

Countywide Action Plan Overview

Columbia County



Plan Highlights

The Columbia CAP in conjunction with state efforts aims to reduce the loading of nearly 1,327,000 pounds of nitrogen and 38,000 pounds of phosphorus annually to local streams and water resources through BMPs implemented by 2025. Current efforts and opportunities have identified approaches that will result in approximately 338 thousand pounds of Nitrogen reductions and 176 thousand pounds of Phosphorus reductions; so, there is more work to do over the next few years to ensure Columbia County identifies a pathway to full reductions. Additionally, the proposed BMPs will provide significant reductions in sediment (22% of county streams are degraded due to sediment). Despite the short time frame for BMP implementation, the Columbia CAP is also intended to serve as a long-term blueprint for improved local water quality beyond 2025. The Columbia CAP is a dynamic and adaptive plan summarizing approaches and tracking implementation efforts for local water quality improvements. The plan is aspirational but realistic. The CAP will be updated on an annual basis and reports will be provided to both local stakeholders and PADEP through 2025 summarizing progress towards identified long-term goals or adjustments to overall approaches. Key goals and objectives of the Columbia CAP are:

- Capturing and memorializing collaborative and cooperative efforts of the many existing entities that have been working towards water quality improvements in Columbia County.
- Outlining realistic scenarios of Best Management Practices (BMPs) implementation balancing theoretical improvements with actual on-the-ground conditions.

- CAP encompasses and considers all areas of the county (developed, agricultural, and forested/natural areas).
- Formation of a Steering Committee with experts and leaders across multiple sectors to help guide CAP development and implementation efforts through Action Teams.
- Organization of Action Teams focused on preservation of natural areas, agriculture, riparian buffers, point source pollution, stormwater, and education.

Key Findings

Success of the Columbia CAP implementation process will be dependent upon a combination of funding, regulatory flexibility, innovative techniques, staffing resources, and political will coming together. Key actions and considerations that led CAP development and proposed for successful implementation include:

- Formation of a steering committee and action teams to guide CAP development and monitor implementation efforts.
- Creative and long-term funding streams.
- Well-organized and monitored set of long-term verification processes ensuring implemented BMPs continue to perform.
- A significant amount of both agricultural and storm water BMPs currently implemented have not been captured in reductions.
- A significant portion of land use in Columbia County is natural and agricultural areas, and CAP implementation requires an elevated effort to preserve and/or expand these areas.
- There are 4 MS4 permitted municipalities located in Columbia County.
 - Successful CAP implementation is contingent on adequate financial and staffing resources becoming available as well as buy-in from county landowners.

Opportunities for Success

CAP development included the identification of appropriate collaborations, priority areas, and funding needs specific to Columbia County that would improve implementation success while providing extended benefits to the community. Opportunities and considerations that will improve success of CAP implementation include:

- Collaboration with the established groups currently leading initiatives in the county (e.g. North Central Pennsylvania Conservancy, Trout Unlimited, USFWS, local watershed groups, NRCS, DCNR, DEP, PACD, SCC, PAFBC, Farm Service Agency)
- Continued use of existing funding sources such as Growing Greener, DCED, Etc.
- Work with other county agencies to maximize matching funds for various projects
- Utilize interns to assist in BMP verification while giving them work place experience

- Development of block grant funding sources to allow for faster implementation of conservation projects
- Additional reductions immediately realized due to implemented but uncaptured BMP's
- Tie stream de-listing efforts to overall CAP implementation efforts
- Re-imagined education and outreach approaches to increase public knowledge and buy-in.
- Partnership with private landscape contractor to implement forested buffers
- Willing groups of volunteers to assist with tree plantings and the implementation of other conservation practices
- Opportunities exist to build off of conservation practices that are already implemented

Challenges to Implementation

Several opportunities for success and overall Columbia CAP implementation will inherently encounter challenges. How these challenges unfold will determine the level of successful implementation by 2025. Primary hurdles and challenges anticipated or known include:

- Funding for BMP implementation and limited resources in general.
- Efficient and effective long-term verification processes.
- Increased workload for staff in addition to existing responsibilities
- Public buy-in and extent of local landowner willingness to participate.
- Conflicting and/or inconsistent regulatory requirements.
- Short timeframe for BMP implementation to achieve significant nutrient reductions.
- Inadequate resources for the capture of ag-related plans into PracticeKeeper.

Plan Summary

The implementation of the Columbia Countywide Action Plan (Columbia CAP) will center around four (4) priority initiatives: 1) agriculture, 2) developed storm water, 3) stream restoration, and 4) preservation of natural areas. Working groups with expertise in each area were established with the purpose of organizing fully functioning Action Teams responsible for oversight of focus points under each Priority Initiative.

Columbia CAP development focused on establishing a framework to follow and help guide implementation efforts. Implementation of the Columbia CAP is best described as an iterative process as the plan and structure provides an ability to adequately respond to new opportunities, funding streams, and changing conditions.

Priority Initiative 1: Agriculture

- Action 1: Fertilizer Management
 - Activity 1: Implement conservation and nutrient management plans (2,000 additional acres)
 - Activity 2: Expand soil testing (1,000 acres)

- Activity 3: Increased adoption of no-till & conservation tillage (60,000 acres)
- Activity 4: Education to homeowners on residential fertilizer use
- Activity 5: Streambank Buffers
- Action 2: Herbicide Management & IPM
 - Activity 1: Cover crops as natural weed suppressant (15,000 acres)
 - Activity 2: Expanded adoption of green planting and rolling covers (5,000 acres)
 - Activity 3: Pesticide education for farmers and residential applicators
- Action 3: Manure Management
 - Activity 1: Manure storage facilities (13,000 animal units)
 - Activity 2: Stream buffers near animal feeding areas (510 new acres)
 - Activity 3: Off stream watering for livestock (500 acres)
 - Activity 4: Manure management plans
 - Activity 5: Cover crops with fall nutrients (20,000 acres)
 - Activity 6: Prescribed grazing (3,000 acres)

Priority Initiative 2: Developed Stormwater

- Action 1: Identify runoff reduction areas
 - Activity 1: Inventory / improvements for point source pollution such as WWTP, industry, septic (3 systems & 2 acres of infiltration basins)
 - Activity 2 and 3: Inventory/ improvements for non-point source pollution such as DGLVR roads (55,000+ ft.), buffer plantings (50 acres), wetland restorations, forest connectivity (20 acres)
 - Activity 4: Consider existing plan recommendations/ policies such as MS4 pollution reduction plans (60 acres), road salt & herbicide use
 - Activity 5: Promote green infrastructure- bioretention, rain gardens, pervious pavement (100 acres)
 - Activity 6: Education and outreach materials and events
- Action 2: Revise ordinance requirements
 - Activity 1: Develop model ordinance template to improve water quality and storm water management
 - Activity 2: Promote low impact development & greywater use (2200 acres)
 - Activity 3: Promote CAP practices and goals
 - Education and outreach

Priority Initiative 3: Stream Restoration

- Action 1: Wetland restoration and floodplain conservation (40 acres)
- Action 2: Riparian buffers

- Activity 1: Establish new riparian buffers (60 acres)
- Activity 2: Develop residential no mow zones
- Activity 3: Japanese Knotweed removal and invasive species treatment
- Action 3: Streambank Stabilization
 - Activity 1: Grading banks to restore floodplain access (20,000 linear ft.)
 - Activity 2: In-stream habitat structures
 - Activity 3: Livestock exclusion fencing
- Action 4: Education and Outreach
 - Activity 1: Increase landowner outreach and develop outreach handouts
 - Activity 2: StoryMapping tours on district website
 - Activity 3: Stream redesignation studies

Priority Initiative 4: Preservation of Natural Areas

- Action 1: Limit development in Ag & Natural Areas
 - Activity 1: Preserve agricultural lands through the farmland preservation program (2,200 acres)
 - Activity 2: Partner with conservancies to establish conservation easements (1,000 acres)
 - Activity 3: Promote open space and recreation through trail development/ maintenance, public stream access
 - Activity 4: Limit sprawl through planning and zoning
 - Activity 5: Education and Outreach
- Action 2: Promote Implementation of Woodland and Pollinator Habitat
 - Activity 1: Assist landowners with habitat implementation (field borders, pollinator strips, bird boxes, wetland restoration)
 - Activity 2: Incentivize invasive species management & removal as well as native replacements
 - Activity 3: Education and outreach materials/ events

Phase 3 Watershed Implementation Plan (WIP) Programmatic Recommendations Template

Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
Programmatic Recommendation 1: Continued Programmatic Support									
1.1*	Retain funding and technical support from the Chesapeake Bay Office to implement CAP initiatives	Continuous funding and technical assistance provided by the CB Office and DEP regional support through CAP implementation	2021-2025+	Costs associated with staffing, meeting, planning, and supporting implementation efforts. Commitment by agencies to continue assistance through the duration of this initiative.	Support addition of new technical positions and additional funding for CAP implementation	More dedicated staff (1-2) to assist coordination and implementation of projects and funding opportunities	CBO, DEP	Funding to implement CAP activities, new staff payroll	CBO, DEP
1.2*	Funding Support: Block grant for individual counties or county partnerships Increased staff funding Emergency funding Farmland Preservation	Offer block-style grant for county CDs to utilize for more efficient project coordination and implementation. Increase funding for current staff to help with retention and improve project efficiency by avoiding the hire/training cycle. Disaster relief funds to help when floods, etc. Increase Farmland Preservation funds to help incentivize preserving prime farmland.	2021-2025+	Approval of proposed PA Clean Streams Fund and Invasive Species Program Competing with current property sales vs. low pay for Farmland Preservation program. We currently have \$180,000 and offer \$1,200/acre.	Offer block-grant style grants that county's can apply for in order to better facilitate and speed the process of project coordination and implementation.		DEP, DCNR	\$100k annual Block grants, \$75k annual staff salary increase stipend \$300k for emergency projects \$400,000 annual FP	DEP, DCNR, Proposed PA Clean Streams Fund, Proposed Invasive Species Program, SCC, CAP
1.3*	Provide more educational opportunities for CD staff to support DEP initiatives	Educational opportunities including GIS training, project design and construction training, etc.	2021-2025+	Location and access to training, training costs	Provide more comprehensive training opportunities for CD staff to more work more effectively using the latest technologies and knowledge		DEP, PFBC		DEP
1.4	Continue supporting CD Field Rep positions	Support and fund conservation district field representation positions to assist the district with programs and advising	2021-2025+				DEP		DEP
1.5*	Support new staff positions within agencies and/or conservation districts	Fund additional staff positions to facilitate implementation of CAP and non-CAP programs; full-time, part-time, or paid interns	2021-2025+		Support new staff positions including technical staff, invasive species mgmt. staff, etc. and expansion of office space to support additional staff			\$60k/yr for new CD staff member \$10k/yr paid CD intern	

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Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
1.6*	Support dedicated funds for Ag, WS, and other programs	Offer dedicated funds for project implementation without competitive grant application process	2021-2025+	Approval of proposed PA Clean Streams Fund and Invasive Species Program	Copy the Dirt, Gravel, Low Volume Roads program Utilize proposed PA Clean Streams Fund monies for Ag BMP projects Utilize proposed Invasive Species Program monies on invasive species projects.	State support on invasive species training	DEP, DCNR		DEP, DCNR, Proposed PA Clean Streams Fund, Proposed Invasive Species Program, SCC
1.7	Improve Permit process and process time	Provide training for zoning officers so they can help ensure proper permit requirements from the start.	2021-2025+			Training Permit update meetings	DEP		DEP
1.8	Enforce Act 167	Reduce rate and volume of stormwater to prevent streambank erosion through infiltration	2021-2025+	No enforcement at any level.	Enforcement is needed.		DEP		DEP

Programmatic Recommendation 2: Data mgmt. and Modeling

2.1	Improved data reporting and management	Develop a central reporting system that enables all local and state stakeholders to report implemented and planned BMPs for credit across all programs, and disseminate data to CAST/MMW/FieldDoc/Practice Keeper/MS4, etc. models.	2021-2025+	Funding to develop a central reporting system. Integration capabilities between multiple modeling platforms. Education for stakeholders to utilize the system on a consistent basis. Update and standardize eligible BMPs across platforms.	One consolidated system to save time on data entry and retrieval		DEP		DEP
2.12	Inventory verification	Enable data sharing across platforms and contributing entities.	2021-2025+	Data privacy.	Need verification of BMPs installed through data sharing platforms and staff to go physically verify for more accurate reduction numbers toward CAP goals.	Conduct verification and data entry		2 Paid interns \$20k/year	CAP
2.13	Educate for data capture	Enable public and citizen scientist data input	2021-2025+	Education and incentive for non-stakeholders to report conservation practices and citizen science data.	Education and outreach – webinars, watershed presentations, etc		DEP, CCCD		DEP, CCCD
2.2	Develop a model/template to capture and report non-manure nutrient mgmt.	Encourage, capture, and report non-manure nutrient inputs.	2021-2025+	Will require close coordination and cooperation between regulatory agencies, private fertilizer companies, and farmers to achieve a statewide model.	Dept. Ag, DEP, farmer coordination at state-level with the fertilizer industry. Added pollutant reductions reported from work already being done.		DEP		DEP

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Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
				Requesting fertilizer companies to participate in a program that could reduce sales.	Coordinate with ag consultants for reporting instead of relying on the farmer.				
2.3	Develop a documentation program for commercial and/or homeowner nutrient applications in developed lands	Support fertilizer legislation where reporting is required for fertilizer inputs on developed lands and lawns	2021-2025+	Education of responsible parties, receiving timely information, training on reporting system	Pair reporting with another generally used reporting mechanism to State Government	Landowner education	DEP, Dept. Ag, County CDs	Funding for reporting system \$5k	
2.3*	Incorporate water quality data into models	Integrate existing and new water quality data submissions into models	2021-2025+		Include citizen science data, data from ALLARM program, etc.				
2.4	Promote safe disposal of household chemicals and products	Provide local disposal location/drop off of household chemicals multiple times a year to reduce dumping/flushing		Increased staff and transport logistics to haul away	Educate on alternative eco-friendly products homeowners can use, pesticide/herbicide safety	Materials to distribute/PSA's	DEP		DEP

Programmatic Recommendation 3: Update eligible BMPs for credit

3.1*	Streambank stabilization structures	Count in-stream and bank structures for sediment load reduction as well as nutrient reduction through stabilizing banks and stopping bank erosion	2021-2025+		Give credit to all streambank stabilization projects including in-stream habitat structures for sediment load reduction. Reevaluate how sediment loads are calculated and credited based on the USGS, Susq. University study initiative		CBO		CBO
3.2*	Invasive species mgmt.	Provide technical assistance, monitoring, treatment and/or staff funding and support for invasive species control on public lands; emphasis on Japanese Knotweed, Tree of Heaven, and Spotted Lanternfly	2021-2025+	Approval of Invasive Species Program	Incentivize invasive species removal, replacement with native plants Fund new staff positions for invasive species monitoring and removal			\$100k/year projects \$50k/year staff	Proposed Invasive Species Program
3.3	Reduce mosquito, tick habitat	Credit efforts to remove Japanese Barberry other contributors to abundant tick populations where Lyme Disease is prevalent	2021-2025+		Include invasive species removal as a credit towards improving public health, and improving soil structure, protecting native plants and natural areas for recreation and other purposes				
3.31		Credit efforts to reduce stagnant organic water that produces West Nile Virus infected mosquitos	2021-2025+						
3.32		Offer funding for hosting tire cleanups to reduce mosquito populations and clean up natural areas	2021-2025+		Provide funding for tire cleanups, or offer regular tire collection events at each county on an annual basis		CBO	\$25k/year	CBO

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Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
3.33		Promote habitat improvements for vector predators such as bats, dragonflies, turkey, opossums, frogs and toads, etc.	2021-2025+				DEP		DEP
3.4*	Education and outreach	Provide a documentation method for reporting educational and outreach activities, audience reached, materials distributed, and actions taken by participants	2021-2025+				DEP, CBO		DEP, CBO
3.41*		Include a reporting method into Practice Keeper for reporting educational activities and audience reached	2021-2025+				CBO		CBO
3.42*		Credit programs that distribute conservation materials and implementation such as rain barrels, rain gardens, sanitary well caps, tree giveaways and plantings, etc.	2021-2025+				CBO		CBO
3.5*	Land Retirement	Support credits for land retirement such as solar fields and conservation easements and wetland restoration	2021-2025+				CBO		CBO
3.6*	Cropland Conversion	Support credits for cropland conversions that convert retired crop fields into permanent cover to improve soil health, habitats, and sequester carbon	2021-2025+				CBO		CBO

Programmatic Recommendation 4: Re-evaluate Water Resources

4.1*	Stream re-evaluation/re-designation	Reevaluate stream reach conditions and designation for streams that have not been analyzed within the last 5-10 years	2021-2025+	Education for CD and other agency staff to utilize DEP protocols Testing equipment access or funding to purchase	Many of our local streams have not been evaluated for stream health since the 1990s/early 2000s. A reevaluation of stream health should be conducted on a regular basis, with priority towards recently developed areas. Hire additional staff (1-2) to coordinate and conduct field analyses of streams.	training	DEP	\$20k/year interns	DEP
4.2*	Groundwater supply analysis and testing	Conduct groundwater resource testing state-wide to determine drinking water quality for private well owners	2021-2025+		Offer groundwater quality information to private well and other private drinking water source owners so they know what they are drinking or if they need to mitigate a drinking water		USGS		DCED, USGS

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Action #	Description	Performance Target(s)	Expected Timeline	Potential Implementation Challenges	Potential Recommendations on Improvement	Resources Needed			
						Technical	Suggested Source	Financial	Suggested Source
					quality issue such as bacteria, nitrate contamination, septic leaks, toxic minerals, etc.				
4.2*1		Provide opportunities for regular private well water testing and sanitary well cap installation	2021-2025+		Provide funding or giveaway events for private well owners to protect their well heads using sanitary well caps		DEP	\$5k/year	DEP
4.22*		Support regulatory legislation for private wells	2021-2025+	Regulation of previously unregulated wells	Private wells should be regulated in order to maintain the integrity of public and private drinking water supplies				
4.3*	Acid deposition	Continue funding AMD and acid deposition projects to restore stream health and support trout survival	2021-2025+		Provide additional dedicated funding and technical support for AMD projects		DEP		DEP
4.4*	Preserve existing high-quality streams	Support and fund projects that enhance and protect existing high-quality streams that support healthy trout populations to preserve the integrity of the stream's health and prevent degradation	2021-2025+		Offer funding and technical support towards the protection of attaining streams and healthy trout populations to maintain or enhance the stream's health.				

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

Each county-based local area will use this template to identify:

- Inputs** – The statewide and/or federal policies, regulations, initiatives, programs, funding and resources that will help your county meet its goal.
- Process** – What are the changes that need to occur for the county to be successful in the process? These are the action items listed under each priority recommendation.
- Outputs and outcomes** – Both short and long-term. These are the programmatic recommendations identified by each county. Performance targets identify your county's needed change in order to meet your county goal.
- 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 Programmatic Recommendation: 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 “what, when and how” of the plan:

Description = What. This may include programs that address prevention, education, or changes to the current policy and regulation. A programmatic or policy effort will allow for the completion of cation items listed in the Planning and Progress Template.

Performance Target = How. This is an extension of the Description above. The performance target details the programmatic change that will enable you to complete the action items identified in the Planning and Progress Template. This can be a further description of the challenge to implementation from the Planning and Progress Template.

Expected Timeline = When. Provide the needed completion date for the programmatic recommendation that will assist your county in meeting its goal. This should be a reasonable expectation, based on knowledge and experience, that will aid in tracking progress toward addressing the Priority Initiative.

Potential Implementation Challenges = This field will note challenges and issues that may delay program implementation (Description). Potential challenges may relate to your county Planning and Progress Template.

Potential Recommendations on Improvement = This field will note recommendations on how to change or improve the program (Description).

Resources Needed: Technical & Funding = This field will note technical and financial resources needed/outstanding to implement the program (Description).

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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			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
Priority Initiative 1: Fertilizer Management														
1.1	Implement conservation and nutrient management plans	Agriculture	CCCD, Farmers, Consultants	Countywide	Ongoing	Landowners buy-in, funding	CCCD, NRCS		REAP, Growing Greener				CAP Grant	DEP
1.1a	Review 2 Nutrient Management Plans per year	Agriculture	CCCD, SCC, consultants	Countywide	Ongoing		CCCD							
1.1b	Review 5 Nutrient Balance Sheets per year	Agriculture	CCCD, Consultants	Countywide	Ongoing		CCCD							
1.1c	Write 10 Ag E&S Plans per year	Agriculture	CCCD	Countywide	Ongoing		CCCD		CBP					
1.1d	Track use of variable rate nutrient application	Agriculture	CCCD, Farm Service Agency	Countywide	Ongoing	Agreements needed with FSA to share data	CCCD, FSA							
1.2	Expand soil testing	Agriculture	CCCD, Farmers, PASA	Countywide	Ongoing	Funding			Ed grants	PACD			CAP Grant	DEP
1.3	Increased adoption of no-till & conservation tillage	Agriculture	CCCD, Farmers	Countywide	2025	Lack of acceptance from farmers	CCCD, NRCS		REAP				CAP Grant	DEP
1.4	Education for homeowners on residential fertilizer	Residential	CCCD, Residents	Countywide	2025	Develop outreach materials targeted towards residential users	CCCD		PACD Ed. Grants		graphic design & marketing specialists		CAP Grant	DEP
1.5	Streambank Buffers													
1.5a	Forested Buffers with fencing	Agriculture 510 total acres	CCCD, Landowners	Countywide	2025	Landowners not willing to sacrifice production area Potential Focus Area-Mud Creek WS	CCCD, NPC, Growing Greener						CAP Grant	DEP
1.5b	Grass Buffers with fencing	Agriculture 170 acres	CCCD, Landowners	Countywide	2025	Landowners not willing to sacrifice production area Potential Focus Area-Mud Creek WS	CCCD, NPC, Growing Greener						CAP Grant	DEP

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source

Priority Initiative 1: Herbicide Management & IPM

2.1	Cover crops as natural weed suppressant	Agriculture 17,000 acres	CCCD, Farmers, Consultants	Countywide	Ongoing	Funding, Lack of landowner buy-in	CCCD, NRCS		Growing Greener Grant \$90,000					
2.1a	Expand base acres to promote cover crops	Agriculture	CCCD, Farm Service Agency	Countywide	Ongoing	Agreements with FSA to share data	CCCD, FSA							
2.2	Expanded adoption of planting green & rolling covers	Agriculture 1,000 acres per year	CCCD, Farmers, PASA	Countywide	Ongoing	Funding, need for new equipment @ 12-75 thousand dollars based on operation size	CCCD, NRCS		Growing Greener Grant \$10,000					
2.3	Pesticide education for farmers and residential applicators	Agriculture 100 residents per year	CCCD, Farmers, Residents, PSU Ext.	Countywide	2025	Funding	CCCD, NRCS, PSU Ext.				PSU Extension, Marketing consultant		\$2,500	PACD Ed. Grants

Priority Initiative 2: Developed Stormwater

1.1	Inventory/improvements for point source pollution such as WWTP, industry, septic	Identify Runoff Reduction Areas	CCCD, DEP, CMCSWP, municipalities, BU	Urban and developed areas	2025	Funding, Available staff	Data retrieval	DEP	None		Data retrieval	CCCD, DEP	\$10k/yr intern	CAP, DEP, DCED
1.2	Inventory/improvements for non-point source pollution such as buffer plantings, forest connectivity	Identify Runoff Reduction Areas Buffer Plantings – 25 acres Forest Plantings – 2350 acres	CCCD, DEP, municipalities, DCNR, USFWS, BU	Urban and developed areas	2025	Funding, buy in, lack of interest	Landscaping, botany	USFWS, PFBC, DCNR, NRCS, Penn State Master gardeners	10 Million Trees	CAP, DEP, DCED, DCNR, CBF, PACD	Landscaping, botany	USFWS, PFBC, DCNR, NRCS, Penn State Master gardeners	\$100k	CAP, DEP, DCED, DCNR, CBF, PACD

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
1.3	Inventory/improvements or non-point source pollution via DGLVR roads	Identify Runoff Reduction Areas DGLVR – 12 miles	CCCD, DEP, municipalities, DCNR, USFWS, TU	Urban and developed areas	2025	Funding, buy in, lack of interest	DGLVR program Stream structure construction	USFWS, PFBC, DCNR, NRCS, C-SAW	\$400k/yr	CAP, DEP, DCED, DCNR,	DGLVR program Stream structure construction	USFWS, PFBC, DCNR, NRCS, C-SAW	\$200k/yr	CAP, DEP, DCED, DCNR,
1.4	Consider existing plan recommendations/policies such as MS4 pollution reduction plans, road salt and herbicide use	Identify Runoff Reduction Areas 60 acres	CCCD, DEP, CMCSWP, municipalities, Co. Resiliency office	Urban and developed areas	2025	Funding, MS4 permit requirements	Planning, design, construction	Co. Resiliency, Co. Planning, Penn State Ext, Private sector, municipalities C-SAW	Program funds	Co. Resiliency, Municipa lieis	Planning, design, construction	Co. Resiliency, Co. Planning, Penn State Ext, Private sector, municipalit ies C-SAW	\$100k	CAP
1.5	Promote green infrastructure projects such as bioretention, rain gardens, downspout planters, pervious pavement	Identify Runoff Reduction Areas 100 acres	CCCD, DEP, CMCSWP, municipalities, Co. Resiliency office, Chamber	Urban and developed areas	2025	Funding, Buy in from municipalities, businesses	Contacts, Planni ng, design, construction	Chamber, Private sector	grants	DCED, Giant, other corporations	Contacts, Pla nning, design, construction	Chamber, Private sector	\$100k	CAP, DCED, Giant, other corporation s
1.6	Education and Outreach materials/events	Identify Runoff Reduction Areas	CCCD, CMCSWP, Watershed Groups	Urban and developed areas	2025	Volunteers to help run events, funding, develop materials	CCCD webinars, presentations, materials, venue, and equipment i.e.: rain barrel workshop, downspout planter demo	BU, CCCD, Gov agencies, private sector	Grants, program funds	DEP, PPL, PACD, voluntee r groups, municipa lieis	CCCD webinars, materials, venue, and equipment, graphic design	BU, CCCD, Gov agencies	\$25k	DEP, PPL, PACD, volunteer groups, penn St. ext
2.1	Develop model ordinance template to improve	Revise Ordinance Requirements	CCCD, Co. Planning, Centr	County-wide	2025	Funding, Buy in	Co. Planning	Co. Planning,			Planning consultant		Consultant fees	Growing Greener,

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							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
	water quality and sw mgmt	Impact goal: 50 acres	the Co. CD, municipalities					Private sector						NFWF, CAP, DCED
2.2	Promote low impact development/greywater use	Revise Ordinance Requirements Impact goal: 2200 acres	CCCD, Co. Planning, municipalities, Chamber	Urban and developed areas	2025	Funding, Buy in	Co. planning	Co. planning, private sector			Planning consultant		Consultant fees	Growing Greener, NFWF, CAP, DCED
2.3	Promote CAP practices and goals	Revise Ordinance Requirements Impact goal: 500 acres	CCCD, Co. Planning, municipalities	County-wide	2025	Funding, Buy in	Co. planning	Co. planning, private sector			Planning consultant		Consultant fees	Growing Greener, NFWF, CAP, DCED
2.4	Education and Outreach	Revise Ordinance Requirements	CCCD, Co. Planning, municipalities	County-wide	2025	Funding, Buy in	CCCD, Gov agencies, stream table	CCCD, stream table			Staff to hold twp meetings/demo	CCCD	Developing event materials	PACD, Penn State Ext
Priority Initiative 3: Stream Restoration														
1.1	Wetland/Floodplain Conservation	60 acres - Wetland restoration and/or preservation	CCCD	1) Above Camp Lavigne/Gary Cook, 2) Foundryville/Glen Brook 3) Summerville, 4) ESPY, 5) Back Branch area, 6) Oville confluence, 7) above FC Cabin area, 8) Pealertown/zane rs/stillwater 9) Parrs Mill area, 10) Beaver twp, 11) Mainville	2025	More technical support for delineations, funding, design work Landowner agreements	Planning, design, construction	USFWS, Land Trusts, NRCS, GG, CCCD	NRCS program	USFWS, Land Trusts, NRCS, GG NRCS program	Planning, design, construction	USFWS, Land Trusts, NRCS, GG, CCCD	\$50k	USFWS, Land Trusts, NRCS, GG NRCS program, CAP

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

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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			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
2.1	Riparian Buffers	1000 acres - Riparian Buffer plantings	CCCD	County-wide – where canopy is not present along waterways	2025	Maintenance	Long-term maintenance funding or labor Planning, design, construction	CBF, DCNR, PACD, GG, Private sector, CCCD	10M trees	CBF, DCNR, PACD, GG	Long-term maintenance funding or labor Planning, design, construction	CBF, DCNR, PACD, GG, Private sector, CCCD	\$50k	CBF, DCNR, PACD, GG, CAP
2.2	Riparian Buffers	1000 acres - No Mow zones	CCCD	County-wide – developed and roadside areas	2025	DCNR Lawn conversion, Landowner buy in, Municipality cooperation	Funding and technical assistance for pollinator enhancements, Ordinance updates	Municipalities, legal, planning, CCCD			Funding and technical assistance for pollinator enhancements, Ordinance updates	Municipalities, legal, planning, CCCD		CAP, DEP, CBF
2.3	Riparian Buffers	Japanese Knotweed removal and invasive species treatments	CCCD	County-wide	2025	Need aquatic-safe treatment products, continual treatments and monitoring	Planning and labor/equip for proper removal	CBF, DCNR, PACD, GG, Private sector, CCCD		CBF, DCNR, PACD, GG	Planning and labor/equip for proper removal	CBF, DCNR, PACD, GG, Private sector, CCCD	\$100k	CBF, DCNR, PACD, GG, County, CAP
3.1	Streambank Stabilization	13,000 feet - Grading banks back for floodplain access	CCCD	Throughout Fishing Creek WS, Roaring Creek WS, Chilli Creek WS	2025	Permits required	Planning, design, construction	CCCD, DEP, Private Sector	Grants and programs	GG, CAP, County	Planning, design, construction	CCCD, DEP, Private Sector	\$25k	GG, CAP, County, CBF
3.2	Streambank Stabilization	13,000 feet - In-stream habitat structures	CCCD	Throughout Fishing Creek WS, Roaring Creek WS, Chilli Creek WS	2025	Permits required	Planning, design, construction	GG, NPC, TU, CCCD, NRCS	Grants and programs	GG, CAP, County	Planning, design, construction	GG, NPC, TU, CCCD, NRCS	\$50k	DEP, GG, CAP,

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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			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
3.3	Streambank Stabilization	5000 ft - Livestock exclusion fencing	CCCD	County-wide – see ag BMPs	2025	Water access	Planning, design, construction	GG, NPC, TU, CCCD, NRCS	Grants and programs	GG, DEP, CAP	Planning, design, construction	GG, NPC, TU, CCCD, NRCS	\$25k	GG, DEP, CAP
4.1	Education and Outreach	Increase landowner outreach and develop outreach handouts	CCCD	County-wide	2025	Reaching landowners, changing “traditional” views	Layout, concept	Private sector, DEP, PACD	Grants and programs	DEP EE, PACD NPS	Advertising assistance, graphic design	Private sector, DEP, PACD	\$2k	DEP EE, PACD NPS
4.2	Education and Outreach	Develop StoryMapping tour(s) on website	CCCD	Online	2025	Funding for annual fees and update websites, Learning curve, drone use, showcase projects and programs	Show at conferences, fair, watershed meetings, post online	Private sector, County GIS, DEP, CCCD	Grants and programs	DEP EE, County GIS	Show at conferences, fair, watershed meetings, post online	Private sector, County GIS, DEP	Develop to promote programs and showcase projects	DEP EE, County GIS
4.3	Education and Outreach	Stream redesignation studies	CCCD	Fishing Creek WS Briar Creek WS Roaring Creek WS	2025	Funding for more staff to monitor streams and update listings	Training, interns to monitor	DEP, PFBC	Grants and programs	DEP	Training, interns to monitor	DEP, PFBC	\$20k	DEP, CAP

Priority Initiative 4: Preservation of Natural Areas

1.1	Preserve farms through the Farmland Preservation Program	Limit Development in Ag/Natural Areas 1 farm/year or 2,200 acres	CCCD, Farm Bureau, FSA, NRCS	County-wide	2025	Funding	Legal Advice Program admin knowledge	Lawyer CCCD	\$180k/yr \$1200/acre	PDA	Legal Advice Program admin knowledge	Lawyer CCCD	Increase funding to \$400k/yr \$2000/acre	CAP
1.2	Partner with conservancies and agencies to establish conservation easements	Limit Development in Ag/Natural Areas 1,000 acres	CCCD, NPC, DCNR, PGC,	County-wide	2025	Funding	NPC, PGC, legal	Partners, Lawyer, CCCD		DCED, DCNR	NPC, PGC, legal	Partners, Lawyer, CCCD	Funding to help encourage match	CAP

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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			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source
1.3	Promote open space and recreation through trail development/maintenance, public stream access	Limit Development in Ag/Natural Areas Support existing and add .5 acre new each year	CCCD, DCNR, PFBC, CMVB, BU	County-wide	2025	Funding	planning	USFWS, CMVB, CCCD	grants	NFWF, County Tourism			grants	NFWF, County Tourism
1.4	Limit sprawl through planning and zoning	Limit Development in Ag/Natural Areas 50 acres	CCCD, Co. Planning, municipalities	County-wide	2025	Funding, buy in	Co. Planning		grants	DEP, DCED, CAP	Co. Planning		grants	DEP, DCED, CAP
1.5	Education and Outreach	Limit Development in Ag/Natural Areas	CCCD, municipalities, watershed groups	County-wide	2025	Funding	Presentations, webinars, handouts	CCCD	Developing event materials	DEP, PACD, CAP	Presentations, webinars, handouts, graphic designer	CCCD	\$2k	CAP, PACD
2.1	Promote/assist landowners with habitat implementation such as field borders, pollinator strips, bird boxes, wetland restoration, etc.	Promote Implementation of Woodland and Pollinator Habitat 2 acres of tree plantings	CCCD, NRCS, DCNR,	County-wide	2025	Funding	Botany, forestry, landscape design, ecology	NRCS, DCNR, Penn State Ext, Private sector	10 Million trees	DEP, PACD, DCNR, CAP, CBF	Botany, forestry, landscape design, ecology	NRCS, DCNR, Penn State Ext, Private sector	\$25k	DEP, PACD, DCNR, CAP
2.2	Incentivize invasive species management removal and native replacements	Promote Implementation of Woodland and Pollinator Habitat 250 acres	CCCD, NRCS, DCNR	County-wide	2025	Funding	Botany, forestry, landscape design, ecology	DCNR, NRCS, Penn St Ext	10 Million trees	DEP, CAP, NFWF, CBF	Botany, forestry, landscape design, ecology	DCNR, NRCS, Penn St Ext	\$25k	CAP
2.3	Education and outreach materials/events	Promote Implementation of Woodland and Pollinator Habitat	CCCD, NRCS, Penn State Ext				Botany, forestry, landscape design, ecology	Penn St Ext	Developing event materials	DEP, CAP, PACD	Botany, forestry, ecology, graphic design	NRCS, DCNR, Penn State Ext,	\$2k	CAP

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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			
							Technical	Source	Financial	Source	Technical	Suggested Source	Financial	Suggested Source

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).

COUNTY: Columbia

Detailed BMP Entry Form

see "Input Info" tab for more information regarding BMP entry

Priority	Sector	BMP Name	BMP Quantity	Measurement Unit	New or Total Acres	Notes:
1. Nut Reduct	Agriculture	Nutrient Management Core N	7550.6	acres	Total Acres	
1. Nut Reduct	Agriculture	Nutrient Management Core P	21000	acres	Total Acres	
1. Nut Reduct	Agriculture	Nutrient Management N Placement	12750	acres	Total Acres	
1. Nut Reduct	Agriculture	Nutrient Management N Timing	14250	acres	Total Acres	
1. Nut Reduct	Agriculture	Nutrient Management P Rate	10500	acres	Total Acres	
1. Nut Reduct	Agriculture	Nutrient Management P Placement	10500	acres	Total Acres	
1. Nut Reduct	Agriculture	Nutrient Management P Timing	10500	acres	Total Acres	
1. Nut Reduct	Agriculture	Nutrient Management N Rate	10500	acres	Total Acres	
1. Nut Reduct	Agriculture	Tillage Management-Conservation	5055	acres	Total Acres	
1. Nut Reduct	Agriculture	Tillage Management-Continuous High Residue	61645	acres	Total Acres	
1. Nut Reduct	Agriculture	Cover Crop Traditional Legume Plus Grass 50% Early Drilled	15000	acres	Total Acres	
1. Nut Reduct	Agriculture	Cover Crop Traditional with Fall Nutrients Wheat Early Drilled	2463.7	acres	Total Acres	
1. Nut Reduct	Animals	Animal Waste Management System	13000	animal units	Total Acres	
1. Nut Reduct	Agriculture	Precision Intensive Rotational/Prescribed Grazing	3044.5	acres	Total Acres	
1. Nut Reduct	Agriculture	Off Stream Watering Without Fencing	500	acres	Total Acres	
1. Nut Reduct	Agriculture	Forest Buffer-Streamside with Exclusion Fencing	510	acres	Total Acres	
1. Nut Reduct	Agriculture	Grass Buffer-Streamside with Exclusion Fencing	170	acres	Total Acres	
2. SW Dev	Developed	Advanced Grey Infrastructure Nutrient Discovery Program (IDDE)	2200	acres	Total Acres	
2. SW Dev	Developed	Bioretention/raingardens - A/B soils, no underdrain	25	acres	New Acres	
2. SW Dev	Developed	Bioswale	10	acres	New Acres	
2. SW Dev	Developed	Conservation Landscaping Practices	25	acres	New Acres	
2. SW Dev	Developed	Dirt & Gravel Road Erosion & Sediment Control - Driving Surface Aggregate + Raising the Roadbed	47520	feet	New Acres	
2. SW Dev	Developed	Dirt & Gravel Road Erosion & Sediment Control - Driving Surface Aggregate with Outlets	7920	feet	New Acres	
2. SW Dev	Developed	Dirt & Gravel Road Erosion & Sediment Control - Outlets only	5280	feet	New Acres	
2. SW Dev	Developed	Erosion and Sediment Control Level 1	500	acres	New Acres	
2. SW Dev	Developed	Filter Strip Runoff Reduction	60	acres	New Acres	
2. SW Dev	Developed	Filtering Practices	25	acres	New Acres	
2. SW Dev	Developed	Forest Planting	50	acres	New Acres	
2. SW Dev	Developed	Forest Planting	2300	acres	Total Acres	
2. SW Dev	Developed	Infiltration Practices w/ Sand, Veg. - A/B soils, no underdrain	30	acres	New Acres	
2. SW Dev	Developed	Nutrient Management Plan	1600	acres	New Acres	
2. SW Dev	Developed	Permeable Pavement w/ Sand, Veg. - A/B soils, no underdrain	6	acres	New Acres	
2. SW Dev	Developed	Tree Planting - Canopy	2	acres	New Acres	
2. SW Dev	Developed	Vegetated Open Channels - A/B soils, no underdrain	6	acres	New Acres	
2. SW Dev	Septic	Septic Denitrification-Conventional	23	number of systems		
3. Strm Rest	Natural	Wetland Enhancement	60	acres	New Acres	Stoney Brook, Camp Louise
3. Strm Rest	Natural	Non Urban Stream Restoration	10000	feet	New Acres	Hemlock Creek, Fishing Creek, Roaring Creek, 10 Mile Run, Chilli Creek
3. Strm Rest	Natural	Urban Stream Restoration	3000	feet	New Acres	Kinney Run
3. Strm Rest	Agriculture	Grass Buffer-Streamside with Exclusion Fencing	5000	Length (ft)	New Acres	
3. Strm Rest	Agriculture	Forest Buffer	1000	acres	New Acres	
4. Presvn	Agriculture	Land Retirement to Ag Open Space	2200	acres	Total Acres	
4. Presvn	Agriculture	Land Retirement to Pasture	1000	acres	Total Acres	
4. Presvn	Agriculture	Wetland Restoration - Headwater	60	acres	Total Acres	
4. Presvn	Agriculture	Soil Conservation and Water Quality Plans	1000	acres	Total Acres	