond land value are provided; include research on supplemental BMP funding sources with preservation priority.</p>	CCPD, PDA, Agricultural Land Preservation Board, LFT	Countywide	2021	O&M partnership for buffers, ag plans, BMP verification, provide more incentive based on the implementation of BMPs on site (beyond baseline compliance), would be a means of getting farms preserved with all the required BMPs in place simultaneously.	Guidelines update recommendation	N/A	<p>Guideline updates</p> <p>Practice Keeper data input/management</p> <p>Legal support</p>	<p>Assume \$50,000 per farm</p> <p>\$60,000 per year</p> <p>Assume \$10,000 budget</p>	<p>2021 – Formal discussion with the County and State Board regarding changes to the farmland ranking system has not yet begun. Staff continues to research various options for consideration by the County and State Board.</p> <p>The NFWF INSR grant scope of work includes PracticeKeeper data entry for all ~190 preserved farms. This task will commence in 2022 when the scope is underway.</p>

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1.2D	Implement Land Partnerships Grant Program – scope = farmland preservation, water resource management, parks, trails and greenways	Implement Cumberland County Land Partnerships Plan by preserving priority conservation areas, riparian buffers, ridgeline, steep slopes and other sensitive natural features. Promote landowner adoption of conservation practices. Conservation landscaping – 0.25 ac per year Preserved forest/ environmental sensitive land – 20 ac per year	CCPC, Land Partnerships Grant Review Committee, municipalities, watershed associations, non-profit conservation organizations, CPC and other land trusts	Countywide	2021	Recreation project focus historically, water quality and land preservation promotion needs on the short-term	Program promotion, application review	\$4,000 (2021)	N/A	\$4,000 (2021)	2021 – The funding awarded in 2020 and implemented in 2021 primarily supported recreational support for municipalities, though a project by the Central Pennsylvania Conservancy does include improvements to the Letort Garden Nature Preserve including ecological restoration. Future applications will be considered regarding the CAP goals outline in the performance targets.
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)	Municipalities, County and local emergency services, PEMA, FEMA	Countywide – floodplains	Ongoing	Timely adoption by municipalities, funding for large scale projects of meaningful result with small storm water quality benefit	Plan implementation team	TBD	TBD	TBD	2021 – The 2020 Hazard Mitigation Plan proposes implementable mitigation actions for the hazards facing the residents of Cumberland County. The update was approved by PEMA and sent to FEMA for final plan approval on December 16, 2020. HMP has been adopted by all municipalities. The FEMA floodplain map update is under review; once FEMA issues letter of final determination, municipalities must adopt within 6 months to be eligible for federal flood insurance. Many municipalities are in the process of updating their ordinance to meet or exceed FEMA standards.

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1.2F	Implement the Cumberland County Local Climate Action Plan – to be developed in 2021	Public participation – plan development (survey, meetings) Green infrastructure policy recommendations County facility energy efficiency results	Carlisle Borough, other municipalities, CCPD, educational institutions – Dickinson College and Shippensburg University	Countywide	2022 – plan horizon to be determined	Plan development during COVID, public support of the initiative, municipal role to be determined	Plan development team	TBD	TBD	TBD	2021 – The plan development team is continuing with the development of the Climate Action Plan, including stakeholder engagement, and is on track to finalize the plan in 2021.
1.2G	Implement Return on Environment (ROE) Reports	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.	CCPD, CCCD, Penn Township, South Mountain Partnership, Audubon, Ag Land Preservation Board	Countywide and Penn Township	2021	Implementation partner need	Overall planning guidance	N/A	Distill data down to layperson language Boilerplate BMP design and ordinance amendment	Project budget as landowners have interest	2021 – Penn Township had a Return on Environment report created and an implementation plan prepared under a grant. Implementation methods preferred by the municipality include voluntary stormwater management and conservation measures that homeowners can take as opposed to ordinance changes to require preservation standards. Staff involved with the county WIP team supported development of this plan. Communication of the results of the plan could be moved forward by the Township and the County is ready to support their efforts.

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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	Lower Allen Township, South Middleton Township, MS4 Workgroup, Homebuilder Association, Chesapeake Bay Foundation (policy/advocacy)	MS4 watershed HUC12	2021	DEP acceptance of approach	Engineering/MS4 permit requirement coordination Project opportunity ideas	N/A	For implementation , if the pilot works, 1 FT MS4 Coordinator, 1 PT ag Coordinator Project design and construction	\$150,000 per year Unknown until concept is developed and cost-savings are calculated	2021 – Planning staff and HRG had a discussion with the Monroe Township engineer to brainstorm pilot project areas that would be potential candidates for a more cost effective and local water quality beneficial approach to implementing their MS4 Pollutant Reduction Plan (PRP). Candidate locations have been identified and HRG is on track to complete preliminary calculations as a first step toward a pilot project where BMP(s) would be placed on an agriculture property outside the Urbanized Area for PRP implementation credit. Upon confirmation that there is benefit (cost reduction compared to an urban BMP and comparable sediment reduction credit to the urban BMP) and future DEP acceptance of the proposal, Monroe Township would pursue a conversation with the landowner to see if next steps of the project can proceed.
1.3B	Countywide Stream Restoration Bundling Pilot	Bundle stream restoration design and construction activities to more cost effectively meet MS4 requirements	MS4 Workgroup	MS4 watershed HUC12 scale	2022-2025	Municipality acceptance of approach, technical capacity of private sector to handle glut of stream restoration projects toward end of MS4 permit cycle, opportunity for more efficient permitting reviews rather than one application package per project	Review PRPs for logical bundling packages	N/A	Engineering/construction	Assume \$2,000,000 project budget scale	2021 – This initiative is slated to start in 2022.

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1.4	Water Quality Communication Plan	Develop messages and audience; execute plan and distribute messaging through staff	County Communications Department	Countywide	2020-2025	Staff bandwidth, consistency (type and frequency of messages)	Communications Plan Assistance Developed by county staff with input from internal planning team	N/A	N/A	\$5,000 (tabling materials, brochures)	2021 – County Planning staff, Communications staff, and HRG have met nearly monthly to discuss the communications needs for CAP implementation. Communications staff developed a communications plan and the team finalized social media, website, and print materials for various programs that support CAP goals. The NFWF INSR grant award includes budget for the tabling materials and brochures previously indicated as a resource need.
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	CCCD	Ag land use area	2021-2025	Farmer knowledge of the location and contents of their plan, obtaining copies of existing plans to determine if they are up to date	Site visits and plan reviews	\$200,000	N/A	N/A	2021 – The Chesapeake Bay Agricultural Inspection Program is on schedule for 2021 and plan information is being entered into PracticeKeeper as part of the program workflow. There are inequalities across the Bay counties in terms of the inspections occurring in places like Cumberland as opposed to DEP’s inspections in counties that don’t participate in the Chesapeake Bay Ag Inspection Program. Transitioning from working with the farmer to being the regulatory agency is a significant challenge, especially when other counties haven’t had any Phase 1 inspections.
1.5B	Other Plan Data Gathering	Collect data regarding existing farm plans and implementation progress ~45 farms per year → 170 farms through 2025	CCCD, LFT, Ag Consultants, NRCS	Ag land use area	2021-2025	Farmer knowledge of the location and contents of their plan, obtaining copies of existing plans to determine if they are up to date	50 farm visits per year Existing plans data sharing Request/review plans as part of farm support	N/A	Existing plan data	Could need financial assistance after 2021	2021 – Conservation District staff are continuing to review operations so that plan gathering is inherent to communication with landowners (i.e., PSNT field work and CEG program interest).

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Priority Initiative 2: Achieve New Pollutant Reductions											
2.1A	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, 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 ag BMPs that are visible 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 - PSU, USGS, Farm Bureau, PDA, LFT, EPA	Cumberland County	2021 – cataloguing 2022 – 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	N/A	Further GIS and data processing/method refinement	\$94,000 (2021) – assume similar annual budget while R&D continues on expanded BMP list	2021 – Funding for the initial BMP cataloguing project has not been obtained. HRG and Chesapeake Conservancy are working on a white paper that outlines the need for more remote sensing work to be done, specifically, by taking next steps with the NRCS PA BMP Remote Sensing Pilot Project (Potomac River Basin) process and findings. By taking this step, the initiative is behind schedule and not yet funded, but we hope to build momentum toward a successful outcome, including buy-in from EPA/Bay Program.
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	Lead - Chesapeake Conservancy Stakeholder peer review - PSU, USGS, Farm Bureau, PDA, MS4s	Cumberland County	2021 – cataloguing 2022 – batch upload processing and field views 2023 – 2025 – implementation focus	Different data set scales/precision	Precision Conservation Tools Batch upload processing BMP field backcheck	N/A	Further GIS and data processing/method refinement	\$44,000 (2021)	2021 – See 2.1A for progress as this initiative is a companion initiative.

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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	NonMS4s/MS4/muni engineers, MS4 Workgroup, Conservation District, Southampton Township?	Urban/suburban landscape	2022	Coordination/training for municipal staff, FieldDoc batch opportunity, non-MS4 engagement, difficulty obtaining past information (MS4s typically have databases from 2003-present)	Reporting platform	N/A	Training Municipal data input	N/A Assume \$5000 administrative cost per municipality per year and 7 developing municipalities → \$35,000 per year	2021 – This initiative is slated to start in 2022.
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	Cumberland County – TBD, Center for Water Quality Excellence	Countywide	TBD	Education of responsible parties, receiving timely information, training on reporting system	TBD	TBD	TBD	TBD	2021 – This initiative is being pursued by legislators.
2.2A	Additional Technical Assistance to Serve Farm Operators	Hire 1 new in-house engineer/planner	CCCD, NRCS	Cumberland County	2021-2025	Funding, expertise in labor pool, limited compliance activities by DEP, lack of funding for staff to assist the ag community in a proactive way	Plan development and BMP design, field verification, troubleshooting	\$200,000 per year	1 engineer, 1 planner, 2 technicians	\$350,000 per year	2021 – Funding and operational capacity does not exist for additional in-house County staff. The County is pursuing another technician for the Chesapeake Bay Agricultural Inspection Program, funded by PADEP, but they will not have capacity or skill set to fulfill this technical assistance need. HRG has drafted a white paper that outlines this challenge and a potential solution to develop more agricultural work force on the short- and long-term. Most support provided to landowners occurs because the Conservation District staff approached them. Conservation District staff also rely on NRCS to provide networking opportunities for those that apply for EQIP who don't meet the criteria or when the annual budget is exhausted.

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2.2B	Additional Technical Assistance to Serve Farm Operators	RFP an on-call contractor to assist with plan and BMP implementation backlog (design, construction)	CCCD, consultants	Mount Rock Spring Creek Watershed	2021-2023	Funding, expertise in labor pool, Limited compliance activities by DEP. Lack of funding for staff to assist the ag community in a pro-active way. Schedule lag between interested landowner, connection with consultant to do the work, consultant delivering the plan, follow up with CCCD staff who can assist with plan implementation, design/permitting, construction during schedule that works for landowner	N/A	N/A	1 engineer, 1 planner, 2 technicians	Assume 10 project opportunities in watershed – budget \$1.8 million	2021 – The current on-call consultant to support the CEG program is serving the TSP engineering need. Staff, NRCS, and the private sector continue to serve landowners, as the landowner chooses. A significant barrier to success includes the need for non-Conservation District staff to be authorized users of PracticeKeeper. This critical authorization will scale up efforts for BMP reporting to support CAP goals.
2.3	Additional nutrient management (NM) and agriculture erosion and sediment (E&S) plan development	560 new/updated plans developed and added to Practice Keeper (ag pres program, Bay Technician progress, other outreach)	CCCD, TeamAg, Private Consultants, County Farm Bureau	Cumberland County	2021-2022 2023-2025	Landowner interest, funding	Plan development, agricultural engineering support, BMP implementation	\$1.2M CEG Program (2021)	Administrative (enter information into PK) Plan updates after reimbursement program expires	N/A Assume 20 plans per year (\$120,000 per year)	2021 – County land preservation staff have started utilizing the annual inspections to ask about the status of their plans (current accuracy and implementation).

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2.4	Public/private Farm BMP sponsorship program	Utilize REAP program to leverage funding, sponsor farmers who perform BMPs and pay them cash from tax rebates that corporation receives from funding the program	CAEDC, Giant Foods/Ahold, LFT, SCC, The Nature Conservancy, Chesapeake Bay Foundation, PennAg, Capital RC&D	Cumberland County	2021-2022 initiation	Corporate interest	Initial coordination	N/A	N/A	N/A	2021 – No progress made.
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	CCCD, NFWF, Capital RC&D	Ag lands in County	2021-2022 (adjust next steps based on first two years of adjustments)	Landowner interest, BMP verification (annual) and paperwork	Means/methods assistance Transect survey Cost share incentive program (2021 NFWF Award + MEII Match)	\$54,600 \$54,600	N/A	N/A	2021 – Cover crop incentive signups increased from 400 acres in the 2018-2019 growing season to an average of 1400 acres in the 2019-2020 and 2020-2021 seasons. Additional outreach has increased participation (Farm Bureau newsletter articles, word of mouth, post card mailer, Bay inspection visits). The Bay Technician signed up every acre that the farmer planted, not just the acres that were cost shared.
2.6	4R Practice Education and Implementation	Transition manure management plans to nutrient management plans and incentivize implementation Increase existing 4R practice (N rate and timing) adoption by 6,000 acres	4R Alliance, Capital RC&D, CBF	Priority HUC	2021-2022	Landowner interest, BMP verification (annual)	Educational support	\$45,000	Cost share recommendations/equipment/software	\$50,000	2021 – 4R Alliance staff turnover has reduced communication with the County team. Outreach restrictions due to COVID have also made having workshops to garner landowner interest more challenging. We look to 2022 with respect to progress on this initiative.

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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	Alliance for the Bay, CCPC, DCNR, Western PA Conservancy, CBF, Pheasants Forever, Audubon, Master Watershed Stewards, Lower Allen Township, South Middleton Township	Urban/suburban landscape in Cumberland County	2021-2022	Landowner education and acceptance	Planting plan assistance Implementation	\$50,000 for lawn conversion (forest or meadow) \$391,000 CAP Block Grant (2021)	N/A	\$5,000 per acre (forest), \$3,700 per acre (meadow) Lawn Conversion PLUS Program \$300,000 (budget for all forest)	2021 – Cumberland County is working with the DCNR Lawn Conversion program to act on leads that they receive that they cannot fund due to DCNR's limited funding for conservation landscaping. Project leads are moving through the vetting process with a goal to implement a project in the Spring 2022.

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2.8A	Riparian buffer and re-forestation BMPs	<p>Partner with Chesapeake Bay Foundation to plant 100,000 trees (portion of 500,000 trees that will be RFPed for growers)</p> <p>17 acres - 2 farms per year – forest buffers with fenced pasture</p> <p>43 acres - 3 farms per year – grass buffer with fenced pasture</p> <p>50 riparian forest acres – CREP CLEAR 30 renewal, CBF, Alliance for the Bay support/lead</p> <p>42 acres – grass buffers</p> <p>155 acres – urban forest buffer (19 stream miles) – 5 miles per year (22 acres in PRPs)</p> <p>250 acres – urban forest planting – target one large landowner in urbanized area</p>	<p>CBF, CCCD, Alliance for the Bay, CCWA, YBWA, Mountain Creek Trout Club & Conservation Society, Cumberland Valley Trout Unlimited, LFT, Pheasants Forever</p>	Cumberland County	<p>2022 – line up landowners</p> <p>2023-2025 – implementation</p>	<p>Landowner partnerships, landowner education, volunteer acceptance of grass buffer plantings, grass buffer maintenance guide for farmers, routine site visits to confirm buffers are thriving, invasive species removal during establishment</p>	<p>In-kind, annual tree sale efforts</p> <p>Buffer my Stream/Prime Prospects data set</p> <p>Landowner outreach, buffer design, planting plan, 10 Million Trees tree supplies</p> <p>Landowner outreach/education</p> <p>Implementation – planting</p>	<p>CREP</p>	<p>Parcel-specific BMP recommendation and contact info</p> <p>Implementation – design, equipment, materials</p>	<p>\$50,000</p> <p>\$2.8 M budget</p>	<p>2021 – This initiative is slated to start in 2022, though community tree plantings occurred this year (CCWA did plant trees this spring at the Vincent DiFilippo Nature Preserve and Willow Mill Park. VDNP planted 3 acres with 720 trees and shrubs through CBF. Willow Mill project planted 265 trees. YBWA also had a tree planting in South Middleton Township.)</p>

Phase 3 Watershed Implementation Plan (WIP) Annual Progress Update – CUMBERLAND COUNTY

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2.8B	Wetland restoration implementation on marginal production ag land	48 acres implemented by 2025, currently programmed and likely no more because of the lead time needed to get the projects planned and funded	NRCS	Cumberland County	2025	None	Design, permit, construction	Existing NRCS Program Funding/Technical Assistance	N/A	N/A	2021 – NRCS completed the restoration of 14 acres of wetlands on agricultural land this year and have protected through a permanent easement another 20 acres of adjacent forestland that includes wetlands. The remaining restoration amount listed will be completed next year on another farm. NRCS covers all restoration costs as part of their program.

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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	CBF, CCWA, YBWA, Mountain Creek Trout Club & Conservation Society, Cumberland Valley Trout Unlimited, American Rivers	Mount Rock Spring Creek Watershed	2021 – identify qualifying project locations 2022 – funding solicitation 2023-2025 – design/permit/construction pending funding award	Design/permit/construction cycle seems to work in two-year increments	Habitat structures	Portion of 2021 NFWF INSR Grant (\$500,000)	Design, permit, construction services		<p>2021 – Project updates below. Most projects involve habitat and stream erosion repair.</p> <p><u>2021 Construction:</u> CVTU – Wittlinger Nature Preserve Project starting on August 9 (upstream from lake at Boiling Springs) Phase 3 & Phase 4:</p> <p>DCNR – King’s Gap State Park – Irishtown Gap project working with PA Council of Trout Unlimited, phases 3 & 4.</p> <p>CCCD/USFWS—Allenberry—unsure of contracting status at DEP. Depends on contracting if part of this project will happen this year. Several messages have been left and no response as of today.</p> <p>Mountain Creek Trout Club and Conservation Society—unsure if PAFBC is constructing this year or next year. 500-1,000 ft—unsure of final plans.</p> <p><u>2021 Funding applied for:</u> CCCD/PAFBC—3 sites identified and included with PA FBC Habitat Expansion GG Grant, totaling 1440 feet of stream</p> <p>CVTU/PAFBC—1 site—confluence of Letort/Conodoguinnet, LF to be determined</p> <p><u>Project leads:</u> Four projects for about 1650 LF of stream are being pursued by five partners, potentially for implementation in 2022/2023</p>

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2.8D	Operation and Maintenance Performance	Pair up MWS volunteers w/ new buffers to incentivize landowner acceptance	Volunteer group, contractor, Master Watershed Stewards, CBF	Cumberland County	2021 – establish MWS team to provide referrals	Volunteer training, liability, materials/equipment funding	Technical guidance Volunteer maintenance labor	N/A	N/A	N/A	2021 – The CAP Team worked with MWS volunteers on prospecting for new BMP areas, MWS volunteers worked together on buffer/tree planting maintenance, and the MWS coordinator shares project leads with MWS volunteers to advance.
2.9	Implement more prescribed grazing measures	40 acres per year – new and newly reported (160 acres total)	NRCS, Capital RC&D, CCCD	Cumberland County – landowners who raise horses, dairy, beef	2025	Not widely adopted today, existing funding through Capital RC&D that can be used to kickstart efforts	Landowner education	Crop to grazing conversion funding	N/A	1 grazing plan per year (\$4000 each) - \$20,000 total planning budget 3000 LF of fencing per year – Assume \$4.50/LF - \$13,500 per project or \$67,500 total project budget	2021 – 36 acres are either planned for or will be funded within the last two grant rounds. A field day for small ruminant grazing is planned for Fall 2021, which will help promote the program.
2.10	Animal waste management BMP implementation for livestock	Goal = 40% of farms with livestock have appropriately sized waste management (~18,500 AUs or about 100 farms, 25 farms per year newly reported or newly constructed)	CCD, SCC, NRCS, CEG Program, LFT	Livestock farms	2021-2025	Current capacity through NRCS and CCCD implements about 5 projects per year; 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	Project implementation – 2 farms/year Project implementation – 3 farms/year Plan development, agricultural engineering support, BMP implementation	\$1.2M CEG Program (2021), Portion of 2021 NFWF INSR Grant (\$500,000)	Design, permit, construction services	Assume 5 projects per year, \$130,000 each, \$650,000 per year, \$3.25 M total	2021 – Projects are being implemented through the CEG program and EQIP. As the Bay tech visits include farms with these BMPs, they are being reported.

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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)	CCCD, Chesapeake Conservancy, LFT	Livestock farms	2021-2025	Mapping challenges, typical logistics regarding landowner buy-in and project development/funding	Plan development, agricultural engineering support, BMP implementation	\$1.2M CEG Program (2021), \$391,000 CAP Block Grant (2021), Portion of 2021 NFWF INSR Grant (\$500,000)	Consultant for program management and project delivery	\$219,000 per year, \$1.1 M total	2021 – Projects are being implemented through the CEG program and EQIP. As the Bay tech visits include farms with these BMPs, they are being reported.
2.12	Manure treatment technology	Track Dickinson College digester/composting project for dry ton treatment	CCCD, Dickinson College	Central Cumberland County	2021-2022	What if project doesn't complete/operate according to design specifications when fully implemented?	Facility operation	Operational budget	N/A	N/A	2021 – The project is on track for implementation, construction starting Fall 2021/Winter 2022.
2.13A	Implement the Cold Water Conservation Plan for LeTort Spring Headwaters	Complete habitat study	Cumberland Valley Trout Unlimited, CCCD	LeTort Spring Watershed	2021	Connect goals of conservation plan to CAP goals	Plan writing	\$5000	N/A	N/A	2021 – Public Meeting #2 held 6/26/2021. Final plan to be sent to PA Coldwater Heritage Partnership by 8/6/2021 for final review.
2.13B	Implement the Cold Water Conservation Plan for LeTort Spring Headwaters	Implement recommended BMPs from plan and habitat study	Cumberland Valley Trout Unlimited, CCCD	LeTort Spring Watershed	2022-2025		Designs for habitat restoration	Average \$8,000 per year per project		\$ Match	2021 – This initiative is slated to start in 2022. CCCD will contact habitat specialists in Fall 2021 to start looking at priority restoration sites. Once several sites are picked, we will have a meeting with agency personnel (DEP/Army Corps/PAFBC) for permitting course of action(s).
2.14	MS4-related Pollutant Reduction Plan Implementation	Plan implementation by end of current permit term Stay up to date with MS4 Workgroup on their successes and needs	Cumberland County MS4 municipalities	Urbanized planning area	2023	Municipal capacity to implement plans (technical, financial)	Municipal engineer design/permit , construction readiness	Unknown value	N/A	N/A	2021 – MS4 communities continue to work through the implementation of their PRPs. COVID related delays on construction have held up the schedule to some extent. It was also difficult to set up meetings with private landowners to discuss easement agreements and gaining access to properties.

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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	Wildlife for Everyone?	Priority watershed (ag or non-ag)	ID landowner (2021) Funding (2022) Design/permit (2023-2024) Construction (2025)	Landowner participation, permitting, funding	GIS mapping Outreach	N/A	Design, permitting, construction	\$1,000,000	2021 - The CAP team would benefit from a partner organization taking the lead on this initiative. The schedule will need to be extended to insert the step of identifying a lead organization before or in parallel with identifying some candidate landowners.
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	Cumberland County Housing and Redevelopment Authority and municipalities	Carlisle Borough?, river-bordering Boroughs?, Newville and connect to Cumberland Valley Rail Trail?	ID landowner (2021) Funding (2022) Design/permit (2023-2024) Construction (2025)	To enhance buy-in and identify co-benefits to water quality, will need municipalities to define project priorities for the blighted property designations. Would need to do outreach/build support ahead of parcel targeting.	Mapping	?	Design, permit, construction	\$3,000,000	2021 – No progress has been made to date due to team capacity. It is also not a high priority due to low nitrogen reduction potential and high anticipated capital cost.
2.17	Continue dirt and gravel road program	Restore 0.75-mile per year, 19,800-feet overall	CCCD	County Wide	2025	Continue D&G Road program funding	Education, technical assistance, project oversight	\$225,000 per year	N/A	N/A	2021 – Two culverts were replaced with the low volume roads program. The dirt and gravel road program will repair 4200 feet of road including drainage and surfacing.
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	Silver Spring Township	Silver Spring Township	2021	Policy is new so education to farming community will be key	Plan review/Township staff training Data collection Practice Keeper input	N/A	N/A	N/A	2021 – Stormwater fee credit program for farms in Silver Spring Township has started and site visits are planned for 2021/2022 to verify credit eligibility. Sharing data for PracticeKeeper input will be a challenge due to privacy concerns.

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Priority Initiative 3: Monitoring, Verifying, Researching, Educating, and Training											
3.1A	Enhanced local monitoring program	CAST-21 acknowledgement of our data Expand monitoring based on Corridors of Opportunity area monitoring gaps	ALLARM/Dickinson College, Shippensburg University, CCWA, YBWA, CVTU, fly fishing outfitters	Countywide	2021-2022	Consistent data collection, QAQC continuation	Sample collection QAQC Citizen environmental monitoring expansion (future)		Portion of 2021 NFWF INSR Grant (\$500,000)	Sample Collection for new sites identified through CAP implementation N/A	2021 – The Chesapeake Monitoring Cooperative (CMC) team is excited to announce a new partnership with the National Fish and Wildlife Foundation, in addition to Cumberland County’s NFWF INSR award. They will be establishing a monitoring protocol that targets restoration projects to track progress over time. First, the CMC team will conduct a study design workshop with key stakeholders in Cumberland County. The workshop objectives are to identify data needs and assess appropriate methods to meet those needs. The goal is to have an approach that will engage volunteer monitors and holistically (water, habitat, organisms) track the recovery of restored streams throughout the Chesapeake watershed. This program will enhance our goal of expanded monitoring so that the results of BMP installations are better understood on the short- and long-term.
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	ALLARM/Dickinson College, Shippensburg University, CCWA, CVTU	Mount Rock Spring Creek Watershed	2020-2021	Consistent data collection, QAQC continuation	\$30,000 intern salary budget QAQC	N/A	N/A	\$10,000 EQUIPMENT (2021)	2021 – See Initiative 3.1A for update on expanded monitoring. Should additional BMP installations occur at scale in the Mount Rock Spring Creek watershed as a result of the 2021 NFWF INSR award, the CMC protocol will be utilized by ALLARM for enhanced BMP monitoring.
3.2A	Continue farm decision maker trips to showcase BMPs that work	Two trips per year, increase participation by 10% each year	CBF, CCCD, NRCS, Cumberland County Farm Bureau	Cumberland County	Fall and Spring of each year	Promotion to increase participation each year, expand logistics/# of local and Bay trips to allow for increased participation, consider alternative transportation options to canoes if it helps to scale up the initiative	N/A	Trip coordination and field facilitation	N/A	\$2000 per year to expand resources	2021 – A summer trip occurred in July that included a few local farmers on the ag action team and County staff as a “thank you” for participating in the development of the CAP.

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3.2B	Farm outreach town halls	Three per year, increase participation by 10% each year, sign farmers up for plans and project site visits	CBF, CCCD, NRCS, Cumberland County Farm Bureau, LFT	Cumberland County	Winter, Spring, Fall of each year	Promotion to increase participation each year	Coordination	\$7,000	N/A	\$7,000	2021 – Due to COVID restrictions, no progress in 2021.
3.3	Utilize Restoration Reports for landowner outreach	Assist with development of Restoration Reports Train outreach team members on it	South Mountain Partnership, Chesapeake Conservancy, CCWA, YBWA, Mountain Creek Trout Club & Conservation Society, Cumberland Valley Trout Unlimited	Cumberland County	2021	Relevance for target landowners – guide the process to the targeted audiences	Background data to support development of Restoration Reports	~\$2000	Consulting support to build out Restoration Reports for Cumberland County landowners	\$10,000	2021 – The Restoration Reports website went live in July 2021. Clean Water Cumberland promotes the use of it on social media and the project website.

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3.4	Enhance the capacity of local watershed associations for short-term success and long-term sustainability	<p>Share each other’s social media content</p> <p>When developing water quality projects, include them in the scoping/funding process</p> <p>When we utilize/obtain funding for outreach, reserve some for partner promotional items (hats, shirts, etc.)</p> <p>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</p>	CCWA, YBWA, Mountain Creek Trout Club & Conservation Society, Cumberland Valley Trout Unlimited, Big Spring Watershed Association, Letort Regional Authority, Friends of Opossum Lake, Middle Spring Watershed Association, POWR	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	Limited match	N/A	\$5000 per organization to produce promotional materials (hats, shirts, stickers) for members	<p>2021 – CCWA Commemorative Booklet grant for printing copies has been secured. Also looking at printing bookmarks to promote CCWA—unsure of funding source. Secured Rain to Drain, Slow the Flow Kits (CCCD through PA DEP Educational Grant) and borrowing Freddy the Fish for education at Carlisle Farmers Market on August 4. Several Creek Cleanups occurred on the Conodoguinet. Tree Plantings occurred in the spring.</p> <p>YBWA looking at getting stickers to promote YBWA. Annual Creek Cleanup held in July 2021. Tree planting in spring 2021.</p> <p>CCCD/FranklinCCD/AdamsCCD held Tri-County Watershed Meeting in March 2021.</p> <p>BSWA working with MWS to tackle invasive plants along Big Spring.</p> <p>MSWA is looking to expand to several tributaries close to them. Several Creek cleanups this past spring.</p>
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	Penn State Extension, State Conservation Commission, PENNVEST, Ag Choice Farm Credit	Cumberland	2021	Success of program so that it can be expanded to other counties, support Center for Water Quality Excellence so that funding can be simpler for landowners	Farm Business Advising Financial services support Private sector banking support	N/A	Coding/programming	N/A	2021 – There is currently more funding available than interested farmers, so this initiative has not proceeded. We still believe that a decision-making tool would be helpful to be integrated into CAP implementation so that practitioners can get up to speed faster. The current approach of field staff needing to have significant knowledge of BMPs and the myriad of funding options in order to be effective with landowners slows down our progress because of the time it takes for staff to “get up to speed” and develop relationships with landowners.

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 (~ 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.

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.

CCCD – Cumberland County Conservation District. The Cumberland 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.

CCPD – Cumberland County Planning Department. The Cumberland County Planning Department helps build strong urban, suburban, and rural communities by promoting responsible economic development, providing transportation choices, encouraging housing diversity, and conserving natural resources in partnership with our 33 municipal governments.

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 Cumberland 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.

Legacy Sediment. Soil that was eroded from upland areas after the arrival of early settlers and over the centuries of intensive land uses, such as agriculture.

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.