

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

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

Action #	Description	Performance Target(s)	Partners	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available				Resources Needed			
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Priority Initiative 1: County Programmatic Initiatives														
1.1A	Implement County Comprehensive Plan policies and actions	<p>Ensure that growth activities address existing water quality impairments through stormwater BMP implementation already required by local ordinance</p> <p>Revise existing model stormwater ordinance where needed. Look to incentivize additional protections for streams</p> <p>Preservation of environmentally sensitive Land Use (protect these sensitive areas through ordinances and natural resource protection) – Conserve 2,300 acres of forest.</p> <p>Preserve existing exception value wetland areas and enhance restorable wetlands in proximity</p>	<p>MCPC, growth boundary municipalities, Act 167</p> <p>Explore the establishment of a land trust or conservancy to conserve land</p>	Countywide	Ongoing	Educating municipalities, Updating local plans and ordinances, Growth areas not consistent with Census Urbanized Areas	Education, outreach	1 MCPC staff person	N/A	N/A	1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	<p>\$130,000 per year</p> <p>\$2,000 per acre of forest easement → \$4.6 M total</p>	<p>DEP</p> <p>DEP</p>

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1.1B	Implement the Source Water Protection Plan	<p>Assist municipalities with wellhead protection regulations, follow safe drinking water regulations</p> <p>Protecting Mifflin County’s surface water and groundwater as a viable resource is critical to preserving water quality and healthy communities. Develop new source water protection plans where feasible.</p>	Multi-township, DEP Safe Drinking Water Program	Multi-township	2022 – outreach with municipalities to determine implementation needs of existing plans and desire to draft new plans in key source areas	Reinforcing the municipal role in coordinating with the water authorities to perform education and outreach and connecting landowners with water quality needs with available resources.	Coordination of meetings and continued education.	1 MCPC staff person	N/A	N/A	1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year	DEP
											Source Water Protection Plan development	PADEP Southcentral Regional Office, utility staff, private sector	\$100,000	USDA/FSA/ NRWA Source Water Protection Program

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1.1C*	Evaluate areas to establish riparian buffers to stabilize stream banks and limit encroachment	Identify landowners willing to participate and work with the following partners to identify (5) buffer opportunities Leverage municipal parks along creeks for education, BMP work, habitat value, etc. Utilize river access points for public education – events, signage	Municipalities, Conservation District, CBF, Pheasants Forever, National Trout Unlimited	Countywide Bender Park, Reedville, Kish Park, Derry Twp Park, Lewistown Victory Park	5-10 years	Adopting ordinances, may require a pilot project in a willing municipality to demonstrate success. Lack of technical assistance to support implementation goals for forest buffers. Buffer funding programs must include 5-10-year minimum maintenance plan, incentive money for landowners, along with volunteers to establish the buffer.	landowner outreach; on the ground riparian project execution	1 County GIS staff person, 2 Conservation District staff people	N/A	N/A	1 – FTE Clean Water Coordinator for Planning Commission 1 – Additional Watershed Specialist for Conservation District	Planning Commission Conservation District	\$130,000 per year \$130,000 per year Expand Buffer Bonus Program to provide \$10,000 per acre of buffer installed to include 5-year maintenance contract → \$500,000 total	DEP DEP Funding Options: CFA Watershed Restoration and Protection Program, PA Fish and Boat Commission, CBF, Alliance for the Bay, DCNR, Growing Greener, NFWF

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1.2*	Mifflin County Public Sewer Plan	Update Act 537 plan to be consistent with local planning Require sewer extensions and or capped sewers Amend local ordinances to allow for secondary or backup systems Establish a Countywide sewer authority Consider developing regional sewer management authority with Mifflin County Municipalities	MCPC, Boroughs, Townships, municipal engineers	Countywide Riverside camp along Juniata River improvements: Septic connections needed, flood mitigation, trail network	2022-2025	Enforce and compliance with local ordinances and Act 537 Lack of funding to support Act 537 planning Municipalities have many other challenges to tackle and this may not be a priority					1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year \$150,000 startup funding to complete a countywide/regional sewer authority feasibility study	DEP DEP
1.3	Implement the Mifflin County Hazard Mitigation Plan (published 2019)	Encourage municipalities to participate in FEMA programs Adopt and enforce PA DCED Model Floodplain Ordinance Provide Open Space Preservation in flood plain areas Implement Drainage system management ordinances	Municipalities, County and local emergency services, PEMA, FEMA, Comprehensive Plan, ACT 167 Plan	Countywide – floodplains	2022 – review highest priority projects in plan for implementation steps and interest of home municipality to pursue projects	Timely adoption by municipalities, funding for large scale projects of meaningful result with small storm water quality benefit	Plan implementation team	1 MCPC staff person - lead	TBD	TBD	1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year	DEP

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1.4	<p>Juniata River Watershed Management Plan</p> <p>Look to identify a rapid delisting watershed in Mifflin County as part of the plan.</p>	<p>WPC applied for DCNR C2P2 grant to update the Juniata River Watershed Management Plan. CAP can help leverage funding for the Juniata River Watershed Management Plan.</p> <p>Work with the Chesapeake Conservancy to rapidly delist an agreed upon number of watersheds within the Juniata River Watershed Plan.</p>	Western Pennsylvania Conservancy, Chesapeake Conservancy, watershed groups	Juniata River Watershed (Blair, Fulton, Huntingdon, Juniata, Mifflin, Perry)	<p>2021 – Conservancy Exploring options</p> <p>2022 – outreach</p> <p>2023 implementation</p>	<p>Performance Target Continued: Our goal is basically to update the existing plan with work that has been done since the original plan, do some more in-depth GIS analysis, and get public and municipal input into what they see are the issues in the watershed. I think the GIS analysis will be a big part of the process. We’re planning on using the new 1-meter resolution data set, incorporating some of the buffer gap analysis work from Chesapeake Conservancy, etc.</p>	Watershed Specialist	MCCD	WPC applied for \$37,785 with \$37,286 match	DCNR	<p>1 – FTE Clean Water Coordinator for Planning Commission</p> <p>1 – FTE Clean Water Coordinator for Conservation District</p>	<p>Planning Commission</p> <p>Conservation District</p>	<p>\$130,000 per year</p> <p>\$130,000 per year</p> <p>Rapid Delisting Approach Project and Program Budget \$1,000,000</p>	<p>DEP</p> <p>DEP</p> <p>Growing Greener/DCNR</p>

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1.5	Advance the Implementation Strategy outlined in the Mifflin County Greenway, Open Space and Rural Recreation Plan	<p>Complete Mifflin and Juniata County Peer Studies</p> <p>Undertake projects that boost tourism and fish habitat, wetland restoration/conservation, educational signage (outdoor recreation, trails planning and development) – BMP goal: 25 acres forest buffers, 3000 feet stream restoration (portion of BMP goal cited in Initiative 3.9)</p> <p>Strategize the development of three additional public access points along the Upper Section of the Juniata River Water Trail.</p> <p>Determine if 50 acres of additional parkland per year is a feasible goal compared to level of recommended service by DCNR</p>	Western Pennsylvania Conservancy, PA Fish and Boat, Allegheny Ridge Corporation, Derry Township, all municipalities.	3-5 municipalities to pilot advancing projects or planning, as applicable	<p>2022 – seek DCNR funding for pilot studies</p> <p>2023 – obtain funding and develop plan</p> <p>2024 – identify municipalities and pursue feasibility study/master plans</p> <p>2025 – see funding for design/construction of projects</p> <p>2026-2030 – project execution</p>	Goals will support Stream Restoration and Buffer Goals					1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year	DEP
											1 – FTE Clean Water Coordinator for Conservation District	Conservation District	\$130,000 per year	DEP

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1.6*	Watershed Restoration Bundling Pilot	Bundle stream restoration design, trails, ag BMPs, fish habitat, signage, and construction activities in one design contract and one construction contract to more cost effectively enhance implementation success	Municipalities, watershed organizations, MCCD, MCPC	Countywide	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					1 – FTE Clean Water Coordinator for Conservation District Engineering/cons truction	Conservation District Municipal engineers/RFP ed contractor	\$130,000 per year Assume \$2,000,000 project budget scale	DEP PennDOT, Growing Greener, municipal match
1.7*	Implement County Farmland Preservation Program with farmland preservation program incentives enhancement	Total farmland preservation (26 farms in program currently – 2,838 acres) Look to fund 1-2 additional farms per year (100-150 acres) in preservation program. – 2,600 acres of farmland conservation Utilize conservation easements to protect and preserve agriculture land Develop agricultural preservation zoning ordinance	Lancaster Farmland Trust and Agricultural Preservation Coordinator, NRCS, MCCD, Farm Bureau, County Comprehensive Plan, ACT 167	Ag land use area that fits farmland preservation criteria	2022-2025 – explore incentive opportunities	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. Preserved farms are required to have an NRCS Conservation Plan, work with farmers to ensure Conservation Plan is reported in PracticeKeeper. Recommend making this a program requirement statewide. Sharing NRCS data is challenging, must comply with 1619 form.	Priority recommendations, easement revision recommendations, supplemental BMP funding research	Ag Land Preservation Board 1 MCPC staff, Mifflin County Farmland Trust		Ag Land Preservation Staff Administrator 1 – FTE Clean Water Coordinator for Conservation District	1 MCCD staff person Conservation District	\$130,000 per year \$130,000 per year \$250,000 per farm funded, total of 8 farms → \$2M	American Farmland Trust, PDA DEP American Farmland Trust, PDA, SCC	

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1.8*	<p>Establish funding/staff support to assist the Agricultural community (day to day support)</p> <p>711 farms exist in Mifflin County</p>	<p>Approximately 200 farms have their plans in Mifflin County, goal is to complete 600 by 2025. ~100 plans per year completed</p> <p>Work with private consultants to document plans.</p> <p>To communicate effectively with the farming community one on one farmer outreach must be conducted.</p> <p>The most effective way to capture and report BMPs is through one-on-one farm visits. Farmers do not participate in surveys or other methods.</p> <p>Work with agricultural community to implement BMPs consistent with E&S regulations</p>	<p>MCPC, M CCD, Contracted planners, Mifflin County Farm Bureau, ACT 38 farms, Preserved Farms, County Comprehensive Plan</p>	<p>Countywide AG Land</p>	<p>2022-2025</p>	<p>Limited compliance activities by DEP.</p> <p>Lack of Technical assistance to support the farming community.</p> <p>Private sector Ag plans are not required to be shared with District staff.</p> <p>Work with ACT 38, Preserved farms and organic farms to report AG E&S and NRCS Conservation Plans. These operations are required to have them, but no requirement to report the plans. It is recommended state agencies make changes to ACT 38 and Persevered Farm programs to require PracticeKeeper reporting.</p>	<p>63 Inspections performed per year,</p> <p>NRCS 40 plans per year</p> <p>Field verification, troubleshooting</p>	<p>M CCD Ches. Bay Tech</p> <p>NRCS</p> <p>M CCD, USDA NRCS, Private Consultants</p>	<p>N/A</p>	<p>N/A</p>	<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>3 – FTE Design, Engineer, Permit</p> <p>3 – FTE Inspector Construction Services</p> <p>1 – FTE Clean Water Coordinator for Conservation District</p> <p>1 – Administrative Assistant</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Private Sector/M CCD</p> <p>Private Sector/M CCD</p> <p>Conservation District</p> <p>Conservation District</p>	<p>\$780,000 per year</p> <p>\$420,000 per year</p> <p>\$315,000 per year</p> <p>\$130,000 per year</p> <p>\$75,000 per year</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p> <p>DEP</p> <p>DEP/NRCS/SCC/PDA</p>

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1.9	Local University Partnership - Implementation	Develop undergraduate and graduate students so that they can effectively engage in landowner outreach during implementation years.	Juniata College, Penn State, Susquehanna University, Bucknell University	319 Priority Watershed Riparian properties Preserved farms Priority Corridor Watersheds	2022-2025	Continued undergraduate/graduate engagement as students graduate through program, implementation funding Lack of technical assistance professionals to mentor students and develop workforce development. Lack of competitive paying job opportunities that ensure long term sustainable for recently graduated students	Ag staff	MCCD			5 – Student Internships to Support CAP Implementation	University or Students who live locally and attend other colleges	\$50,000 per year	TBD
1.10A	Develop a Mifflin County Water quality communication plan, leveraging existing documents and covering topics including Comprehensive Plan, Mifflin County Greenway, Open Space and Rural Recreation Plan, ACT 167 Plan, Hazard Mitigation Plan, Watershed Implementation Plans	Develop messages and audience; execute plan and distribute messaging through staff and partners Leverage Water 4Ag work, elevate to suburban community Utilize the DPJM County Countywide Action Plan (arcgis.com) ArcGIS website as a source of consistent communication; tie it to Water and Agriculture in Mifflin County Story Map	CBF, Penns Creek, Chesapeake Conservancy, NRCS, MCCD, Mifflin County PA Cleanways, Penns Creek Chapter TU, Water4Ag, MCPC, Municipalities	Countywide	2022 – develop local content, timing, identify responsible staff	Simplifying the resources that are available Sharing staff resources across the 4-county region	ArcGIS Hub Website 1 – lead county contact	Tri County Regional Planning Commission Conservation District and Planning Commission			Website development and continued maintenance 1 – FTE Marketing and Outreach Coordinator 1 – FTE Clean Water Coordinator for Planning Commission	Tri-County Regional Planning Commission Planning Commission Planning Commission	\$10,000 per year \$130,000 per year \$130,000 per year	Administrative budget tag-along to project-related grant award NFWF DEP

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1.10B	Agricultural Communication Strategy	<p>One on one farm outreach is the best way to communicate with farmers in addition to reporting practices. Develop a plan to complete more one on one farm visits.</p> <p>Work to develop a communication plan to engage integrators.</p> <p>Partner with external ag partners to present CAP goals at meeting.</p> <p>Utilize Farm Bureau Newsletter for announcements</p>	<p>CD, County Farm Bureau, Integrators, Ag Land Preservation, PSU Extension, NRCS</p> <p>Currently, there are several Farm Bureau meetings that occur each year, a 3rd grade Ag tour, Mifflin County Youth Fair, and annual Union Mills Meeting. Water4Ag</p>	Countywide	<p>2022-2025</p> <p>2022 – work with Mifflin County Local Leadership Committee to advance the findings of the Water4Ag project report findings, producers/households survey results</p>	<p>Funding to support the technical assistance required to complete one on one farm outreach</p> <p>Outreach to integrators is a challenge due to the number of integrators and multiple country boundaries they serve. It is recommended DEP/PDA/SCC communicate with integrators on a frequent basis to reduce mixed messages.</p>					<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>1 – FTE Marketing and Outreach Coordinator</p> <p>1 – FTE Clean Water Coordinator for Conservation District</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Planning Commission</p> <p>Conservation District</p>	<p>\$780,000 per year</p> <p>\$130,000 per year</p> <p>\$130,000 per year</p> <p>See 1.10A for website costs.</p> <p>Costs for meeting attendance and administration may be covered through other funding requests.</p>	<p>DEP/NRCS/SCC/PDA</p> <p>NFWF</p> <p>DEP</p>

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Priority Initiative 2: Reporting and Tracking														
2.1*	Existing BMP 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, cover crop and tillage management	Expand use of existing buffer layer with urban hydrology layer R&D into distinguishing ag, pasture, and turf covers from grassed buffers Manual digitizing where leaf-off <1 ft resolution imagery is available Back check with staff field views where required Add data to Practice Keeper or another batch upload option Use Spreadsheets of existing BMPs at MCCD	Lead - Chesapeake Conservancy Stakeholder peer review – local university, USGS, Farm Bureau, PDA, EPA	Countywide	2022 – cataloguing 2023 – Practice Keeper batch upload processing and field views	EPA acceptance of the approach, further refine guidance in QAPP so that counties can accomplish this or so that the state can take the burden off of counties, utilize the approach to catalogue existing BMPs and do on the ground verification where required for reporting purposes, this is an accelerated BMP catch up approach while we continue to provide support to farmers on planning and BMP installs, reduce the amount of interruption of government entities to compliant farm operations.	Precision Conservation Tools General methodology outline BMP field backcheck	Chesapeake Conservancy QAPP Varies by BMP	N/A	N/A	Further GIS and data processing/method refinement 2 staff people to follow up on BMP verification annually (staffers are a part of the identified 6 – ag planners identified elsewhere) 5 – Student Internships to Support CAP Implementation	Chesapeake Conservancy MCCD and County GIS Department Local University Student or local student attending nearby university etc.	\$46,000 (2022 only) \$260,000 per year \$50,000 per year	DEP/EPA PDA/SCC/NRCS/DEP TBD
2.2*	Identify future ag/urban project opportunities using automated means	BMP opportunity analysis – ag conservation, land retirement, alternative crop, forest conservation, stream restoration Back check with staff field views Batch upload to FieldDoc to calculate credit opportunity	Lead - Chesapeake Conservancy Stakeholder peer review – USGS, Farm Bureau, PDA, interested municipalities	Countywide	2022 – cataloguing 2023 – batch upload processing and field views 2024 – 2025 - implementation focus	Different data set scales/precision	Precision Conservation Tools Batch upload processing BMP field backcheck	Chesapeake Conservancy DEP/SRBC Varies by BMP	N/A	N/A	Further GIS and data processing/method refinement 5 – Student Internships to Support CAP Implementation	Chesapeake Conservancy Local University Student or local student attending nearby university etc.	\$46,000 (2022 only) \$50,000 per year	DEP/EPA TBD

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2.3*	Develop a local system to capture data collection on urban structural and non-structural practices	Add development-related BMPs to CAST/FieldDoc so that as land use data sets are updated, there are accompanying BMPs Use Chapter 102 Permit Closeout Milestone to report BMPs	Municipal engineers, Chesapeake Conservancy	Urban/suburban landscape	2023	Currently municipalities are not collecting BMP data because it is not required in non-MS4 communities. Must incentivize communities to report, no existing system in place.	Reporting platform	FieldDoc	N/A	N/A	Training 5 – Student Internships to Support CAP Implementation 1 – Municipal Planner	DEP Local University Student or local student attending nearby university etc. MCPC, Municipality, etc.	N/A \$50,000 per year \$130,000 per year	DEP TBD DEP
2.4*	Implement a documentation program for commercial and homeowner nutrient applications in developed lands Support current legislation for fertilizer bill.	Support fertilizer legislation – where legislation requires reporting, be the data clearinghouse Legislation will support the implementation of Urban Nutrient Management – 1,600 acres	PSU Extension	Countywide	TBD	Education of responsible parties, receiving timely information, training on reporting system, will need direction from State on what’s expected and any reporting system that’s developed.	TBD based on fertilizer legislation if passed	TBD based on fertilizer legislation if passed	TBD based on fertilizer legislation if passed	TBD based on fertilizer legislation if passed	1 – FTE Clean Water Coordinator for Planning Commission	Planning Commission	\$130,000 per year Urban Nutrient Management \$10 per acre → \$16,000	DEP DEP/PDA

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

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Priority Initiative 3: Achieve New Pollutant Reductions														
3.1	Implementation of the Upper Kish 319 Watershed Plan (February 2020 and beyond)	In 2020 grant received to install 2 HUAs, stream bank fencing and 2 livestock crossing, implementation with start 2021 Scope next round of projects and apply for funding following implementation of 2020 grant award.	MCCD, NRCS, DEP	Upper Kish Creek Watershed	Grant received in 2020 and construction set to begin spring of 2021 Scoping - 2022	Funding, landowner interest in BMPs, implementation partner coordination. Reverification of existing farm BMPs within the 319 watershed. Technical assistance to support BMP implementation on Farms.	Technical assistance	Conservation District, NRCS	\$2.9 million received to date for restoration	EPA Section 319 Grant and Growing Greener	1 – FTE Clean Water Coordinator for Conservation District 1 – new FTE environmental specialist	Conservation District Conservation District	\$130,000 per year \$100,000 per year \$500,000 to fund new projects beyond 2022	DEP DEP/PDA/SCC DEP/GG/319
3.2	Implementation of the Hungry Run 319 Watershed Plan	24 farms within Hungry Run Watershed Many BMPs implemented prior to 2010, reverification will be a necessity for Hungry Run Watershed Work with churches to implement stream restoration and buffers. Work with DEP to reassess stream segment	MCCD, landowners	Hungry Run Watershed Ranked farms based on prioritization ranking	2007 plan development Ongoing Implementation and verification	Lack of technical assistance and funding to reverifying exiting practices and implement new practices. Need to revisit the plan to see what BMPs are outstanding.	Technical assistance	Conservation District, NRCS	\$1.4 million received to date for restoration	EPA Section 319 and Growing Greener	1 – FTE Clean Water Coordinator for Conservation District	Conservation District	\$130,000 per year \$25,000 additional water quality monitoring and reassessment \$500,000 further implementation and reverification	DEP DEP DEP/PDA/SCC/NRCS

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3.3	Implement the Tea Creek Conservation Plan	Look to identify a few additional Ag projects in the Tea Creek Watershed. Most of the work has already been completed in the early 2000's. A few opportunities may still exist. Develop a community awareness day for education.	MCCD Look to realign a local watershed group to focus in the Tea Creek Watershed	Tea Creek Watershed Brown Township Rothrock State Forest	Ongoing	Look into PA Adopt a Stream to help support implementation. Lack of technical assistance and volunteer support to support the implementation of the Tea Creek Conservation Plan.					1 – FTE Clean Water Coordinator for Planning Commission 1 – FTE Clean Water Coordinator for Conservation District	Planning Commission Conservation District	\$130,000 per year \$130,000 per year \$500,000 project implementation	DEP DEP DEP Block Grant
3.4	Implement the Kishacoquillas Alternative Restoration Plan (ARP)	Implement Phase 1 of ARP: All farmers meet regulatory compliance with their Conservation and Nutrient Management Plans Phase 2: focus on satisfying restoration goals of each sub-watershed of Kish Creek Look to identify 1-2 projects per year in the subwatersheds	DEP Bureau of Clean Water, MCCD,	Kishacoquillas Creek Watershed Sub-watersheds include Upper Kish Creek, Hungry run, other unnamed tributaries	Phase 1 complete by 2022 Phase 2 complete by 2027	NRCS is supporting funding to the upper KISH as part of their NWQI Focus Watersheds Lack of technical assistance and volunteer support to support the implementation of the KISH ARP			319 Funding	319 Program	1 – FTE Clean Water Coordinator for Planning Commission 1 – FTE Clean Water Coordinator for Conservation District	Planning Commission Conservation District	\$130,000 per year \$130,000 per year \$500,000 project implementation	DEP DEP DEP Block Grant

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

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.5*	Help farmers and operators to be in compliance with state and federal Conservation and Nutrient Management Plans	<p>Soil and Water Quality Conservation Plans (Ag E&S) 20,000 new acres</p> <p>Nutrient Management (Manure Management) 29,000 new acres of Core N and 10,000 new acres of Core P</p> <p>NRCS 40 plans per year, CD 63 plans per year through inspection program (100 plans per year)</p> <p>Work with Act 38 operators, Preserved Farms, and certified organics to document plans already required</p>	4R Alliance, MCCD, Mifflin County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits, Integrators, ACT 38 farms, Preserved Farms, Organic Farms	Countywide Ag Land	2022-2025	<p>Lack of DEP inspections.</p> <p>Reporting and verification of Ag Plans, NRCS plans expire and do not get reverified, private plans are never entered.</p> <p>Lack of Technical assistance to support agriculture planning and implementation, one on one farm outreach is best way to capture existing plans.</p> <p>Act 38 and Preserved Farms not required to enter plans in PK, Recommendations to require programs to enter plans into PK</p> <p>State agencies must work with integrators to ensure they are requiring compliance by farmers. Some integrators require compliance, but not all, great way to communicate with farmers as well.</p>	63 farms inspected in 2021 – all inspected farms now have plans	MCCD, Chesapeake Bay Technician			6 – additional Ag Planners to work with farmers to develop required plans	District/NRCS/Private Sector Farm Visits	\$780,000 per year	DEP/NRCS/SCC/PDA
											Conservation Plans		\$15 per acre for a total cost of \$300,000	DEP/SCC/PDA/NRCS
											Core N and Core P		\$15 per acre for a total cost of \$435,000	DEP/SCC/PDA/NRCS

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.6	Advanced Nutrient Management (4R) Practice Education and Implementation	<p>Transition manure management plans to nutrient management plans and incentivize implementation</p> <p>Increase existing 4R practice (N Rate by 5,600 acres, P Rate by 6,600 acres, N Timing by 9,300 acres, P Timing by 6,600 acres, N Placement by 8,300 acres and P Placement by 6,600 acres)</p> <p>Create a small workgroup working with early innovators</p> <p>Explore the idea of increasing PSNT or Chlorophyll testing to district program participants</p>	4R Alliance, MCCD, Mifflin County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits	Countywide AG Land	2022-2025	<p>Landowner interest, BMP verification (annual)</p> <p>Lack of Technical assistance to support agriculture planning and implementation</p> <p>Additional funding to support soil testing. Soil testing is key to meeting the recommendations of supplemental BMPs.</p> <p>Machine-dependent for most farming operations</p> <p>Cost of fertilizer is self-regulating farmers to use less fertilizer; therefore, lower rates result. The challenge is documenting this each year.</p>	Educational support	CBF/4R Alliance			6 – additional Ag Planners to work with farmers to meet 4R standards	District/NRCS/Private Sector Farm Visits	\$780,000 per year	DEP/NRCS/SCC/PDA
							63 farms inspected in 2021	MCCD, Chesapeake Bay Technician					\$10 per acre of advanced nutrient management planning per type → total cost for all is \$430,000	DEP/PDA/SCC/NRCS

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3.7*	Implement Practice to improve soil health and sustainability (Tillage Management and Cover Crops)	Determine feasibility of having a county/state cost share program to enhance adoption of the annual practice, pay incentive payment per acre Implement tillage management and cover crops on an annual rate of 21,000 acres High Residue, 6,300 acres Conservation Tillage, 2,600 acres Low Residue, 6,000 acres of cover crops and 8,400 acres of cover crops with fall nutrients	MCCD, Mifflin County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits	Countywide Ag Land	2022 – investigation 2023 – next steps	Capacity to manage the program, landowner interest Lack of technical assistance and farm planners to work with farmers to transition to High Residue Tillage Current verification methods do not accurately capture implemented amounts – Capital RC&D survey needs revised Farmers are harvesting cover crops for forage, need accurate efficiency crediting for commodity cover crops Organic farmers are using tillage to manage weeds and vertical tillage is becoming more popular among farmers, younger generation is “trying” tillage for experience	Transect survey	Capital RC&D	Refer to REAP and NRCS		6 – additional Ag Planners to transition farmers to high residue	District/NRCS/Private Sector Farm Visits	\$780,000 per year	DEP/NRCS/SCC/PDA
							Landowner education	1 MCCD staff person			County MCCD – staff to administer the program	Cover Crop Incentive Program	\$90 per acre traditional per year → \$540K for a 5-year total of \$2.7M (incentive payment, administration, Capital RC&D reporting) \$50 per acre fall nutrients per year → \$420K for 5-year total of \$2.1M	PDA, SCC, Growing Greener, Pennsylvania Association of Conservation Districts (PACD)
											Capital RC&D Transect Survey	Improved data reporting	\$50,000	DEP

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.8	Implement more pasture management BMPs	<p>Pasture Alternative Watering – 250 acres</p> <p>Forest buffers on fenced pasture corridor – 80 acres</p> <p>Grass buffers on fenced pasture corridor – 80 acres</p> <p>Land Retirement to Ag Open Space – 250 Acres</p>	MCCD, Mifflin County Farm Bureau, NRCS, Private Sector Agriculture Farm Visits	<p>Countywide ag lands – landowners who raise horses, dairy, beef and other pasture grazing animals</p> <p>Upper Kish WIP priority BMPs</p>	2025	<p>Landowner education, BMP funding for non-buffer work, plan updates, data gathering</p> <p>Lack of Technical assistance to support agriculture planning and implementation</p> <p>Old NRCS plans need to be updated to comply with prescribed grazing definition – difficult to get landowner buy-in – fund alternative watering and fencing; most pastures are streamside</p> <p>Increasing construction costs are resulting in canceled NRCS contracts</p>	Landowner education	NRCS			6 – additional Ag Planners to provide technical assistance and ag planning	District/NRCS/ Private Sector Farm Visits	\$780,000 per year	DEP/NRCS/ SCC/PDA
							Data gathering through Bay Tech visits	1 - Chesapeake Bay Tech staff person			3 – additional FTE environmental technician	Chesapeake Conservancy, CBF, etc.	\$390,000 per year	DEP/NRCS/ SCC/PDA/ DCNR/NF WF/EPA
													Off stream Watering \$500 per acre → \$125K total	DEP/NRCS/ SCC/PDA/ DCNR/NF WF/ EPA
													FB Buffer W/ Exclusion \$10,500 per acre → \$840K total	
													GB Buffer W/ Exclusion \$2,750 per acre → \$220K total	
													Land Retirement \$500 per acre → \$125K total	

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.9*	Riparian buffer and re-forestation BMPs	<p>314 riparian forest buffer acres, (274) acres lost since 2017 need reverified</p> <p>44 riparian grass buffer acres – (24) acres lost since 2017 need reverified</p> <p>26 acres – Agriculture Tree Planting</p> <p>10 acres – urban forest buffer</p> <p>2 acres – urban tree canopy</p> <p>5 acres – urban forest planting</p> <p>Forest Harvesting Practices – 75 acres</p>	CBF, Penns Creek Conservancy, NRCS, MCCD, Mifflin County PA Cleanways, Penns Creek Chapter TU, Water4Ag	Countywide	<p>2022 – line up landowners, develop and install educational signage for the urban stream restoration that occurred at buyout site</p> <p>2023-2025 – implementation</p>	<p>Landowner partnerships, landowner education, volunteer acceptance of buffer plantings, buffer maintenance guide for farmers, routine site visits to confirm buffers are thriving, invasive species removal during establishment</p> <p>Flash grazing must be allowed with buffer installation</p> <p>Funding program must include a 5-10-year maintenance program to establish buffers along with incentive program \$4K minimum per acre payment</p> <p>MCCD would like more buffer management equipment to utilize and lend to landowners and watershed groups. Already have trailer with small hand tools. Could use mower but need more storage space and equipment funding!</p>	Materials	MCCD (in-kind, annual tree sale efforts), CBF	Budget available to be determined	CBF, NFWF, NFWS, NRCS - CREP	6 – additional Ag Planners to provide technical assistance and ag planning	District/NRCS/Private Sector Farm Visits	\$780,000 per year	DEP/NRCS/SCC/PDA
							Mapping	Chesapeake Conservancy			3 – additional FTE environmental technician	Chesapeake Conservancy, CBF, etc.	\$390,000 per year	DEP/NRCS/SCC/PDA/DCNR
							DCNR Prime Prospects Data Exists	DCNR					Forest Buffer \$10,000 per acre → \$500K	DCNR, NFWF, PACD, TreeVitalize, DEP, Coldwater Heritage Partnership Implementation Grants, Landscape Scale Restoration (LSR) Grant Program – US Forest Service, Pennsylvania Habitat Stewardship Program, Alliance for the Bay, CBF, CC
													Grass Buffer \$2,500 per acre → \$50K	
													Tree Canopy \$5,000 per acre → \$11K	
													Tree/Forest Planting \$10,000 per acre → \$310K	
													Forest Harvesting Practices \$60 per acre → \$4,500	

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3.10	Wetland restoration implementation on marginal production agricultural land	27 acres of Wetland Restoration	CBF, NRCS, MCCD, Mifflin County PA Cleanways, Penns Creek Chapter TU, Water4Ag	Countywide	2022 –2025	<p>Willing landowner; appropriate siting, design, and construction for successful restoration result.</p> <p>Lack of technical assistance for landowner outreach and agriculture planning to identify potential site locations.</p> <p>Lead time it takes to secure projects can take years.</p>	Landowner outreach	1 MCCD staff person			<p>3 – additional FTE environmental technician</p> <p>2 – stream biologist</p>	<p>Chesapeake Conservancy, CBF, etc.</p> <p>PAFBC, USGS, MCCD, etc.</p>	<p>\$390,000 per year</p> <p>\$280,000 per year</p> <p>Wetland Restoration \$30,000 per acre → \$810K</p>	<p>DEP/DCNR</p> <p>DEP/DCNR /PAFBC/ USGS</p> <p>DEP/DCNR / USDA Conservation Reserve Program (CRP) or NRCS Wetlands Reserve Program (WRP)</p>
3.11	Stream Restoration (Urban and Agriculture)	<p>8,000 Linear feet (<1 miles) Urban Stream Restoration</p> <p>10,000 Linear feet (1 mile) Agriculture Stream Restoration</p> <p>Identify Mill dam removal opportunities</p> <p>Pair fish habitat with stream restoration</p>	CBF, NRCS, MCCD, Mifflin County PA Cleanways, Penns Creek Chapter TU, Water4Ag, PFBC Stream Restoration Team	Rapid delisting areas top priority & Countywide	2022 – 2025	Design/permit/construction cycle seems to work in two-year increments, there is an assumption that eroded/degraded streams exist based upon 403(d) listing – should that not be the case in the field, adjust quantitative goal down and ensure buffers are in place. Lack of funding to cover engineering design.				<p>Design, permit, construction services</p> <p>2 – Municipal Engineers</p> <p>3 – FTE Design, Engineering, Permit</p> <p>2 – stream biologists</p>	<p>Private sector, USFWS, TU</p> <p>Municipalities, Planning Commission</p> <p>Private Sector/ MCCD</p> <p>PAFBC, USGS, MCCD, etc.</p>	<p>Assume urban \$900/LF - \$7.2M</p> <p>Assume rural \$400/LF - \$4M</p> <p>\$280,000 per year</p> <p>\$420,000 per year</p> <p>\$280,000 per year</p>	<p>Growing Greener, NFWF, DEP, DCNR</p> <p>TBD</p> <p>DEP/NRCS/ SCC/PDA</p> <p>DEP/DCNR / EPA</p>	

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.12	Implement more barnyard runoff control/loafing lot management	<p>250 acres of barnyard runoff controls</p> <p>27 acres of agriculture drainage management</p>	MCCD, Chesapeake Conservancy, NRCS, Mifflin County Farm Bureau	Countywide Farms	2022-2025	<p>Mapping challenges, landowner buy-in and project development/funding.</p> <p>Lack of Technical assistance to support agriculture planning and implementation.</p> <p>Lack of funding to cover engineering design.</p> <p>Increasing construction costs are cancelling NRCS contracts.</p> <p>CAST has identified Mifflin County as 100% BMP implementation for barnyard runoff controls. This is not accurate.</p>					<p>6 – additional Ag Planners to provide technical assistance and ag planning</p> <p>3 – FTE Design, Engineer, Permit</p> <p>3 – FTE Inspector Construction Services</p>	<p>District/NRCS/Private Sector Farm Visits</p> <p>Private Sector/MCCD</p> <p>Private Sector/MCCD</p>	<p>\$780,000 per year</p> <p>\$420,000 per year</p> <p>\$315,000 per year</p> <p>Barnyard Runoff Control \$175K per project, assume 1 acre per project \$1.925M in total</p> <p>Agriculture Stormwater Management \$10K per acre → \$270K</p>	<p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p> <p>DEP/NRCS/SCC/PDA</p>

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3.13	Animal waste management BMP implementation for livestock	3,500 new AUs of animal waste management systems 1,300 new AUs of livestock mortality composting	MCCD, Chesapeake Conservancy, NRCS, Mifflin County Farm Bureau	Livestock & Poultry farms	2022-2025	Current capacity through NRCS and MCCD implements about 5 farms 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 Lack of funding to cover engineering design	Project implementation – 4 – 5 farms a year	NRCS, MCCD, Private Ag Sector			6 – additional Ag Planners to provide technical assistance and ag planning 3 – FTE Design, Engineer, Permit 3 – FTE Inspector construction Services	District/NRCS/ Private Sector Farm Visits Private Sector/ MCCD Private Sector/ MCCD	\$780,000 per year \$420,000 per year \$315,000 per year Animal waste management system \$175,000 per project, assume 100 AUs per project \$6.125M in total Mortality composters \$3.3M budget	DEP/NRCS/ SCC/PDA DEP/NRCS/ SCC/PDA DEP/NRCS/ SCC/PDA DEP/NRCS/ SCC/PDA
3.14*	Manure Transport out of Mifflin County	Transport 4,000 dry tons per year out of Mifflin County	MCCD, Chesapeake Conservancy, NRCS, Mifflin County Farm Bureau, Manure haulers and brokers	Countywide	2022-2025	Current reporting standards do not require manure brokers and haulers to report manure transported. New regulations must be developed to require haulers and brokers to submit information to DEP.			Surface Water Assessment (SWAP)	Conservation District	1 – FTE Clean Water Coordinator for Conservation District	Conservation District	\$130,000 per year	DEP

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3.16	Conservation Landscaping/Turf to Meadow Conversion	Promote new program and enable one large tract landowners' participation 40 new acres of Conservation Landscaping	CBF, NRCS, MCCD, Mifflin County PA Cleanways, Penns Creek Chapter TU, Water4Ag, Municipalities, Native Creations	Developed areas in County municipalities Kish Park (3-4 acres) District Office	2022 - 2025	Landowner education and acceptance Existing mowing ordinances and weed ordinances can be a challenge to implementation	Planting plan assistance	Alliance for the Bay (in-kind)			1 – FTE Municipal Planner 3 – additional FTE environmental technician	Planning Commission Chesapeake Conservancy, CBF, etc.	\$130,000 per year \$130,000 per year \$2,500 per acre meadow → \$100,000 budget	DEP/DCNR DEP/DCNR / SCC/PDA/NRCS DCNR/USFW/NFWF/DEP
3.17*	Continue dirt and gravel road program	24 miles overall restored through past projects Continue to implement the program annually	MCCD	Countywide	2025	Continue D&G Road program funding Expand Dirt and Gravel Road Program to include farm lanes	Education, technical assistance, project oversight	MCCD, Center for Dirt & Gravel Road Studies, SCC	\$1.1 million since 1997	State Conservation Commission	1 – FTE Clean E&S/ DGR Tech	Conservation District	\$130,000 per year Dirt and Gravel Roads \$40 per foot → TBD	DEP/PDA/SCC SCC
3.18*	Work with PennDOT and local municipalities to reduce frequency of mowing road ditches and along roadways	Educate local municipal leaders and work with PennDOT to address state owned roads on the importance of keeping higher vegetation along roadways to prevent erosion and increase nutrient uptake.	Local Municipalities, DEP and PennDOT	Countywide	2023	PennDOT's and Municipal willingness to cut back on mowing programs. DEP Chesapeake Bay Program will need to assist in the education of PennDOT.					1 – FTE Clean Water Coordinator for Planning Commission 1 – FTE Clean Water Coordinator for Conservation District	Planning Commission Conservation District	\$130,000 per year \$130,000 per year	DEP DEP/PDA/SCC

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3.19	Private Funding & Grant Administration	Identify some private funding sources that may be able to supplement public funding sources/existing sources utilized for stakeholders, continue to work with partners to facilitate additional funding	Existing project implementer networks	Countywide	2022-2023	Need to expand network, educational aspect of less common funders, logistics of utilizing unproven funding sources (or lesser known). Grant administration is a challenge due to limited staff and time-consuming nature of grant reporting and administration.	Financial services	HRG (CAP coordinator)			1 – FTE Conservation District Grant Manager 1 – FTE Planning Commission Grant Manager 2 – staff accountants	MCCD Planning Commission Planning Commission and District	\$130,000per year \$130,000 per year \$140,000 per year	TBD TBD TBD
Priority Initiative 4: Research, Education, and Training														
4.1*	Continue to implement Mifflin County Surface Water Assessment (SWAP). Explore options to identify additional monitoring sites.	Location identification, financial and volunteer budget analysis, and initial landowner communication by end of 2022. Continue to implement SWAP program and explore feasibility to retrofit USGS monitoring stations. Submit data to Chesapeake Monitoring Cooperative.	ALLARM, Keystone Water Resources Center, Juniata College, Penns Creek Watershed Association PADEP, consultants	To be determined	2022	Land access, expanded volunteer need, equipment/materials budget, Consistent data collection, QAQC continuation	Temp Loggers, YSI Multimeter	Conservation District		PFW Grant	Volunteers for Water quality monitoring New monitoring equipment Retrofit USGS monitoring 3 – additional FTE environmental technician 2 – stream biologist/envronmental scientist	Local environmental groups MCCD USGS Chesapeake Conservancy, CBF, etc. PAFBC, USGS, MCCD, etc.	N/A \$10,000 Locations \$50,000 per monitoring site \$130,000 per year \$280,000 per year	TBD ALLARM USGS DEP/NRCS/DCNR/PDA DEP/DCNR /PAFBC/USGS

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4.2	Look to create new or enhance the capacity of local watershed associations for short-term success and long-term sustainability Explore the feasibility of establishing watershed association in Mifflin County	Develop new or reestablish existing watershed associations to support with CAP implementation. Watershed organizations can support with outreach, engagement, new project identification and implementation	Penns Creek Watershed Association, Trout Unlimited, National Trout Unlimited,	Countywide	Ongoing	Willing volunteers and leaders to establish and run watershed organizations to be successful and support with implementation Enhance the capacity of local watershed associations for short-term success and long-term sustainability	Social media shares Project development support	County – department to be determined CAP Coordinator (HRG)			1 – FTE Clean Water Coordinator for Planning Commission 1 – FTE Clean Watershed Specialist	Planning Commission Conservation District	\$130,000 per year \$130,000 per year \$5000 per organization to produce promotional materials (hats, shirts, stickers) for members → \$10,000 per year	DEP DEP/PDA/SCC To be included in a project-related grant application

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.

AMD – Acid Mine Drainage. Outflow of acidic water from metal mines or coal mines.

BMP – Best Management Practice. Best management practices describe a type of water pollution control. Using agricultural BMPs can help to prevent or minimize the effects of nonpoint source pollution.

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.

CCD – County Conservation District. The 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.

CPC – County Planning Commission. The County Planning Commission makes recommendations and decisions to maintain and enhance the high quality of life for all residents, in accordance with the Pennsylvania Municipalities Planning Code, and other laws and regulations of the Commonwealth of Pennsylvania and the prevailing county code.

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.

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.

NRCS – Natural Resource Conservation Service. NRCS's programs help farmers reduce soil erosion, enhance water supplies, improve water quality, increase wildlife habitat, and reduce damages caused by floods and other natural disasters.

PACD – Pennsylvania Association of Conservation Districts. Provides support for Pennsylvania's conservation districts.

PEMA – Pennsylvania Emergency Management Agency. PEMA is tasked with the response to, preparedness for, recovery from, and the mitigation or prevention of disasters and other emergencies.

PracticeKeeper or PK. PracticeKeeper is a protected, online database Used for reporting conservation plans, BMPs, E&S plans, nutrient management plans, watershed plans, complaints, DEP inspection reports and data exports to DEP.

QAPP – Quality Assurance Project Plan. A QA Project Plan documents the technical and quality aspects of a project, including project management, implementation, and assessment. It specifies responsibilities, monitoring objectives, sampling design, sample collection methods, analytical methods, quality control, data management and data validation activities. It is required by EPA prior to any monitoring or data collection.

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

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

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

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

Water Quality (WQ) Credit Offset Pilot. For nitrogen, and potentially other pollutants, BMPs are more effective and cheaper to build in the agricultural landscape than the developed landscape. The goal of this pilot is to further explore the 1-mile radius beyond the MS4 Pollutant Reduction Plan planning area, and larger radii, where ag BMPs can be sited for MS4 credit under certain conditions.

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