

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

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Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available				Resources Needed			
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<b>Priority Initiative 1: County Programmatic Initiatives</b>														
<b>1.1A</b>	Implement County Comprehensive Plan policies and actions (PHASE 1 = 2003, PHASE 2 IMPLEMENTATION = AG, TELECOM, LANDUSE)	Centre Regional Growth Boundary Full Implementation as part of Centre Region Comp Plan (2013)  Ensure that growth activities address existing water quality impairments through stormwater BMP implementation already required by local ordinance	CCPC, growth boundary municipalities	Ferguson, Patton, State College Borough, College Township, Harris Township	Ongoing	Educating municipalities, Updating local plans and ordinances, Growth areas not consistent with Census Urbanized Areas and their contributing storm sewersheds	Education, outreach	1 CCPD staff person	N/A	N/A	Local planning coordination	4 municipal staff (one from each planning region), planning commissions	N/A	N/A
<b>1.1B</b>	Implement County Comprehensive Plan policies and actions (PHASE 1 = 2003, PHASE 2 IMPLEMENTATION = AG, TELECOM, LANDUSE)	Map existing AMD BMPs and address additional impairments in Moshannon Creek and Beech Creek  Explore DEP Pilot Project for Chesapeake Bay Program Nutrient Reduction Credit	Moshannon Creek Watershed Association, DEP Office of Mining	Moshannon Creek Watershed, Phillipsburg, Rush Township, Show Shoe Township, Burnside Township	2021 – pilot initiation	Majority of Association’s work has occurred in Clearfield County, drought can make sampling inconsistent, additional sampling network and BMP implementation with volunteers only, EPA acceptance of results where correlations may be drawn (data may be inconclusive on the short-term)	Field work, Project identification	MCWA Members	N/A	N/A	Project design	Consultants	Assume \$500k needed per project	DEP AMD

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1.1C	Advance local comprehensive planning efforts  Penns Valley, 2006 – Implement the Source Water Protection Plan	An annual review of the document and setting/fulfilling 1 goal.  Partner with NRCS to determine eligibility of improvements regarding source water protection and the 2018 Farm Bill	Centre Hall Borough, Centre Hall Water Authority	Centre Hall, Millheim, Penn Township, Potter Township	1-2 years	Reinforcing the municipal role in coordinating with the water authorities to perform education and outreach. Recommendations include putting SWP plans on the municipal websites and consider annual/bi-annual joint meetings and informational mailings to property owners who are in proximity to Zone 1 (well heads). Source water projection is relevant to Chesapeake Bay pollutant load reductions because reducing pollution to groundwater reduces discharges to local streams, while contributing to the Bay goals and protecting local drinking water sources.	Educational flyer forms and activities lists.  Coordination of meetings and continued education.	Centre Hall SWP Group  1 CCPD staff person	Minimal for printing, postage, website maintenance (\$250)	Municipal, water authorities	N/A	N/A	N/A	N/A

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1.1D	Advance local comprehensive planning efforts  Penns Valley, update – Facilitate efforts to minimize flood impacts	Not set in comp plan  As outreach occurs in Penns Valley, be mindful of this need and be on the lookout for opportunity to advance the effort	Gregg Twp, Millheim Boro, Penn Township, Penns Valley Conservation Association	Within responsible party municipalities	5-10 years	Original discussions stemmed from landowner concerns regarding flooding and flood mitigation techniques. FEMA's Community Rating System (CRS) was offered as a program solution but municipalities opted not to participate citing lack of administrative capacity. CRS includes incentives for adopting/enforcing higher floodplain development standards. Flood mitigation is relevant to Chesapeake Bay pollutant load reductions because stormwater controls for development are not designed to capture pollutants from storms >around 2". Flood controls can, if considered in design and maintained, capture pollution.	CRS program guides	FEMA Region III STAFF	N/A	N/A	Flood elevation certificates for program entry  Administrative capacity	Homeowner responsibility  3 municipal staff people (1 person per municipality)	N/A	N/A

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1.1E -1	Advance local comprehensive planning efforts  Nittany Valley, 2004 – Evaluate areas to establish riparian buffers to stabilize stream banks and limit encroachment	Not set in comp plan  Utilize Chesapeake Conservancy data set to identify buffer gap project opportunities (2021)	Municipalities, Conservation District, Chesapeake Bay Foundation, Pheasants Forever, National Trout Unlimited	Region-wide on agricultural lands and developed land	5-10 years	No set means of evaluation outlined in comp plan and landowners’ volunteering to plant riparian buffers unlikely. Adopting ordinances not likely on a regional scale but may require a pilot project in a willing municipality to demonstrate success.	Base mapping identification; landowner outreach; on the ground riparian project execution	1 Centre County GIS staff person, 2 Conservation District staff people	N/A	N/A	Planning and construction guidance/standards	Conservation District, Chesapeake Bay Foundation	See Initiative 3.8	DCNR, NFWF, PACD, TreeVitalize, DEP, Coldwater Heritage Partnership Implementation Grants, Foundation for PA Watersheds Project Grants
1.1E -2	Advance local comprehensive planning efforts  Nittany Valley, 2004 – Implement a well head/borehole protection for water wells	Not set in comp plan  Should outreach occur in Nittany Valley, be mindful of this need and be on the lookout for opportunity to advance the effort	Municipality, Centre County Planning Office	Marion Township	5-10 years	With no public water system this would take the place of the traditional source water protection plan.	May take place in the form of an ordinance vs. plan	1 County Planning staff person	N/A	N/A	Guidance/standards	DEP	Assume \$300,000 planning cost	Drinking Water State Revolving Fund (low interest loan)

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1.1E-3	<p>Advance local comprehensive planning efforts</p> <p>Nittany Valley, 2004 – Participate in source water protection planning</p>	<p>Complete a SWP for Walker Twp. Water Association</p> <p>2021 – meet with Walker Township and Water Association to facilitate discussion and identify if a feasibility study should be conducted</p>	Municipality, Water Association, DEP, Consultant	Walker Township	1-2 years	The Association structure vs. Authority structure has proven to be problematic for both DEP technical and financial assistance. The water system has been non-compliant in recent years and is in need of expensive repairs. The township should discuss the feasibility of taking over the system under an authority and complete a SWP.	Further discussion with township; consultant driven plan.	1 County Planning staff person, 2 DEP staff people	N/A	N/A	N/A	N/A	Assume \$300,000 planning cost	Drinking Water State Revolving Fund (low interest loan)
1.1E-4	Advance Centre Region Climate Action and Adaption Plan	Participate in the development of “Clean Healthy Water” goals	Centre Region Planning Agency, Council of Governments Climate Action and Adaptation Technical Advisory Group, Centre County municipalities with Climate Action Plans	Centre Region	Ongoing	Connect our plans in meaningful ways so that climate action and local water quality goals can mutually benefit	Plan development	1 Centre Region Planning Agency staff person	N/A	N/A	N/A	N/A	N/A	N/A

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1.1F -1	Advance local comprehensive planning efforts  Milesburg/Boggs, ongoing – Work with respective water authorities to implement Source Water Protection Plans	Bi-annual review of plan and joint meeting	Milesburg Borough and Milesburg Borough Water Authority; Boggs Township and PA American Water; Bellefonte Borough/Authority	Within the Zone 1 and Zone 2	1-2 years	Reinforcing the municipal role in coordinating with the water authorities to perform education and outreach. Recommendations include putting SWP plans on the municipal websites and consider annual/bi-annual joint meetings and informational mailings to property owners who are in proximity to Zone 1 (well heads).	Educational flyer forms and activities lists.  Coordination of meetings and continued education	Bellefonte-Milesburg SWP; PA American (Boggs Twp.) SWP  1 County Planning staff person	Minimal for printing, postage, website maintenance (\$250)	Municipal, water authorities	N/A	N/A	Assume \$300,000 planning cost	Drinking Water State Revolving Fund (low interest loan)

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<b>1.1F -2</b>	Advance local comprehensive planning efforts  Milesburg/Boggs, ongoing – Adopt and enforce an onlot sewage management program	One-time adoption of ordinance with enforcement contingent upon program cycle of inspection and tank pumping.	Boggs Township, SEO	Upper Boggs Township beyond public sewer extent	5 years	Public acceptance and public hearing meetings may be contentious given associated program fees needed for program sustainability. Landowner education will be needed to promote proper on-lot septic system maintenance and risks to groundwater resources. DEP involvement through Act 537 may act as a catalyst.	N/A	N/A	N/A	N/A	Inventory of property owners with on-lot systems; program tracking software; SEO.	SEO; excel database spreadsheet generated from tax parcels that could translate to software later.	\$90,000 per year – employee budget, assume \$12,000 per year is recouped through permit fees	Permit fees
<b>1.2A</b>	Implement County Hazard Mitigation Plan (2015, update kickoff JUNE 2020)	Improve flood prone areas with BMPs that also enhance water quality	CCPC, municipalities	Spring Mills (Penns, Sinking Creeks); Coburn (Penns, Elk, Pine Creeks)	2023-2025	Funding, land for BMPs	N/A	N/A	N/A	N/A	Planning, engineering, permitting, construction	Contractors	\$5,000,000	PEMA/FEMA BRIC program

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1.2B	Implement County Hazard Mitigation Plan (2015, update 2020-2021)	Improve flood prone areas with BMPs that also enhance water quality – <i>address tributaries impaired by ag activities (Little Marsh Creek) and tributaries (Holt Run/Bald Eagle Creek) impaired by pathogens downstream of Milesburg Borough and upstream of Bald Eagle State Park</i>	CCPC, Milesburg Borough, Boggs Township, Centre County Farm Bureau, Bald Eagle Creek Watershed Association, Trout Unlimited, National Fish and Wildlife Service	Milesburg Boro, Boggs Twp (lower Bald Eagle and Spring Creek);	2021 – review flood-resulting pinch points and map out upstream BMP opportunities	Funding, local/landowner interest	Planning	CCPC			Planning, engineering, permitting, construction for ultimate solution	Contractors	\$5,000,000	PEMA/FEMA BRIC program
1.3	Update/draft Act 167 Plans	Address climate change storm intensities and enhanced water quality needs with respect to development and agriculture  Create new model stormwater ordinance that would require/incentivize additional protections for streams (high quality and impaired)	CCPC, municipal engineers, PSU	Countywide	2021 – discuss interest to pursue and funding opportunities	Should local involvement exist, funding for Plan update	Institutional knowledge	Municipal engineers – assume 6 for well-rounded local background	N/A	N/A	Act 167 Plan Development	Consultant	\$350,000	DEP



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1.4	Implement County Farmland Preservation Program with farmland preservation program incentives enhancement	Total preservation farm goal (53 farms in program currently – 8,019 acres, average purchase price \$2,291 per acre, ADD 1-2 FARMS EACH YEAR ON AVERAGE) Farmland Trust – 15 parcels  Preserved farms will implement and maintain pollution control BMPs beyond what is required for compliance	Centre County Farmland Trust and Centre County Agricultural Preservation Coordinator, NRCS, ClearWater Conservancy, PennAg Industries Association, PDA	Ag land use area that fits farmland preservation criteria	2021-2022 – explore incentive opportunities	Operator acceptance, additional resources for plan development (requirement of program), additional staff need to handle inspection and paperwork, incentivize BMP installation as a farmland preservation goal, O&M partnership, verification, landowner acceptance/potential barriers to land preservation goals	Guidelines update recommendation  Priority recommendations, easement revision recommendations, supplemental BMP funding research	Ag Land Preservation Board  1 CCPD staff, Centre County Farmland Trust	N/A	N/A	Guideline updates  Practice Keeper data input/management  Legal support	PDA  1 CCCD staff person  Land use attorney consultant	Assume \$50,000 per farm → \$2.65M  \$60,000 per year  Assume \$10,000 budget	NFWF, GG  Increased Conservation District budget  American Farmland Trust, PDA
1.5A	Establish funding/staff support to assist the Agricultural community (day to day support)  1140 ag parcels in Centre Co	700 farms have their plans, including NRCS plans, might get up to 900 farms as this grant gets finished → focus on BMP implementation for these farms  86,000 acres under manure management plans/ nutrient management plans  70,000 acres under ag E&S plans	CCPD, CCCD, Contracted planners	Centre County ag land	2021-2025	Limited compliance activities by DEP. Insufficient funding for public sector staff to assist the ag community.	Field verification, troubleshooting	CCCD, USDA NRCS, Private Consultants  Bob Neiderer (PA One Stop)  Tom Blair	N/A	N/A	1 engineer, 1 planner, 2 technicians	In-house hires/consultant	\$350,000 per year	Additional CCCD budget, DEP, NRCS – SWAT agreement

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1.5B	Develop plans	2 plans per month per consultant, assume backlog is complete (ag E&S and manure mgmt. plans)	CCCD, Contracted planners	Centre County ag land	2022-2023	Utilize outreach program to get landowners signed up for this during Winter 2020/2021	Contracted planners	Growing Greener Grant - CCCD	\$50/plan to be paid to contractor	Landowner	N/A	N/A	N/A	N/A
1.5C	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	CCCD	\$200,000	DEP	N/A	N/A	N/A	N/A
1.5D	Other Plan Data Gathering	Collect data regarding existing farm plans and implementation progress  ~45 farms per year → 170 farms through 2025	CCCD, HRG, Ag Consultants, NRCS, Chesapeake Conservancy	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	HRG (CAP coordinator)  NRCS (with landowner permission)  1 CCCD staff person	Conservation Plan Inventory	Chesapeake Conservancy (NRCS grant)	Existing plan data	Farm Consultants	Assume 20 plans per year (\$120,000 per year)	Growing Greener, NFWF Technical Assistance

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1.6A	LandscapeU Partnership – Planning	Receive project opportunity/prioritization deliverable to assist with 2021 implementation steps	PSU Profs – Erica Smithwick, Jason Kaye; graduate students	Legacy sediment landscapes  Riparian properties  Preserved farms	2021	Student ownership of assignment, water quality monitoring data compatibility/consistency, GIS knowledge	Prioritization deliverable  Background data  Spring Creek Watershed Atlas  WRMP Report	PSU  HRG, County  Spring Creek Watershed Commission  KWRC	N/A	N/A	N/A	N/A	N/A	N/A
1.6B	LandscapeU Partnership - Implementation	Develop graduate students so that they can effectively engage in landowner outreach during implementation years	PSU Profs – Erica Smithwick, Jason Kaye; graduate students	Legacy sediment landscapes  Riparian properties  Preserved farms	2022-2025	Continued graduate engagement as students graduate through program, implementation funding	Outreach boots on the ground	PSU students	N/A	N/A	Digital and print materials highlighting local projects	LandscapeU	TBD – might link to other Priority Initiatives' budgets	National Science Foundation
1.6C	Quantify Land/BMPs Managed by Penn State University	Work with office of physical plant and other PSU groups to ensure that water quality improvements that they manage are captured in CAST/FieldDoc	PSU Office of Physical Plant?, PSU College of Ag Sciences	PSU-owned/ managed land in Centre County	2021	Getting maximum credits for experimental BMPs	Institutional knowledge	PSU staff, 1 County staff person, HRG (CAP coordinator)	N/A	N/A	N/A	N/A	N/A	N/A
1.6D	Leverage Ag Progress Days as an opportunity to educate more farmers on local water quality issues and solutions	Have a booth and class(es) at Ag Progress Days 2021	CCCD, CCPD, Chesapeake Bay Foundation, Chesapeake Conservancy, 4R Alliance	Countywide	2021	Preparation time, county staff availability, opportunity to encourage farm stakeholders to participate with us	Educational materials and demonstration exhibits	CBF	NFWF grant funding, assume \$5,000 could be invested in this	CBF (NFWF)	Class offering	CCCD, innovative Centre County farmers	N/A	N/A

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1.7	Water quality communication plan, leveraging existing documents and covering topics including Homeowner Guide to protecting Drinking Water, Agricultural Practices and BMPs that reduce pollution, Methods and land use controls that protect groundwater quality and control quantity (Riparian & Forest Buffers, slope control), Proper Turf Management Methods (Natural Landscaping and/or Chemical Application and Treatment Measures), The Homeowner’s Guide to Stormwater, Urban/Suburban BMPs	Develop messages and audience; execute plan and distribute messaging through staff and partners	Board of Commissioner’s staff, Penn State Sustainability Institute, PA DEP Northcentral Office, Penn State Extension (Master Gardeners), PA Rural Water Association, Penn State LandscapeU, Clearwater Conservancy, Trout Unlimited (Spring Creek Chapter), Penns Valley Conservation Association, Spring Creek Watershed Commission, Moshannon Creek Watershed Coalition (Association), Bald Eagle Watershed Association, USDA-NRCS, DCNR, PSU AEC	Countywide	2021 – develop local content, timing, identify responsible staff	Simplifying the resources that are available	Communications skillset	1 Board of Commissioner’s Executive Office staff person, 1 County planning staff person, 1 CCCD staff person	N/A	N/A	Website development and continued maintenance	Consultant	\$30,000 per year	Administrative budget tag-along to project-related grant award

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1.8	<p>Countywide WQ Credit Offset Pilot</p> <p>Variables to consider:</p> <ul style="list-style-type: none"> <li>● # of Farms/Forest preserved within the Corridors of Opportunity (COO)</li> <li>● Miles of riparian buffer created within COOs.</li> <li>● # of Ag. BMPs established within COOs.</li> <li>● Miles of Stream stabilization and restoration within COOs.</li> <li>● Spring Creek Watershed Resource Monitoring Quarterly Progress</li> <li>● # SWM facilities maintained within municipal park systems</li> <li>● Acres of Preserved Open Space and Environmentally Sensitive Areas</li> </ul>	Demonstrate measurable success of a pilot project area where MS4-regulated areas and non-regulated areas can benefit from achieving sediment and nutrient goals	Centre County Municipalities, Centre County Agricultural Preservation Program, the Centre County Farmland Trust, Centre County Conservation District, Clearwater Conservancy, Spring Creek Watershed Commission, Trout Unlimited (Spring Creek Chapter), Penns Valley Conservation Association	MS4 watershed HUC12 pilot area	2021	DEP acceptance of approach, permit compliance coordination among sectors	Engineering/MS4 permit requirement coordination	HRG (CAP coordinator)	N/A	N/A	For implementation, if the pilot works, 1 FT MS4 Coordinator, 1 PT ag Coordinator	Rural/suburban township staff	\$150,000 per year	Municipality stormwater fees or general fund
							Project opportunity ideas	Municipal engineers, farmland preservation orgs			Project design and construction	Municipal engineers, consultants	Unknown until concept is developed and cost-savings are calculated	Growing Greener, PennVEST, CFA Act 13 grants, NFWF

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<b>Priority Initiative 2: Reporting and Tracking</b>														
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  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, EPA	Centre 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	Chesapeake Conservancy  QAPP  Varies by BMP, but likely 1 CCCD staff person, 1 CBF staff person, 1 PSU Extension staff person	N/A	N/A	Further GIS and data processing/method refinement	Chesapeake Conservancy	\$46,000 (2021 only)  Assume \$200,000 annual salary/benefit need for 2 staff people to follow up on BMP verification annually	DEP



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<b>Priority Initiative 3: Achieve New Pollutant Reductions</b>														
3.1	Implement BMPs from Growing Greener plan development farms	Design and install four manure management systems and AHUAs per year (20 systems total)  13 acres of treated area, assuming we build 20 more loafing lots (5 farms per year)	CCCD, NRCS, Chesapeake Bay Foundation, Chesapeake Conservancy	Centre County ag land	2021-2025	Having enough in-house technical assistance capacity to see projects from concept through construction	Design, construction oversight	CCCD, Consultants	N/A	N/A	N/A	N/A	assume we need \$170k per project for implementation → \$3.4 million	DEP Block Grant, CEG (future), NRCS sources



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3.2	Implement Halfmoon WIP	WIP approval – 2021  Implementation Grant Application – 2022 – see plan (when approved) for BMP specifics  Partial Implementation – 2023-2025	Chesapeake Bay Foundation, Centre County Conservation District, Dr. Preisendanz Lab Group of Penn State University, DCNR, Chesapeake Conservancy, Western Pennsylvania Conservancy, Keystone 10 Million Tree Partnership, Penn State Agriculture & Environment Center, Huntingdon County Conservation District, ClearWater Conservancy, Partners for Fish & Wildlife, Penn State Extension, USDA ARS Pasture Systems and Watershed Management Research Unit	Halfmoon Watershed – Halfmoon Township and Ferguson Township	2021-2025	Funding, landowner interest in BMPs, implementation partner coordination	Outreach and coordination	CBF	\$5000	NFWF (CBF grant)	Design, permit, construction oversight	Private sector, US FWS, volunteers	\$4,700,000	EPA 319 Funds, PADEP, NRCS, CBF, CREP, NFWF

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3.3	Accelerated implementation of Rapid Delisting Catchment Strategy through the Precision Conservation Partnership	Implement 9 previously scoped projects resulting in 29 acres of forest buffer, 9.4 acres of fencing with buffer, 11 acres of wetland restoration, 5,000 LF of stream restoration	Chesapeake Conservancy and the Precision Conservation Partnership stakeholders	Beaver Branch, Halfmoon – Bald Eagle, Halfmoon – Loveville, Elk Creek, Tributary to Pine Creek	2021-2024	Reinvigorating landowner interest, design/permit/construction schedules, construction match dollars	Program management and GIS  Landowner outreach	Chesapeake Conservancy  Partnership stakeholders	\$500,000	NFWF Grant	N/A	N/A	\$56,840	DEP Block Grant
3.4	Fish Hatchery Nitrogen Reduction	Address nitrogen discharges associated with fish hatchery locations – amend how they are viewed in CAST, collect environmental monitoring information to confirm/refute that they are elevated nitrogen producers, plan/design/construction nitrogen-reducing treatment system	PA Fish and Boat Commission, DEP Northcentral Regional Office, local watershed group, TU, Western PA Conservancy	Countywide	2021 – investigation 2022 – next steps	Stakeholder interest, treatment challenges	CAST insight  Hatchery operation insight	DEP/SRBC  PA Fish and Boat	N/A	N/A	Monitoring study	PSU	N/A	N/A

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3.5	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 2,800 acres	4R Alliance, CBF	Priority HUC	2021-2022	Landowner interest, BMP verification (annual), CBF staff loss who had a lot of landowner relationships	Educational support	CBF/4R Alliance	CBF grant	NFWF	Cost share recommendations/equipment/software	Consultant	\$50,000	DEP
3.6	Low and no-till cover crop and tillage BMPs	Determine feasibility of having a county cost share program to enhance adoption of the annual practice  Increase conservation tillage by 1,000 acres  Increase high residue tillage by 3,000 acres	CCCD, Centre Co Farm Bureau	Ag land use countywide	2021 – investigation  2022 – next steps	Capacity to manage the program, landowner interest	Transect survey  Landowner education	Capital RC&D  1 CCCD staff person	N/A	N/A	Cost share program development	Adapted CD model program	\$120,000 cost share budget per year	DEP

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3.7	Implement more pasture management BMPs	Off stream watering without fencing – 1,460 acres/10 farms  Pasture Alternative Watering – 400 acres/10 farms  Prescribed grazing – 3,520 acres (50% by reporting)  Horse pasture management – 50 acres/3 farms  Forest buffers on fenced pasture corridor – 365 acres (50% by reporting)  Grass buffers on fenced pasture corridor – 1,100 acres (50% by reporting)	CCCD, NRCS, Chesapeake Bay Foundation, Chesapeake Conservancy	Centre County ag lands – landowners who raise horses, dairy, beef	2025	Landowner education, BMP funding for non-buffer work, plan updates, data gathering	Landowner education  Data gathering through Bay Tech visits	NRCS  1 Ches Bay Tech staff person	CBF grant	NFWF	N/A	N/A	2 grazing plans per year (\$4000 each) - \$80,000 total planning budget  Assume \$70,000 per grazing mgmt. project → 10 farms, \$700,000 total project budget	NRCS

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3.8	Riparian buffer and re-forestation BMPs (not downstream from animal activities)	Partner with Chesapeake Bay Foundation to plant 100,000 trees (portion of 500,000 trees that will be RFPed for growers)  130 riparian forest buffer acres – new buffer; assume 1100 acres are reported through aerial photo analysis  50 riparian grass buffer acres – new buffer; assume 800 acres are reported through aerial photo analysis  8 acres – urban forest buffer  3 acres – urban tree planting – target one landowner in urbanized area  200 acres – urban forest planting – target one large landowner in urbanized area	ClearWater Conservancy, CBF, watershed associations, Chesapeake Conservancy, Western PA Conservancy	Centre County	2022 – line up landowners  2023-2025 – implementation	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, it was recommended by their peers that ClearWater Conservancy serves as the lead site coordinator	Materials	CCCD (in-kind, annual tree sale efforts)	Budget available to be determined	CBF	Implementation – design, equipment, materials	Landscapers (private sector)	\$2,000,000 budget	DCNR, NFWF, PACD, TreeVitalize, DEP, Coldwater Heritage Partnership Implementation Grants, Foundation for PA Watersheds Project Grants
						Mapping	Chesapeake Conservancy		NFWF					
									NFWS NRCS - CREP					

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<b>3.9A</b>	Wetland restoration implementation on marginal production ag land	11 acres	Chesapeake Conservancy, Western PA Conservancy, Penns Valley Conservation Association	Halfmoon – Bald Eagle, Beaver Branch	2021 – early implementation activities	Willing landowner; appropriate siting, design, and construction for successful restoration result	Landowner outreach	1 CCCD staff person	N/A	N/A	Preliminary design	USFWS	Assume \$300,000 for land acquisition  Assume \$100,000 project budget (design, permit, construction)	Seek a co-benefits funding source (wildlife focus)
<b>3.9B</b>	Wetland restoration implementation	Identify 1 large property owner from University of Vermont restorable wetland layer to install a 350-acres-treated wetland	Wildlife for Everyone, ClearWater Conservancy, Western PA Conservancy	Priority watershed (ag or non-ag)	ID landowner (2021)  Funding (2022)  Design/permit (2023-2024)  Construction (2025)	WFE just finished up the Soaring Eagle wetland project, is there interest in another one? – same for ClearWater, landowner participation, permitting, funding	GIS mapping  Landowner outreach	Chesapeake Conservancy  1 CCCD staff person	N/A	N/A	Preliminary design	USFWS	\$500,000	Seek a co-benefits funding source (wildlife focus)
<b>3.10</b>	Non-urban stream restoration	37,600 feet (7 miles) installed/inventoried  Assume two project installs per year per contractor team  22,200 LF in TU planned projects	CBF, Chesapeake Conservancy, TU National, Spring Creek TU, NFWS, Western PA Conservancy, Penns Valley Conservation Association	Rapid delisting areas	2021-2022  2023-2024  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	GIS  Design/GP-1 permit	Chesapeake Conservancy and partners  Trout Unlimited	Existing grant	NFWF	Design, permit, construction services	Private sector, USFWS, TU	Assume \$450/LF - \$7M for total project delivery, floodplain restoration concept, not O&M  Assume \$50/LF - \$1,110,000 for TU-lead projects	Growing Greener, NFWF, California University of Pennsylvania, Hamer Foundation

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3.11	Implement more barnyard runoff control/loafing lot management/ag stormwater management	110 acres of treated area, assuming we map 79 more and build 20 more (5 farms per year)	CCCD, Chesapeake Conservancy, NRCS	Livestock farms	2021-2025	Mapping challenges, typical logistics regarding landowner buy-in and project development/funding	N/A	N/A	N/A	N/A	Consultant for program management and project delivery	RFP	\$1.8 M per year, \$9 M total	DEP, NRCS
3.12	Animal waste management BMP implementation for livestock	8,500 AUs managed through new BMPs	CCCD, SCC, CEG Program (future years)	Livestock farms	2021-2025	Current capacity through NRCS and CCCD 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 yields willing landowners	Project implementation – 2 farms/year  Project implementation – 3 farms/year	NRCS  CCCD	Assume \$280,000/year  Assume \$420,000/year	NRCS EQUIP  Growing Greener, private funding	Design, permit, construction services	Private sector	Assume 2 projects per year, \$130,000 each, \$260,000 per year, \$1.3 M total	Growing Greener, NFWF, PennVEST, private capital
3.13	Mitigation Banking Pilot Project	Floodplain restoration and/or wetland restoration project that achieves future MS4 permit sediment compliance for a currently waived Township while yielding nitrogen reductions for UAJA’s benefit	UAJA, Benner Township, Spring Township, Nittany Valley Joint Recreation Authority	Benner Township and/or Spring Township	Regulatory approval (2021-2022)  Design/permitting (2023)  Construction (2024-25)	Landowner participation, regulatory compliance (MS4 – sediment and WWTP NPDES - nitrogen), funding for construction, recreational opportunity based on project location and public accessibility	Long-term operation and maintenance  Municipal/landowner coordination	UAJA  1 County Planning staff person, HRG (CAP coordinator)	N/A	N/A	Design, permit, construction services	Private sector	Assume 2500 LF project, \$750,000 project budget	NFWF, CFA

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3.14	Runoff Reduction Performance Standard and Storm Water Treatment Performance Standard Implementation	Implement existing ordinances at local municipal level  Catalogue existing BMPs that fit into this category and newly built ones	CCPC, CCCD, developing municipalities	County-wide	Ongoing  2021-2025	Coordination/training for municipal staff, FieldDoc batch opportunity, non-MS4 engagement (what's in it for them?), difficulty obtaining past information (MS4s typically have databases from 2003-present)	Reporting platform	FieldDoc	N/A	N/A	Training  Municipal data input	DEP  1 staff person per developing municipality	N/A  Assume \$5000 administrative cost per municipality per year and 7 developing municipalities → \$35,000 per year	N/A  Municipal general fund or stormwater fees
3.15	MS4-related Chesapeake Bay Pollutant Reduction Plan Implementation	Plan implementation by end of current permit term  Implement bioretention, buffers, stream restoration, street sweeping, etc.	Harris Township, Patton Township, College Township, State College Borough, Ferguson Township	Joint urbanized planning area	2023 – might be 2025 if they're individuals	Municipal capacity to implement plans (technical, financial)	Municipal engineer design/permit, construction readiness	Municipalities, public works departments	Unknown	Municipal budgets (taxes, stormwater fees, grants)	N/A	N/A	N/A	N/A
3.16	Conservation Landscape/Turf to Meadow Conversion/Watershed Forestry Initiative	Promote new program and enable one large tract landowners' participation (20 acres of conversion)	CCPC, DCNR, Western PA Conservancy, ClearWater Conservancy, Penn State Ag/Turf Program	Developed areas in Centre County municipalities	2021-2022	Landowner education and acceptance	Planting plan assistance	Alliance for the Bay (in-kind)	N/A	N/A	N/A	N/A	\$5,000 per acre (forest), \$2,500 per acre (meadow) → \$100,000 (budget for all forest)	DCNR



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3.17	Impervious surface reduction project	Identify a blighted/flood prone area that could be converted to a park (8-acre area)	CCPC, CDBG-eligible municipalities	Centre County Boroughs	ID landowner (2021)  Funding (2022)  Design/permit (2023-2024)  Construction (2025)	Lack of local interest, property purchase/donation, suggested to explore below South Hills Plaza, streets perpendicular to Easterly/Westerly Parkway	Mapping	CCPD	Available budget to be determined	Municipal PRP Implementation Budget	Design, permit, construction	Private sector	\$7,000,000	CDBG (potentially), DCNR, FEMA BRIC
3.18	Continue dirt and gravel road program	200,000 feet overall restored through past projects and future projects	CCCD	Countywide	2025	Continue D&G Road program funding	Education, technical assistance, project oversight	CCCD, Center for Dirt & Gravel Road Studies, State Conservation Commission	\$175,000 per year	State Conservation Commission	N/A	N/A	N/A	N/A
3.19	Operation and Maintenance Performance	Cultivate a partnership(s) with volunteer groups or contractors who we can direct landowners to who have interest in assistance with O&M of practices that we facilitate	Volunteer group, contractor	Countywide	2021-2022	Volunteer training, liability, materials/equipment funding	Technical guidance  Volunteer maintenance labor	DCNR  Master Watershed Stewards volunteer hours	N/A	N/A	N/A	N/A	N/A	N/A
3.20A	Private Funding	Identify some private funding sources that may be able to supplement public funding sources/existing sources utilized for stakeholders	Existing project implementer networks, Ag Choice Farm Credit?	Centre County	2021-2022	Need to expand network, educational aspect of less common funders, logistics of utilizing unproven funding sources (or lesser known)	Financial services	HRG (CAP coordinator)	N/A	N/A	N/A	N/A	N/A	N/A

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3.20B	Public/Non-profit Funding	Fill-out our public/non-profit source list	Central PA Conservancy, Western PA Conservancy, Natural Lands Trust, Chesapeake Bay Foundation, Hamer Foundation	Centre County	2021	Partners use similar funding sources, becoming more competitive	Financial services	HRG (CAP coordinator)	N/A	N/A	N/A	N/A	N/A	N/A
3.20C	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	SCC, The Nature Conservancy, Chesapeake Bay Foundation, PennAg	Centre County	2021-2022 initiation	Corporate interest,	Initial coordination	HRG (CAP coordinator)	N/A	N/A	N/A	N/A	N/A	N/A
<b>Priority Initiative 4: Research, Education, and Training</b>														
4.1A	Incorporate existing water quality monitoring data into Chesapeake Data Explorer/ Chesapeake Monitoring Cooperative database	Successful data input/acceptance by ALLARM program by end of 2021	ALLARM, Keystone Water Resources Center – Spring Creek, Senior Environmental Corps, PSU, watershed associations	Countywide	2021	Data precision, QAQC, opportunity to educate landowners about local stream health and what they can do about it	Data QAQC and training  Data input	ALLARM  Monitoring groups	N/A	N/A	N/A	N/A	N/A	N/A

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4.1B	Initiate additional water quality monitoring sites that promote long-term trend evaluation at key locations in Centre County	Location identification, financial and volunteer budget analysis, and initial landowner communication by end of 2021  CAST-21 acknowledgment of our data  Map existing monitoring locations  Expand monitoring based on Corridors of Opportunity area monitoring gaps	ALLARM, Keystone Water Resources Center – Spring Creek, Senior Environmental Corps, PSU, local watershed associations	To be determined	2021	Land access, expanded volunteer need, equipment/materials budget, Consistent data collection, QAQC continuation  Consideration to expand the Keystone Water Resources Center to cover places like Bald Eagle, Buffalo Run, etc. to get a continual basis	\$30,000 intern salary budget  QAQC	PSU  PSU/ALLARM	N/A	N/A	Sample Collection for new sites identified through CAP implementation	ALLARM volunteer	\$10,000 EQUIPMENT	DEP Block Grant

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4.2	Enhance the capacity of local watershed associations for short-term success and long-term sustainability	Share each other's social media content  When developing water quality projects, include them in the scoping/funding process  When we utilize/obtain funding for outreach, reserve some for partner promotional items (hats, shirts, etc.)  Encourage project implementation on the watershed level so that these partners enhance their relationships with non-peers with a co-benefit of diversifying their membership	Spring Creek Watershed Commission, Bald Eagle Watershed Association, Spring Creek Chapter of Trout Unlimited, National Trout Unlimited, Penns Valley Conservation Association, Moshannon Creek Watershed Association	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, see if Spring Creek Watershed Commission could serve as the coordinating party	Social media shares  Project development support	County – department to be determined  CAP Coordinator (HRG)	Limited match	Watershed group membership dues	N/A	N/A	\$5000 per organization to produce promotional materials (hats, shirts, stickers) for members	Add on to a NFWF app where watershed association is engaged in project and there is an outreach/ribbon-cutting project outcome

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4.3	Farm decision maker trips to showcase BMPs that work	Two trips per year, increase participation by 10% each year	CBF, CCCD, NRCS, County Farm Bureau	Centre 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	N/A	Trip coordination and field facilitation	CBF	N/A	N/A	\$2000 per year to expand resources	PACD Adult Education Non-Point Source Education Grant  Private Sector Donation/Sponsorship

### 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.

**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 – Centre County Conservation District.** The Centre 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.

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

**CHMP – County Hazard Mitigation Plan.** The Centre County Hazard Mitigation Plan was developed for the purpose of providing a blueprint for reducing property damage and saving lives from the effects of future natural and human-caused disasters in Centre County; Qualifying the County for pre-disaster and post-disaster grant funding; Complying with state and federal legislative requirements related to local hazard mitigation planning; Demonstrating a firm local commitment to hazard mitigation principles; and Improving community resiliency following a disaster event.

**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 Centre 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.

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

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

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

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

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

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

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

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

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

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

**UAJA – University Area Joint Authority.** University Area Joint Authority (UAJA) is the municipal authority providing Wastewater Treatment, or Water Recycling services, to much of State College and the Centre Region.

**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 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.

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