

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	

Priority Initiative 1: County Programmatic Initiatives

1.1A	Implement County Comprehensive Plan policies and actions	Centre Regional Growth Boundary Full Implementation as part of Centre Region Comp Plan (2013)	CCPC, growth boundary municipalities, Centre Region Planning Agency	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	N/A	Local planning coordination	N/A	2021 - Based upon initial outreach, the Centre Regional Planning Agency may be better positioned to achieve these implementation goals for the geographic area identified. Pending progress/completion of the Climate Action Plan and any assistance from the Centre County Conservation District for plan writing to Ferguson Township farmers with the Stormwater Impact Fees, they may want to take the lead while the Centre County Planning and Community Development Office (CCPCDO) plays a supporting role.
1.1B	Implement County Comprehensive Plan policies and actions	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	N/A	Project design	Assume \$500k needed per project	2021 - Moshannon Creek Watershed Associations current focus is on project work (new installs, maintenance, rehabilitation of old BMPs). Mapping existing BMPs is not a high priority but will be considered in future years.

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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 Township, Potter Township	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.	Minimal for printing, postage, website maintenance (\$250)	N/A	N/A	2021 - The Penns Valley Regional Planning Commission is gaining traction on completing the regional comp plan update and hosted a joint water systems operators' meeting in July 2021. The outcome of the meeting was to foster better communication and thus coordination between the water systems to address operational issues. Future meetings may include the source water protection discussion to advance this initiative.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	N/A	Flood elevation certificates for program entry Administrative capacity	N/A	2021 - The administrative capacity is not yet in place and the conversations have not occurred. However, the implementation timeline is far enough out that this item can be reviewed in future progress updates.

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	N/A	Planning and construction guidance/standards	See Initiative 3.8	2021 - The Nittany Valley's concentration is on public safety issues and moving into Hazard Mitigation Plan goals. However, the implementation timeline is far enough out that this item can be reviewed in future progress updates.
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	N/A	Guidance/standards	Assume \$300,000 planning cost	2021 - The Nittany Valley's concentration is on public safety issues and moving into Hazard Mitigation Plan goals. However, the implementation timeline is far enough out that this item can be reviewed in future progress updates.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
1.1E-3	Advance local comprehensive planning efforts Nittany Valley, 2004 – Participate in source water protection planning	Complete a SWP for Walker Twp. Water Association 2021 – meet with Walker Township and Water Association to facilitate discussion and identify if a feasibility study should be conducted	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.	N/A	N/A	Assume \$300,000 planning cost	2021 - The Walker Township Water Association continues to address system wide issues related to installing new pipe and new hydrants, so source water planning is not (from their perspective) a high priority. Walker Township has not vocalized their position on acquiring and operating the system under an authority structure. CCPCDO will continue the discussion in 2022, but it is unlikely that a source water protection plan will formulate in this area in the near future.
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	N/A	N/A	N/A	2021 - The first half of 2021 was spent on getting public input on the development of a Centre Region Climate Action and Adaptation Plan (CAAP) to help prioritize the strategies to include in the plan. The Executive Summary and full reports of the Centre Region Sustainability Survey and the community forum on <i>Addressing Climate Impacts in the Centre Region</i> are available on the COG website https://www.crcog.net/climateaction and https://centresustains.com/ . (COG website direct URLs to survey and forum pages: https://www.crcog.net/sustain-survey and https://www.crcog.net/climate-forum) The second half of 2021 was spent writing the CAAP and having the 6 municipalities adopt it. The Plan was made available for public review in fall 2021 fall. Information can be found at www.crcog.net/climateaction and on FB and IG @centreregionalplanning. The Clean Healthy Water chapter ties to CAP goals and joint implementation will be planned in 2022.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	Minimal for printing, postage, website maintenance (\$250)	N/A	Assume \$300,000 planning cost	2021 - This goal drew some interest at June's comp plan team meeting and concerns about the extent of future development in the Spring Creek Watershed impacting the Big Spring aquifer were voiced. Team members anticipate future land swaps between the state and private developers that are at the aquifer's headwaters. The Milesburg Borough Water Authority routinely sends DEP reports to customers, so upon plan adoption, this could be a priority goal to launch implementation.
1.1F-2	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	Inventory of property owners with on-lot systems; program tracking software; SEO.	\$90,000 per year – employee budget, assume \$12,000 per year is recouped through permit fees	2021 - Boggs Township expressed concern about how to start up the program and what costs are associated. They seem open to discussing the program further in concept if the CCPCDO can provide some initial technical support and program start-up costs would be covered by grant.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
1.2A	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	Planning, engineering, permitting, construction	\$5,000,000	2021 - No discussions with Penns Valley regarding hazard mitigation have taken place to date, though this is not planned to start until 2023.
1.2B	Implement County Hazard Mitigation Plan (2015, update 2020-2021)	Improve flood prone areas with BMPs that also enhance water quality – 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	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		Planning, engineering, permitting, construction for ultimate solution	\$5,000,000	2021 - Pending adoption of the joint comprehensive plan (September 2021), there may be an opportunity to prioritize implementation actions.
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	N/A	N/A	N/A	2021 - The CAP team discussed the existing Act 167 Plans and resulting model ordinances with key local stakeholders. The results of the discussion is that the ordinances are working as expected for flood mitigation and water quality is addressed through calculations. MS4s will be updating their ordinances based on the new DEP model ordinance in line with their permit implementation schedule.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	N/A	Guideline updates Practice Keeper data input/management Legal support	Assume \$50,000 per farm → \$2.65M \$60,000 per year Assume \$10,000 budget	2021 - Centre County Conservation District established a partnership with the Farmland Preservation program in Centre County planning. County staff and HRG created and mailed a letter about the CAP to all 53 preserved farms in the region. To date, two field meetings with Conservation District staff and the Farmland Preservation coordinator occurred regarding new preserved easements, which resulted in two additional Ag E&S plans to be input into PracticeKeeper. No additional mailings are planned – working on in-person meetings with preserved farm owners to discuss conservation plans & BMPs on property. Currently at 4 field meetings for farmland preservation applications – resulted in two additional Ag E&S Plans to be input into PracticeKeeper as well as two Conservation Plans to be developed. The County Farmland Preservation Program received a grant from American Farmland Trust to create an Action Plan for Soil Health for Preserved Farms. The Centre County Conservation District will be assisting their office with plan development and implementation.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	N/A	1 engineer, 1 planner, 2 technicians	\$350,000 per year	2021 - Information pulled from October 1, 2020 through July 15, 2021 (not inclusive of information in PracticeKeeper prior to this date): New Act 38 plan acreage: 1,753 acres New MMP plan acreage: 4,322 acres New Ag E&S plan acreage: 5,546 acres The Centre County Conservation District applied for, and received, a Growing Greener grant to pay Contract Plan Writers to develop plans for interested farmers in Centre County. The Plan Writer develops both plans (not Act 38) if needed by the operation. The grant pays the Plan Writer directly (anywhere from \$350-\$1500 per plan). The grant requires the farmer to pay \$50 (total), which considerably alleviates the financial burdens associated with obtaining plans. Daina Beckstrand is the certified Act 38 Specialist in the office and she reviews all Act 38 plans for Centre County producers. Allyson Ulsh is working under a provisional certification to also review Act 38 plans.
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	\$50/plan to be paid to contractor	N/A	N/A	2021 - Now working with three plan writers (new plan writer started in June 2021) January 2020 to July 2021, 31 plans written by private plan writers through the District's Growing Greener grant. 6/1/2019 (Date of grant received) – Plan Writers first began in January 2020, Total as of 8/23/2021 is 35 Plans written.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	\$200,000	N/A	N/A	2021 - The Chesapeake Bay Agricultural Inspection Program is on schedule for 2021 and plan information is being entered into PracticeKeeper as part of the program workflow. As of May 31, 2021: 51 farms inspected. The Phase 1 inspection scope is completed in addition to farm networking, operational details, funding programs and the farmer's resource concerns. Implementation is discussed in relation to BMPs listed in the plans as well as updating plans at the time of inspection to include BMPs that have been installed but not previously recorded in existing Plans. "Inspections" are often not the forefront of the conversation as the term does not foster a two-way relationship within the agricultural community.
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	Conservation Plan Inventory	Existing plan data	Assume 20 plans per year (\$120,000 per year)	2021 - As of July 15, 2021: 11 additional plans (not collected through inspection program). Farmers provided them to the Conservation District as a result of their relationships with landowners and staff's discussions with them during phone calls, REAP application rounds, etc.
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	N/A	N/A	N/A	2021 - Centre County received the student reports from the 2020-2021 academic year and is considering the conclusions for next steps and additional student project opportunities. Link to one of the public reports: Overlap of Biophysical Need for and Sociodemographic Indicators of Willingness to Adopt Riparian Buffers in Centre County, PA (psu.edu)

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
1.6B	LandscapeU Partnership – Implementation	Develop graduate students so that they can effectively engage in landowner outreach during implementation years	PSU Prof – 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	N/A	Digital and print materials highlighting local projects	TBD – might link to other Priority Initiatives' budgets	2021 - Centre County received the student reports from the 2020-2021 academic year and is considering the conclusions for next steps and additional student project opportunities for the 2021-2022 school year.
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	N/A	N/A	N/A	2021 - This initiative is on hold until FieldDoc is running for urban BMP data collection. Ag BMPs will be documented in PracticeKeeper as appropriate.
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	NFWF grant funding, assume \$5,000 could be invested in this	Class offering	N/A	2021 - Centre County Conservation District staff participated with the riparian buffer tour and pollinator plots, while providing educational materials at Ag Progress Days. The Conservation District also presented information at the Grange Fair.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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 Commissioners 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	N/A	Website development and continued maintenance	\$30,000 per year	2021 - Conservation District staff have developed content for a CAP website and post educational information on Facebook . County Planning staff are taking the lead on branding and a written communications plan/message strategy, to be completed by the end of the year.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
1.8	<p>Countywide WQ Credit Offset Pilot</p> <p>Variables to consider:</p> <ul style="list-style-type: none"> • # of Farms/Forest preserved within the Corridors of Opportunity (COO) • Miles of riparian buffer created within COOs. • # of Ag. BMPs established within COOs. • Miles of Stream stabilization and restoration within COOs. • Spring Creek Watershed Resource Monitoring Quarterly Progress • # SWM facilities maintained within municipal park systems • Acres of Preserved Open Space and Environmentally Sensitive Areas 	<p>Demonstrate measurable success of a pilot project area where MS4-regulated areas and non-regulated areas can benefit from achieving sediment and nutrient goals</p>	<p>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</p>	<p>MS4 watershed HUC12 pilot area</p>	<p>2021</p>	<p>DEP acceptance of approach, permit compliance coordination among sectors</p>	<p>Engineering/M S4 permit requirement coordination Project opportunity ideas</p>	<p>N/A</p>	<p>For implementation, if the pilot works, 1 FT MS4 Coordinator, 1 PT ag Coordinator Project design and construction</p>	<p>\$150,000 per year Unknown until concept is developed and cost-savings are calculated</p>	<p>2021 - HRG had a discussion with the Harris Township engineer to brainstorm pilot project areas that would be potential candidates for a more cost effective and local water quality beneficial approach to implementing their MS4 Pollutant Reduction Plan (PRP). Because cost effective projects have already been identified across all of the MS4s in the county, we will explore candidate projects over the life of the CAP but will likely not pursue implementation of any until the municipalities' next MS4 permit application requirement is known.</p>

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
Priority Initiative 2: Reporting and Tracking											
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	N/A	Further GIS and data processing/method refinement Assume \$200,000 annual salary/benefit need for 2 staff people to follow up on BMP verification annually	\$46,000 (2021 only)	2021 - Funding for the initial BMP cataloguing project has not been obtained. HRG and Chesapeake Conservancy are working on a white paper that will be presented to DEP. THIs white paper outlines the need for more remote sensing work to be done, specifically, by taking next steps with the NRCS PA BMP Remote Sensing Pilot Project (Potomac River Basin) process and findings. By taking this step, the initiative is behind schedule and not yet funded, but we hope to build momentum toward a successful outcome, including buy-in from EPA/Bay Program.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
2.1B	Identify future ag/urban project opportunities using automated means	BMP opportunity analysis – ag conservation, land retirement, alternative crop, forest conservation, stream restoration Back check with staff field views Batch upload to FieldDoc to calculate credit opportunity	Lead - Chesapeake Conservancy Stakeholder peer review - PSU, USGS, Farm Bureau, PDA, municipalities with MS4 permits	Centre County	2021 – cataloguing 2022 – batch upload processing and field views 2023 – 2025 – implementation focus	Different data set scales/precision	Precision Conservation Tools Batch upload processing BMP field backcheck	N/A	Further GIS and data processing/method refinement	\$44,000 (2021)	2021 - See 2.1A for progress as this initiative is a companion initiative.
2.2	Improve continuous 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	Municipal engineers, Bellefonte Borough, Chesapeake Conservancy?	Urban/suburban landscape	2022	Non-MS4 engagement (what's in it for them if they don't already have a BMP database?), difficulty obtaining past information (MS4s typically have databases from 2003-present)	Reporting platform	N/A	Training Municipal data input	N/A Assume \$5000 administrative cost per municipality per year and 7 developing municipalities → \$35,000 per year	2021 - The CAP team discussed the existing Act 167 Plans and resulting model ordinances with key local stakeholders, and the need for urban BMP reporting was also discussed. Since the County records plans that are as-builts, it is possible to go back through the plans and capture BMPs for reporting in FieldDoc. Going back to 2010 is an option since that's when operation and maintenance agreements started to be required.
2.3	Implement a documentation program for commercial and homeowner nutrient applications in developed lands	Support fertilizer legislation – where legislation requires reporting, be the data clearinghouse	Centre County – department to be determined	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	TBD	TBD	TBD	2021 - This initiative is being pursued by legislators. HRG has coordinated with the Chesapeake Bay Commission staff on the topic and receives periodic updates.

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
Priority Initiative 3: Achieve New Pollutant Reductions											
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	N/A	N/A	assume we need \$170k per project for implementation → \$3.4 million	2021 - The majority of plans drafted to date have documented existing BMPs. Those plans and BMPs are being reported through PracticeKeeper, contributing to our overall goals. As plans are written, Plan Writers will write in BMPs that can be implemented within 3 years of the plans' date of development. The Growing Greener Plan Writing Grant is mostly dedicated to assisting farms with plan development and documentation of BMPs already implemented on the operation. The District has other Growing Greener grants dedicated to installing new BMPs to protect resource concerns on Centre County operations as well as CAP Block Grant funding and CEG Grant funding.

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	\$5000	Design, permit, construction oversight	\$4,700,000	2021 - The Halfmoon WIP was approved by EPA. The plan development partners plan to get together in late summer/early summer to discuss next steps and will likely apply for 319 funding in Spring 2022.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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/cons construction schedules, construction match dollars	Program management and GIS Landowner outreach	\$500,000 N/A	\$56,840 N/A	2021 - The Precision Conservation Partnership implemented 4 restoration projects during spring 2021 including 24.63 acres of forest buffer, 4.63 acres of herbaceous buffer, 890 linear feet of streambank fencing, and 910 linear feet of in-stream restoration within rapid stream de-listing catchments. This fall we have 6 additional projects fully funded where restoration will begin in rapid stream de-listing catchments. These include an additional 18.3 acres of forest buffer, 2.2 acres herbaceous buffer, 4 acres of wetland restoration, and 11,172 linear feet of streambank fencing.	
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/const ruction 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	N/A N/A	Monitoring study N/A	2021 - A hatchery tour is being coordinated between PFBC and HRG during 2021. We will view the existing facilities and treatment methods and identify potential improvement needs during the tour.	
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, PACD, Chesapeake Conservancy	Priority HUC	2021-2022	Landowner interest, BMP verification (annual), CBF staff loss who had a lot of landowner relationships	Educational support	CBF grant	Cost share recommendations/equipment/software	\$50,000 N/A	2021 - 4R Alliance staff turnover has reduced communication with the County team. Outreach restrictions due to COVID have also made having workshops to garner landowner interest more challenging. Two workshops are currently planned be held: Late August PACD-funded Homeowners Conservation Workshop, Spring 2022 PACD-funded/Chesapeake Conservancy Partnership Plan Writing Workshop in Elk Creek Watershed.

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	N/A	Cost share program development	\$120,000 cost share budget per year	2021 - Additional documented no-till/cover crop practices this year, not inclusive of all recently entered plans in PracticeKeeper as documented in the GG Grant-funded plans - 1,041 – No till acreage 638 – Cover crop acreage 405 – Strip crop acreage Additional no-till operations are anticipated to come on line in the coming years as a result of 2021 REAP applications. As plans are developed through the Growing Greener grant and/or verified through the Chesapeake Bay Inspection Program and/or additional plan sharing within farm networks, these BMPs are listed in the plans, which are then documented into PK and linked to the plan in the system.

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	CBF grant	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	2021 - Additional documented BMPs this year, not inclusive of all recently entered plans in PracticeKeeper - 222 – Prescribed Grazing acreage Anecdotally, there is less pasture on operations than previously reported, so these targets may not be realistic.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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 Mapping	Budget available to be determined	Implementation – design, equipment, materials	\$2,000,000 budget	2021 - Additional documented BMPs this year, not inclusive of all recently entered plans in PracticeKeeper - 3 acres – Riparian forest buffer Identified responsible parties continue to install new buffers and apply for funding on an annual basis. All projects will be reported through the funding agencies' required system. Remote sensing capability regarding the aerial photo analysis performance targets still needs to be developed with State and Federal assistance as the County formalizes the need.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
3.9A	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	N/A	Preliminary design	Assume \$300,000 for land acquisition Assume \$100,000 project budget (design, permit, construction)	2021 - Property identified in Harris Township. Next steps include scoping the project in the field and meeting with the landowner in 2022.
3.9B	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	N/A	Preliminary design	\$500,000	2021 - Initial contact with a representative from Wildlife For Everyone was made without response. The CAP team would benefit from a partner organization taking the lead on this initiative. The schedule will need to be extended to insert the step of identifying a lead organization before or in parallel with identifying some candidate landowners.
3.10	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	Existing grant	Design, permit, construction services	Assume \$450/LF - \$7 M for total project delivery, floodplain restoration concept, not O&M Assume \$50/LF - \$1,110,000 for TU-lead projects	2021 - See Initiative 3.3 for update.
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	Conservation District staff assistance, consulting ag engineers	N/A	Consultant for program management and project delivery	\$1.8 M per year, \$9 M total	2021 - CEG and Block Grant funding are being spent on projects that support this initiative. Five projects are on schedule to be completed this year including roofed heavy use areas and manure storage BMPs.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	Assume \$280,000/year Assume \$420,000/year	Design, permit, construction services	Assume 2 projects per year, \$130,000 each, \$260,000 per year, \$1.3 M total	2021 - CEG and Block Grant funding are being spent on the construction of projects that support this initiative. 1800 AUs are being managed by these newly installed projects including beef, dairy, horses, swine, and poultry operations.
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	N/A	Design, permit, construction services	Assume 2500 LF project, \$750,000 project budget	2021 - This initiative is on hold pending updates from DEP to the mitigation banking process, regulatory changes to Chapter 105, and the next MS4 permit requirements for municipalities.

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	N/A	Training Municipal data input	N/A Assume \$5000 administrative cost per municipality per year and 7 developing municipalities → \$35,000 per year	2021 - This initiative is on hold until FieldDoc is running for urban BMP data collection.
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	2025	Municipal capacity to implement plans (technical, financial)	Municipal engineer design/permit, construction readiness	Unknown	N/A	N/A	2021 - The municipalities are on track regarding implementing the joint Pollutant Reduction Plan. As BMPs are implemented, they will be reported through the MS4 Annual Reports.
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	N/A	N/A	\$5,000 per acre (forest), \$2,500 per acre (meadow) → \$100,000 (budget for all forest)	2021 – Consistent DCNR Conservation Landscaping program funding is needed for the County to promote the opportunity and enable our partners to take the lead on a large-scale project.
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	Available budget to be determined	Design, permit, construction	\$7,000,000	2021 - No progress has been made to date due to team capacity and a lack of need for MS4 credit. It is also not a high priority due to low nitrogen reduction potential and high anticipated capital cost.

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	\$175,000 per year	N/A	N/A	2021 - Current Conservation District records indicate that the cumulative goal of 200,000 feet has been met, but the last CAST reporting run (2018) indicated that only about ¼ of that has made it to CAST. We'll need to rectify that with our DEP partners, including potential reverification of projects that were completed before 2010. Also, funding has been used for stream crossings, which have many benefits, though do not result in significant project length. A place to report these positive impacts should also be identified, or Conservation District staff should be trained, for reporting those improvements as they also result in sediment and nutrient reductions.
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	N/A	N/A	N/A	2021 - In 2022, discuss the need with Native Creations, US Fish and Wildlife Partnership for Fish and Wildlife, and Clearwater Conservancy to see what model has worked for them and if it can be scaled.
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	N/A	N/A	N/A	2021 - As a result of a successful application submitted by the PADEP Chesapeake Bay Office, the CAP Team worked with Millersville University through the Governor's Office of Performance Through Excellence to identify private entities who may have interest in investing in local clean water projects. The student team also developed a flyer that we can use when performing initial outreach with the identified entities.
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	N/A	N/A	N/A	2021 - We are on track to complete the list of potential funding partners during 2021.

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	N/A	N/A	N/A	N/A	2021 - See Initiative 3.20A for progress as this is a companion initiative. Rather than having private donors provide funding to Centre County, the goal of the Millersville University project was to suggest to companies to sign up to be a REAP sponsor.

Priority Initiative 4: Research, Education, and Training

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	N/A	N/A	N/A	2021 - ALLARM worked with local partners to obtain data, clean and organize it to Chesapeake Monitoring Cooperative standards, geo-reference the data, and upload the data to the Chesapeake Data Explorer .
-------------	--	---	---	------------	------	---	--------------------------------------	-----	-----	-----	--

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

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

Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
4.1B	Initiate additional water quality monitoring sites that promote long-term trend evaluation at key locations in Centre County CAST-21 acknowledgement of our data Map existing monitoring locations Expand monitoring based on Corridors of Opportunity area monitoring gaps	Location identification, financial and volunteer budget analysis, and initial landowner communication by end of 2021	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	N/A	Sample Collection for new sites identified through CAP implementation	\$10,000 EQUIPMENT	2021 - See 4.1A progress

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

Green - action has been completed or is moving forward as planned Yellow - action has encountered minor obstacles Red - action has not been taken or has encountered a serious barrier											
Action #	Description	Performance Target(s)	Responsible Party(ies) and Partnerships	Geographic Location	Expected Timeline	Potential Implementation Challenges or Recommendations	Resources Available		Resources Needed		Annual Progress to Date
							Technical	Financial	Technical	Financial	
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	Limited match	N/A	\$5000 per organization to produce promotional materials (hats, shirts, stickers) for members	2021 - COVID-related restrictions and delays on last year's projects have resulted in fewer organizational meetings than in past years. Organizations that are project-focused continue to work with landowners, solicit funding, and complete designs and construction at a pace of about four projects per organization per year. They all continue to need additional membership, grant funding, and technical assistance to scale efforts up, though fortunately implementation has not slowed down.
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	Trip coordination and field facilitation	N/A	\$2000 per year to expand resources	2021 - Initial steps have been taken to determine if a trip can be scheduled for Fall 2021. COVID restrictions condensed the amount of time in 2021 where the trips could realistically occur.

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 (~ $\frac{1}{10}$ 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.

MIMP – 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.