

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 (2020 + 2021)	Annual Progress to Date (2022)
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<b>Buffers Action Team</b>												
<b>Priority Initiative 1: Buffer Implementation</b>												
1.1	1 stellar buffer demonstration of 1-2 acres in every township (60 total), and full buffer goal implementation		Municipalities, Lancaster's buffer action team	All municipal partners	2018-2025  NEXT STEPS: List of names (both public and private buffers) acquired to identify which municipality owned buffers exist and where gaps need addressed	With stormwater fees on the horizon, prepare to incentivize Ag and buffers with stormwater exemptions. (Financial and technical support from municipalities as we all wade through new MS4 flexibility);  Not enough boots on the ground to find willing land-owners, train municipal staff, and organize plantings;  Financial and technical support from municipalities as we all wade through new MS4 flexibility;  CREP is no longer available for municipalities (example given at public meeting where they used to get support to use CREP dollars and trees for available lands but that has stopped)  Explore compromise for implementation of buffers in sewer easement areas along riparian corridors	Public works staff employed to maintain projects and/or contract for maintenance  Some municipalities already have a buffer that could serve as a demonstration project  COG's, source water collaboratives, and Action Teams can work as coordinating leadership groups to get groups of municipalities done  Grant money available for implem., will assist with overall MS4 permit compliance and public education  Existing partner support for consistent signage across the county  Non-municipal partners currently installing buffers (Farmland Trust, ACB, CBF, PSU, Stroud, Conservancy, LCCD)		Signage to explain the value of a buffer at every stellar project  More boots on the ground (planning, planting, maintenance)  Willing municipalities  Consistent professional development for municipal and conservation staff so messaging is the same  Mapping point person/group to show progress spatially so the public can see where their dollars are going	Dollars specifically set aside to address extreme weather events for buffer repairs so teams aren't spending general funds  Estimates: \$5,000 per acre (source: EQIP) plus 20% for pre- and post-project work (willing landowner contact, monitoring, etc.) done by boots on the ground staff	2021: Inventory is nearly complete, outreach has begun for new buffers on public land in each twp. Efforts will continue into 2022  2020: The Collaborative Mapping Tool (CMT) added a strong ability to identify and target opportunity areas. The catchment prioritization efforts currently underway will further target very specific locations to allocate limited resources for buffer implementation. A large number of opportunity areas have been identified, but multiple landowners and stakeholders tied with limited capital and human resources for implementation and long-term maintenance has resulted in a slower implementation rate than originally desired or planned. Several municipalities have incorporated buffer requirements as part of the land development process.	Buffers team is a well-oiled machine with a strong ability to target identified opportunities. There is an understanding to continue building an inventory to better gauge where buffers are, maintenance needs, and related considerations.  Individuals on the buffer team are working to map all known stellar buffer locations around the county. Thus far, 32 are identified and mapped. The mapping layer will include photos of the buffer and information on acreage, who planted it, how to visit the buffer, etc. This mapping layer will be added to the Collaborative Watershed Mapping Tool and live as a standalone layer in the Partners StoryMap. More work will be done to identify more stellar buffer sites.

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1.2	Create and maintain an online map of buffer miles to show progress across the county (Community engagement and public education)		Lancaster's Buffer Action Team, DEP	All areas but priority watersheds first	Map is online	<p>This allows us to adjust our efforts if we realize there is a specific area where buffers are disappearing at a detrimental rate;</p> <p>Consistent and timely reporting of projects; CREP data is private;</p> <p>Lidar frequency is limiting;</p> <p>Data Management Action Team lead online mapping tool development</p>	<p>We can model the reporting after CBF's K10 initiative (online GIS map); use Chesapeake Conservancy buffer gap opportunity maps to determine available next places to work in priority watersheds</p>	<p>Private found. support for Chesapeake Conservancy's ability to work in Lancaster County</p>	<p>Access to Practice Keeper or a shared map with the option for partners to add their own GIS layers so specialists can integrate projects with other efforts to show an accurate spatial image of work happening</p>	<p>Dollars to pay for consistent way of reporting buffer implementation (acres, feet, etc.)</p>	<p>2021: In progress under auspices of Data Management Action Team. Proposed new GIS person from the Chesapeake Conservancy will also be an added benefit.</p> <p>2020: The platform (CMT) has been developed. Currently wading through and finalizing operational and end user details. Alignment with multiple platforms may prove difficult, but achievable.</p>	<p>CMT is fully operational and a primary support tool for targeting, outreach, and reflecting implementation.</p> <p>Through NFWF grant, Water Science Institute is using LIDAR data to map erosion rates. This data layer in combination with existing data layers will assist to target implementation areas.</p>
							<p>Alliance for the Chesapeake Bay has an "Adopt a Buffer" program starting if awarded Growing Greener grant</p>		<p>Mapping point person/group to show progress spatially so the public can see where their dollars are going</p>	<p>Growing Greener grant so the Alliance for the Chesapeake Bay can run an "Adopt a Buffer" program as a way to engage local businesses</p>		
							<p>PSU GIS specialist; county GIS team; Lancaster County Conservancy's GIS specialists; tree canopy report at the County</p>		<p>PennDOT support</p>	<p>Estimates: \$7,000 per ArcGIS license Staff person at the District or staff time from another partner with GIS staff like the Conservancy</p>		
1.3	Directed and strategic landowner outreach for immediate implementation – Ag projects will get top priority and all projects will be combined with other types of restoration projects as often as possible (streamside, floodplain, wetland, dam removal, etc)	<p>Forest buffer – 8,555 total acres (both urban and ag settings)</p> <p>Forest buffer narrow - 100 total acres</p> <p>7,132 new acres for regular and narrow buffers combined.</p>	All partners across Lancaster County, Lancaster's Buffer Action Team, Lancaster Conservancy	<p>Ag projects get top priority, specifically if a project will limit livestock access to streams;</p> <p>Pequea Watershed, Octoraro Watershed, Chiques watershed, and Cocalico watershed because the data is available, municipal partners are already participating, and/or the loading is the highest</p>	<p>Implemented or process started for implementation by 2025</p> <p>Use the charter document for more specific timeline/a Gantt chart approach (Countywide buffer experts are the leads for annual goals)</p> <p>Delisting strategy to assist with priority locations.</p>	<p>Time;</p> <p>Not enough boots on the ground to find willing land owners and organize plantings;</p>	<p>Chesapeake Conservancy's buffer gap analysis</p>	<p>NFWF</p>	<p>Plain sect outreach</p>	<p>Non-federal income-replacing incentive</p>	<p>2021: Some partners are engaging in targeted work within prioritized catchments (Delisting strategy). The reality is still that the amount of landowners who volunteer or who are found through other project work exceeds current capacity though. A big outreach push is needed to increase acres, but without increasing professional capacity in the county, this will only result in wait lists.</p> <p>STORY LINKS &gt; <a href="#">Pioneering project targets 8 Lancaster streams for rapid delisting</a> <a href="#">Gov. Wolf, Chesapeake Conservancy &amp; Partners Announce Initiative to Restore 30</a></p>	<p>Contractor capacity is the primary bottleneck for increased implementation rates.</p> <p>Discussions underway where the Buffers Action Team individuals entities identified by the Buffers team could serve as primary liaisons for LTVPs for the natural sector.</p> <p>Buffer Action Team will begin engaging more with municipal leaders, with help from Technical Coordinator.</p> <p>RCPP required to do any other work on property.</p> <p>Verification process will help assess remaining buffer goal in the county.</p>
						<p>CREP acre cap for the state;</p> <p>No Farm Bill means a closed door for CREP;</p> <p>Financial and technical support from municipalities as we all wade through new MS4 flexibility;</p> <p>Outreach to the plain sect community can be sensitive;</p>	<p>ReLeaf Report</p>	<p>Private foundations</p>	<p>Staff to do landowner outreach, plant, and maintain</p>	<p>Dollars specifically set aside to address extreme weather events for buffer repair so teams aren't spending general funds</p>		
						<p>WSI's list of priority landowners</p>	<p>CREP</p>	<p>PennDOT support</p>	<p>~\$29 million for new acres</p>			
						<p>2019 planting schedule from buffer team members (see Appendix)</p>	<p>RCPP</p>					

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<b>Priority Initiative 1: Buffer Implementation</b>												
						USACE issue permit for development on wetlands so the easement is held by USACE with different language (federal level)	CBF's K10 campaign				<a href="https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/releases/?cid=ncseprd1769025">Agriculturally Impaired Streams by 2030</a> <a href="https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/releases/?cid=ncseprd1769025">https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/releases/?cid=ncseprd1769025</a>	
							Plain sect outreach is happening in specific communities				<a href="https://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/newsroom/releases/?cid=ncseprd1769025">Millions in federal funding to cover costs of restoring 350 miles of Lancaster County streams</a>	
							REAP credits					
							Municipal leaders				2020: The catchment prioritization efforts currently underway will further target very specific locations to allocate limited resources for buffer implementation. Limited human and capital resources provides a bottleneck with strategic landowner outreach activities.	
<b>Priority Initiative 2: Buffer Strategy and Regulation</b>												
2.1	<p>We will examine how high-quality template language from existing ordinances can help make required buffers the norm across the county (look at Warwick Township and East Cocalico as examples)</p> <p>We will hold a meeting of all municipalities who currently have ordinances with buffer requirements with the intention of getting all</p>	All implemented projects as a result of this Priority Initiative will be counted in reductions outlined in 1.1 or 1.3	LCWP and Stormwater Action Team, Kate Gonick and the Lancaster Conservancy	All of Lancaster County	2019-2025	Example recommendation: All headwater streams be required to have a 35-50 foot buffer; all new developments must include buffers, landowner maintenance, and signage;	Report from PSU coming		A collection of common language that has been well-received by municipal boards		2021: Not much progress yet, but the main opportunity will be tied to the next MS4 Permit cycle and updates to local SWMOs that may be required by the 2023-2027 permit.	More capacity for municipal collaboration from Technical Coordinator at the Partners. He will keep efforts moving forward in 2023 including to: (1) Document buffer ordinances in each municipality to better inform outreach and implementation possibilities; (2) Examine how high-quality template language from existing ordinances can help make required buffers the norm
				Buffering headwaters is the priority so we can protect source water and preserve pristine areas	Include session at MS4orum about ordinances	Financial and technical support from municipalities as we all wade through new MS4 flexibility;	Willing and experienced municipal staff		Peer-to-peer stories and outreach from municipal officials, developers, and landowners that show how buffers make economic sense for both parties		2020: Several municipalities have incorporated buffer requirements as part of the land development process in their ordinances. There is significant pushback from most municipalities to incorporate required buffers language in ordinances. However, efforts and messaging continue to improve	

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<b>Buffers Action Team</b>							Technical	Financial	Technical	Financial			
<b>Priority Initiative 1: Buffer Implementation</b>													
	municipalities to adopt similar requirements					<p>Outreach to the plain sect community can be sensitive;</p> <p>USACE issue permit for development on wetlands so the easement is held by USACE with different language (federal level)</p>	Stormwater Action Team can offer workshops or events		Municipal and Partners staff time to collate the ordinances and strategize how to get language options out to municipalities (potential PSU intern can finalize this part of the project as this work has already begun)		understanding and buy-in for establishing buffer requirements.		
2.2	Create a Lancaster County Buffer Program (BEST)	All implemented projects as a result of this Priority Initiative will be counted in reductions outlined in 1.1 or 1.3	Lancaster Buffer Action Team, the Partners, Lancaster Conservancy, Stormwater Action Team	Across the county, priority watersheds TBD	<p>Will continue the program as long as funding is available.</p> <p>Development of BEST processes complete and in the works starting in 2020.</p>	<p>Have an organized effort (not an official County project) that complements CREP and coordinates a care establishment program;</p> <p>This group will oversee the buffer maintenance work across the county;</p> <p>Financial and technical support from municipalities as we all wade through new MS4 flexibility;</p> <p>Outreach to the plain sect community can be sensitive;</p> <p>USACE issue permit for development on wetlands so the easement is held by</p>	<p>Lamonte Garber, Ashley Spotts, Sarah Xenophon, Kristen Koch</p> <p>Program to be modeled after the CREP program but creating alternatives based on the limitations identified in CREP</p>		<p>Township outreach to monitor township-held easements and buffer ordinances</p> <p>NGO's currently installing buffers (Farmland Trust, Alliance, CBF, PSU, Stroud, Conservancy, LCCD) with approximately 2-3 staff now, we need 3x that at every organization - add 20% to the cost of a project</p>	Dollars for the incentive part of the program	Dollars for 3x the staff currently working on buffers - approx. \$1 million because current boots on the ground are doing every angle of buffer strategy, outreach, planning, planting, maintenance, and more - An opportunity exists to have staff be more specialized so we can all be more efficient.	<p>2021: Pilot program has been successful so far! There are acres maintained with BEST to date (accounting of acres still in progress). Private donation of \$10k into BEST fund was a huge success. We now need more funds. A subset of the Buffer Action Team is working on planning, strategizing, and getting more funding. Working on getting additional funding from another partner organization in the amount of \$40,000 <a href="#">STORY LINK &gt; Action Teams tree planting at overlook park</a></p> <p>2020: Framework for team and program has been established. Group in early stages of efforts, but successful in facilitating actions necessary to meet objectives. Limited human and capital resources is a factor</p>	A current focus of the team is to improve collaboration/coordination amongst varying entities with different approaches with the intent to better protect existing buffers or ensure the approach compliments existing approaches.

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<b>Priority Initiative 1: Buffer Implementation</b>												
						USACE with different language (federal level);  Boots on the ground now are doing every role in every phase of buffers - we need 3x our current capacity at every organization	Township solicitors meeting to speak to them all at once				restricting BMP implementation rates.	
							LCWP buffer specialist					
2.3	Assist in a coordinated campaign for public lands and semi-public lands to be required to have forested buffers	60% of churches, schools, libraries, municipalities, parks, will have buffers  All implemented projects as a result of this Priority Initiative will be counted in reductions outlined in 1.1 or 1.3	LCWP	Across the county	2025  Buffer Month annually, started in 2021	Focus on public health and flood control;	Alliance for the Chesapeake Bay		Point person to work with at Council of Churches, real estate associations, builders associations, authorities associations, libraries, school districts etc.		2021: Efforts have been more opportunistic and ad-hoc to date, but successful at getting more public land buffers. In 2022, will need to begin concerted/coordinated effort Buffer Year should help with this coordinated effort.  2020: Efforts associated with this activity have been limited thus far. Anticipate measurable progress as Action 2.1. and 2.2 progress further ahead (this action is considered a successor to 2.1 and 2.2)	Efforts continue to be opportunistic as the de-listing strategy has become the primary driver in furthering buffer protection and/or implementation in defined areas where classification of the parcel as public, semi-public, or private is not a driving factor but whether a need for a buffer has been identified.
						Feedback loop: getting landowners all the right resources;		Marketing materials for each audience				
						Coordination of all partners outreach efforts	DCNR		Calendar of events so we don't duplicate			
							Existing success stories to be the examples we need					
						Groundwater and source water collaboratives		NGO's currently installing buffers (Farmland Trust, Alliance, CBF, PSU, Stroud, Conservancy, LCCD) with approximately 2-3 staff now, we need 3x that at every organization				

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<b>Priority Initiative 1: Buffer Implementation</b>												
2.4	Increase the presence of buffers in marketing and events of Water Week	All implemented projects as a result of this Priority Initiative will be counted in reductions outlined in 1.1 or 1.3	LCWP, Conservancy, Consortium	Across the county	On-going	Limited participation in Water Week events - have to make sure we're not only "preaching to the choir"  Use email addresses of event participants for invitations to future workshops  Continuous and effective engagement plan would be helpful	Amazing staff who organize Water Week  Hundreds of participants	Private foundations, corporate sponsors of Water Week	More marketing materials and a way to get them to each audience  More public participation	Dollars for more marketing materials and a way to get them to each audience (estimate: \$60,000)  Incentives for landowners to install buffers even after Water Week	2021: Buffer awareness is increasing, and we are reaching beyond Water Week to accomplish this. October 2021 will be "Buffer Month" and we have decided that 2022 should be "The Year of the Buffer", with cross-sector unified messaging and celebrations of riparian forests all year long to increase awareness further. This will help to increase awareness and promote buffers amongst all Lancaster County streamside landowners.  2020: Messaging and outreach efforts remain strong and continuous. Expansion of audiences outside normal or industry-related audiences is an on-going effort and will require repetitive messaging.	Buffer awareness is a consistent and constant theme in most communications, marketing materials, and similar considerations. 2022 included incorporating protections of existing buffers where restoration, improvements, etc. are planned in stream corridors as a part of the messaging.

## Phase 3 Watershed Implementation Plan (WIP) Progress and Milestones Template

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<b>Agriculture Action Team</b>												
<b>Priority Initiative 1: Manure Management</b>												
1.1	Implement a suite of on-farm BMP's to address the manure so less of a need to spread during the winter, and introduce an end to winter spreading (5-8 year phase-in period)	Reduce manure being applied to farmland by 25%	Lancaster County Conservation District, Lancaster Clean Water Partners, all partners in the county, DEP, Dept of Ag	All of Lancaster County  Projects to go in priority watersheds TBD based on results from community mapping tool  De-listing strategy is determining priority locations	Initial tasks involve conversion of 25% to approximate pounds, and identification of distribution between manure and commercial fert.  Research process and initial implementation done by 2025: vision is for a required ban to start in 2024 with full implementation by 2027  20 installs per year	Cultural shift is needed to accept that too much liquid manure is a problem instead of a resource;  Extreme weather events cause damage and staff end up spending time/resources on repair instead of new implementation;  Currently not enough on-farm 6-month storages  Financial and technical support from municipalities as we all wade through new MS4 flexibility	Ag technician and Plain Sect Outreach coordinator-LCCD	NRCS	MORE contractors who are able to build manure storages and install BMPs to address the manure during winter months	Money for storages and alternative BMPs to address the manure during winter months	2021: Implementation was slowed due to COVID but still progressing; material costs are rising thus further straining limited financial capacity for implementation; beginning to experience a lack of contractor capacity for implementation – delaying construction. <i>STORY LINK &gt;</i> <a href="https://drive.google.com/file/d/1t88kTLo5W2VOo-AVaUcOI4dWzmhjt15N/view?usp=sharing">https://drive.google.com/file/d/1t88kTLo5W2VOo-AVaUcOI4dWzmhjt15N/view?usp=sharing</a>  2020: Controls and storage facilities are being built albeit at a slower pace than originally desired or planned due to limited capital and human resources. Game plan(s) for ensuring BMPs are captured in a central system (PracticeKeeper) are under development to assist with identification of human and capital needs for long-term verification processes.	Across the entire ag sector, implementation progressing despite hurdles encountered (Inflation and cost volatility, limited number of contractors, permitting delays, and learning curve for new contractors amongst other considerations). Long-term Verification Processes (LTVPs) development launched to help reconcile existing BMPs versus BMP needs. Funding approach has been fully coordinated amongst across the board ag sector – additional funding committed/awarded through Regional Conservation Partnership Program (through NRCS); ACAP; MEB, SWIG, and INSR through NFWF; and County-level commitment of ARPA funding.
		Private sector consultants					NFWF grants	MORE Ag technician and Plain Sect Outreach coordinators who are all consistently trained to ensure BMPs are standardized and high quality	\$138,000 for barnyard runoff controls (for new BMP acres)			
		Non-profit partners who do agricultural outreach and conservation projects					Plain-sect self-funding	MORE private sector consultants	Financial framework that includes research into nutrient credit trading, business models for manure-to-energy plants, etc. to support farms as local businesses			
								MORE non-profit partners who do agricultural outreach and conservation projects				
								More coverage in national agriculture communications so this is widely viewed and accepted message (Farm Journal, etc.)				

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1.1.1	Explore digester or alternative manure treatment technologies (establish a business model that will work)	Manure treatment technologies – 20,000 tons	All partners							\$51.9M for regional biodigester (per 2011 HRG study, adjusted to 2018 dollars)	2021: Implications from COVID restricted progress during the 2021 calendar year.  2020: Potential regional digester in Cocalico Creek watershed area stalled. During preliminary exploratory and development phases, it became apparent the business model that will most likely succeed involves the ability for processing operations to result in a by-product (e.g. electricity, biochar, etc.) that can be sold to cover collection and processing costs.	A more deliberate and defined approach to determine feasibility will be conducted in 2023 to reach a final decision if this should remain a priority.
1.2	Livestock access management	Grass buffer with exclusion fencing 2,500 acres (largely underreported – PSU survey will capture new info)	All partners, Alliance for the Chesapeake Bay, LCCD	All of Lancaster County with direct farmer outreach happening in priority watersheds first	Research process and initial implementation done by 2025; vision is for a required ban to start in 2024 with full implementation by 2027	Develop local incentive programs to promote the practice as a viable option for landowners;  Add watering facilities or crossings;  Current PA clean streams law restricts any local ability to require fencing livestock out of a stream or river;  Financial and technical support from municipalities as we all wade through new MS4 flexibility;  Extreme weather events cause damage and staff end up delayed or spending time/resources on repair instead of new implementation	Educational materials about herd health benefits of fencing herds out of streams	NRCS	More boots on the ground to do farmer outreach and implementation	Dollars to pay the outreach staff	2021: Plain Sect acceptance of implementation is becoming more widespread; implementation proceeding a slower pace due to limited capital and human resources. Additional resources for moving into other catchments as part of the de-listing strategy may help accelerate implementation rates. <a href="#">STORY LINK &gt; Millions in federal funding to cover costs of restoring 350 miles of Lancaster County streams</a>  2020: Outreach and implementation of controls have been proceeding but at a slower pace than originally desired or planned due to limited capital and human resources.	Implementation progressing, but limited number of contractors, supply chain issues, etc. are continuous bottlenecks as noted in Ag 1.1. Qualitatively, the perception was an increased in exclusion fencing was realized in 2022. 2023 will include a reconciliation process for metrics to quantify the perception.
								NFWF grants that include imp. dollars	Ag technician and Plain Sect Outreach coordinators who are all consistently trained to ensure BMPs are standardized and high quality	Dollars to pay for fencing materials and an incentive program for farmers to take any land out of production		
								DEP's small business grants for fence materials	More coverage in national agriculture communications so this is widely viewed and accepted message (Farm Journal, etc)	\$40.0M for fencing, with \$3.7M for stream crossings and \$11.9M for access approaches		
1.3	Increase the number of manure storages and better barnyard management	Animal Waste Management Systems – 321,609 total animal units/263,088 new animal units	All partners, LCCD, Private sector agriculture consultants	Projects to go in priority watersheds TBD based on results from community mapping tool	Built by 2025	Dollars (funding);  Financial and technical support from municipalities as we all wade through new MS4 flexibility;	LCCD	NRCS	More boots on the ground to do farmer outreach and implementation	Dollars to pay the outreach staff	2021: Implementation was slowed due to COVID but still progressing; material costs are rising thus further straining limited financial capacity for implementation; beginning to	Reduced implementation rates observed as a direct result of COVID impacts have carried over into 2022.



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						Extreme weather events cause damage and limit time staff/contractors have for new implementation	Dept. of Ag	NFWF grants that include imp. dollars	More coverage in national agriculture communications so this is widely viewed and accepted message (Farm Journal, etc)	For six months of waste storage accommodating 100,000 AUs, approximately \$80M would be needed for tank storage and engineering and construction	experience a lack of contractor capacity for implementation – delaying construction.  2020: Outreach and implementation of controls have been proceeding but at a slower pace than originally desired or planned due to limited capital and human resources. Game plan(s) for ensuring BMPs are captured in a central system (PracticeKeeper) are under development to assist with identification of human and capital needs for long-term verification processes.	
						NRCS	DEP's small business grants for fence materials					
						Private Consultants						
						NGO's						
1.4	Create a more comprehensive reporting system for manure transport in and out of the county (host meetings of all brokers to understand what data is available) (reporting mechanism needed)	Manure transport out of the county – 149,536 total dry tons/138,035 new dry tons	LCCD, Manure haulers, DEP or Dept of Ag needs to be holder of this data for proper analysis and application to the model, SCC	All of Lancaster County	Meetings to start in fall 2018 and continue until accurate recording system is established and running by 2025	No required reporting (data gap from planners/ farmers to brokers to state);  PK is only available to LCCD and specific DEP employees so accessing the specifics of manure is limited;  Act 49 does not require haulers/ brokers to submit data about tons moved and dest. (no data into Practice Keeper)  Continued meetings/ discussions may be appropriate as the Act 38 reporting changes are better understood.	Haulers and brokers	NFWF grants that include imp. dollars	Point person at DEP and/or Dept of Ag for the data and analysis	Incentive for haulers to submit data accurately and timely	2021: Act 38 reporting changes may help the process, and will be assessed at a later date to ascertain the comprehensive reporting system and reporting mechanism components of the action description.  2020: Meetings and discussions have yielded fruitful results and established baseline agreements that a more comprehensive reporting system is needed but should be developed and implemented at the state level due to inter-county trading.	Limited focus on 2022 with this effort. 2023 will include an analysis of Act 38 changes as it pertains to the county and tracking manure transport.
1.5	Write and implement 2,400 conservation plans for better nutrient management (improve consistent verification of BMPs done by any conservation professional)	Soil Conservation/Water Quality Plans – 247,167 total acres/176,792 new acres	LCCD, private agriculture consultants, NRCS, DEP	All of Lancaster County	2025	Assess the option of establishing minimum/baseline BMP's for all plan writers to suggest in order to achieve nutrient management and soil health;	USDA	NFWF grants that include imp. dollars	MORE compliance/enforcement staff	Funding (\$4.4M) for more plan writers and compliance staff to enforce current regulations, and plans for new acres	2021: Numerous plans submitted to the APRP but specific quantity is unknown (number of plans and where); beginning to experience TSP capacity issues to develop plans in a timely manner. Will continue priority focus on	Early stages of implementation of LTVPs and data management (PK) to gain a better understanding of the extent of developed and implemented plans. Concentration centered in priority catchments. LCCD



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<b>Agriculture Action Team</b>							Technical	Financial	Technical	Financial		
		Nutrient Management P Rate – 6661 total acres										
		Nutrient Management P Timing – 6661 total acres										
		Dairy Precision Feeding – 500 total animal units										

### Priority Initiative 2: Soil Health

2.1	<p style="background-color: yellow;">Create a system to verify and document use of cover crops, increasing the number acres at the same time (85% of farms will have cover crops during winter months)</p>	<p>Cover crops with fall nutrients – 100,000 total acres/95,049 new acres</p> <p>Cover crop commodity – 11,241 total acres</p> <p>Traditional cover crop – 43,559 total acres/2,576 new acres</p>	LCCD, Ag Council, Stroud	All of Lancaster County with a focus on priority watersheds and plain sect community	2025	<p>No current required documentation;</p> <p>No data system currently identified but Practice Keeper has potential;</p> <p><b>Bay Program cover crop definitions do not fit Lancaster County cultural practices very well – little credit because of manure application*;</b></p> <p>Financial and technical support from municipalities as we all wade through new MS4 flexibility;</p> <p>Extreme weather events;</p> <p>Humid summers make seed less available for fall purchase (ref Lancaster Farming article) NRCS new satellite data not accepted in the model</p>	<p>NRCS and USDA</p> <p>Penn State</p> <p>Bay Program</p> <p>Plain Sect church leaders</p>	<p>NFWF grants that include imp. dollars</p>	<p>Satellite imagery for verification using best technology available</p> <p>Staff time to canvass the county</p> <p>A better cover crop definition in CAST to give credit to cover crops that receive nutrients, are harvested in the spring as silage for animals on the same farm</p> <p>More coverage in national agriculture communications so this is widely viewed</p>	<p>Dollars (\$15.4M) for more equipment</p> <p>Industry leaders (supermarkets, food processor) to pay a higher premium for crops raised with conservation practices/cover crops</p>	<p>2021: Implementation continues and is a focus in outreach and engagement efforts</p> <p>2020: Implementation of cover crop approaches have grown exponentially and been successful. However, not all approaches are counted or being counted due to slight variations from the three specific approaches that count as reductions.</p>	<p>Verification underway by Lancaster Farmland Trust through a pilot of verification by 3<sup>rd</sup> parties. This will include cover crops. CBF developed a no-till and cover crop aerial imagery analysis tool that will be explored in more detail during 2023. Current assumption is possibly marrying the CBF tool with LFT on-the-ground efforts to improve cover crop and no till reporting.</p>
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							Technical	Financial	Technical	Financial						
<b>Agriculture Action Team</b>																
									and accepted message (Farm Journal, etc)							
							PracticeKeeper									
							Conservation Plans									
							Ag Technicians									
2.2	<p style="background-color: yellow;">Increase no-till practices (specific request to the plain sect communities to identify 5-8 farm clusters who are sharing equipment or who could share equipment – we want to get them the equipment if it helps)</p>	<p>High residue till - 110,570 total acres/80,957 new acres (Spring 2020 transect survey revealed ~67% of the county is in no/low till)</p>	LCCD, PA No-Till Alliance, Stroud	All of Lancaster County with a focus on priority watersheds and plain sect communities	2025	<p>The governor’s push for PA to be the #1 state for organic production can be more integrated with water quality efforts and messaging overall (example: organic makes no-till a more difficult sell because they cannot use herbicides);</p> <p>Financial and technical support from municipalities as we all wade through new MS4 flexibility;</p> <p>Shifting dairy industry will likely drive more farmers to produce but we need to get the no-till message to them before they make the switch;</p> <p>Promoting soil health to horse farmers is especially difficult.</p> <p>Capture of practices via transect survey can help ascertain progress.</p>	More no-till planters are available from local equipment manufacturers	NFWF grants that include imp. and peer-to-peer outreach dollars to pay farmers for their time (Stroud)	Local benefits for no-till farmers	Dollars (\$3.1M annually) for more equipment	<p>2021: Extremely difficult to measure progress (but we know implementation is occurring) as there is no required reporting; many partners focusing on/promoting soil health practices; emerging markets may enhance implementation. Communication of transect survey data for practices may help ascertain progress.</p> <p>2020: No-till approaches are widely accepted. However, implementation has been proceeding at a slower pace than originally desired or planned due to limited capital and human resources. Seed money for a local incentive program may accelerate implementation.</p>	See Ag 2.1 note.				
										Host more movie premier events of Stroud’s soil health film and pair it with a panel of farmers				More coverage in national agriculture communications so this is widely viewed and accepted message (Farm Journal, etc.)	Industry leaders to pay a higher premium for crops raised with conservation tillage practices	
										Peer-to-peer outreach from NTA members						
										Municipalities who want to support this practice to protect their roads						
2.3	<p style="background-color: yellow;">Better pasture and crop management for healthier upland soils</p>	<p>Prescribed grazing – 12,603 total acres/9,814 new acres</p>	LCCD, Private Ag. Consultants, Stroud	All of Lancaster County with a focus on priority watersheds and plain sect community	2025	Average farm size is small so enough pasture can be difficult;	LCCD		More staff to do outreach to find willing land-owners	Incentive program to do soil health practices	<p>2021: Opportunities for implementation may be increasing as many farmers are transitioning away from dairy and reducing pressure on</p>	<p>Injector not taking off as initially anticipated</p> <p>Need to set time aside to better understand the whole</p>				

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<b>Agriculture Action Team</b>												
		<i>Manure Injection – Additional 10,000 acres (at least 1,876 injected in 2021 (per records))</i>				Manure injection equipment is expensive;  Participation rates are currently low so peer-to-peer is difficult;  Shifting dairy industry will likely drive more farmers to produce	Private Consultants		Farmers to do peer-to-peer conversations	\$800K for prescribed grazing (new acres) and \$339K for manure injection, with services provided largely by haulers	pasture areas; prototype of manure injection equipment for Plain Sect was developed <a href="#">STORY LINK &gt; Keep up the momentum, together! (campaign-archive.com)</a>  2020: Without an incentive program to cover start-up costs and offset other losses, this action has been difficult to achieve meaningful implementation rates.	picture associated with injection (SCC reporting? Module in PK?) to outline a flowchart in 2023  Injections have occurred, but not seeing the numbers showing up yet, metrics analyses for 2023 annual report will include a reconciliation process to ensure these numbers are captured and reported via PK.  In addition to funding from a private foundation, the Lancaster County Conservation District has received additional funding from NFWF to expand the manure injection incentive program.
							NGO's		More coverage in national agriculture communications (Farm Journal, etc.)			
							NRCS					
<b>Priority Initiative 3: Ag Community Education and Outreach</b>												
3.1	Education and Outreach (focus on flood control, public health benefits, herd health, building legacy options for families, economics, and achieving compliance; winter/spring 2020 Ag event organized by source water collaboratives)		NGO's, LCCD, DEP, Dept of Ag, Penn State Extension, Lancaster Clean Water Partners, municipalities ELANCO and EAJA source water collaboratives	All of Lancaster County Focus on the plain sect communities in priority watersheds Drinking water in ELANCO	On-going	Time;  Funding for staff time;  So many landowners to reach;  So many options that it gets confusing for landowners and conservation professionals;  Plain Sect are traditionally nervous about govt funding			More coverage in national agriculture communications so this is widely viewed and accepted message (Farm Journal, etc)	\$400K per year for additional staffing (5 persons) and outreach	2021: Both outreach and corresponding implementation funding need to increase substantially to meet goals by 2025; outreach has been successful but timing bottlenecks emerged with flow of implementation funding; risk of losing landowner interest if unable to implement BMPs in a timely manner. Pace currently dictated by catchments of focus in de-listing strategy.  2020: A significant amount of time and effort has been focused on outreach and has been very successful. However, activities have been proceeding at a relatively slow pace due to limited capital and human resources available for one-on-one or individual farm engagements	TSPs generating inventories with the intent that we have an understanding where individual farmers stand leading to an effort to organize "buckets" of awaiting technical assistance, funding, etc.  Parcel-level data gleaned through outreach visits as part of the delisting strategy is being collected to document not only the number of farms visited, but also their willingness, plan status, BMP needs, funding sources, and openness to federal funding.  Delisting strategy progress: On-the-ground partners have completed outreach to approximately 39% of landowners of high-priority farms, with outreach anticipated to 100% estimated to be complete by the end of 2022. Across all catchments, implementation is now

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												<p>completed/underway, or with landowners who are likely amenable make up a total 76% of the agricultural restoration goals and 84% of buffer restoration goals. 12 of the 21 catchments are on track to meet restoration goals by 2024.</p> <p>Relationship building and addressing goals of the farm are the most important and viable in-roads for outreach and getting to 'yes' for implementation. Reality is that to do that currently, it is a slow process – very hard to jumpstart implementation regardless of funding in-hand by bypassing the trust building.</p>

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<b>Water Quality Monitoring (“Data Management”) Action Team</b>							Technical	Financial	Technical	Financial		
<b>Priority Initiative 1: Data Management</b>												
1.1	Create a central location for County conservation plans, restoration project permits, grant applications, etc.		LCCD, DEP, SRBC	Countywide	Ongoing; intend to have the system set up and running by 2023	<p>Explore opening Practice Keeper to more agriculture and conservation professionals; make it talk to programs like CSDatum, etc.;</p> <p>Lack of immediately-available funding to set up the software;</p> <p>Not all partners are ready to share their data;</p> <p>Practice Keeper is currently a private and locked system;</p> <p>Concerns over landowners’ privacy</p> <p>FieldDoc use and data integration</p> <p><b>Input deck for long-term verification processes may be helpful and need to be considered*</b></p>	Practice Keeper, World View experts at the LCCD and DEP		1-2 staff people at the Conservation District to spearhead the work (Conservation Plans)	\$200,000	<p>2021: Currently exploring and developing individual modules of data and information (e.g. WQ data from CSDatum) for incorporation into the CWMT. How the data will be displayed for the end-user is still under consideration. Data entry is a bottleneck overall with multiple platforms.</p> <p>2020: There is not a true central location but working through the probability there will be three systems (PracticeKeeper, FieldDoc, and the CMT) that capture and display all the necessary information for CAP implementation and related objectives and goals. LFT (as part of the CAP Coordinator team) is currently entering captured conservation plans into PracticeKeeper (PK). An approach to capture plans previously developed and held by private consultants is under development, but will most likely require fiscal support to compensate for time to transfer plans into PK. FieldDoc is in the early stages of use and will capture projects that don’t fit a cost-share category, permit, etc. CMT will be used to assist with prioritization and project-specific information for BMPs. It is anticipated an SOP (or protocol) will be</p>	<p>Continued to efforts to ensure individual platforms (PK, CSDatum, etc.) are recording the data/info needed and we are not duplicating efforts. Efforts are starting to progress “into the weeds” (e.g. who, what, where, etc. is recorded for SWM facilities on ag lands (e.g. chicken house triggers local SWMO for SWM).</p> <p>2022 included launching an exploration of using CSDatum as the central repository for urban/suburban sector BMPs for reporting and long-term verification processes (LTVPs) management (at least as an interim step until DEP launches an online portal for MS4s and the discussion will shift to capturing data and information from non-MS4s.</p>
						CS Datum, ESRI, and ARRO experts ready to help		ArcGIS license and more Practice Keeper licenses	\$10,000			
						County GIS team		Staff time to collate data	Planning grant \$500,000+			

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Water Quality Monitoring (“Data Management”) Action Team							Technical	Financial	Technical	Financial		
Priority Initiative 1: Data Management												
											developed to ensure information is entered into the appropriate platform.	
	FieldDoc											
1.1.1	Manure transport	Better documentation of current practices so we have accurate baselines and are able to measure progress	Haulers, brokers	Countywide	On-going (tied to Ag Action team)	Currently no system to track manure transport;  Funding for staffing;  Funding for PracticeKeeper			Staff time to collate data		2021: Waiting to assess changes to Act 38 reporting to ascertain next steps.  2020: Relevant stakeholders have agreed in principle that a central system is appropriate but that is the extent of results associated with this action.	See Ag 1.4.
1.3	In-stream monitoring		SRBC, DEP, EPA, USGS, CBP, WSI  Presently: 7 sondes + 4 USGS stations (known)	Countywide	On-going (thru 2025 and beyond)	Collate and organize Lancaster specific data to help us set better baselines and measure progress  Monitor watershed management units  Assess Octorara approach for potential replication	SRBC		Staff time to collate and analyze data		2021: WQ modeling tool under development in the Octorara. Resources shifted with assistance from the Penn State AEC for de-listing strategy monitoring support. Data dump into the CWMT, but end user data display still under development.	The Octorara Watershed Assoc. (OWA) with assistance from multiple partners and the EPA is developing a comprehensive water quality modeling tool designed to better reflect localized conditions. Based on the final product(s) of this tool, it may be appropriate to replicate across other watersheds; but will cross that bridge after the OWA tool is up and running.
							Citizen Data volunteer at Lancaster County Conservancy and LCCD		SRBC staff time		2020: Activities have progressed albeit at a slower pace than desired or originally planned due to human and capital resource limitations. Through the PSU Ag and Environment Center, monitoring efforts associated with the Conewago Initiative and other endeavors will be	The DM team has evolved into a committee more focused on monitoring-related considerations. DM
							PSU-NFWF macro sampling teams/entities		Lab(s) and/or equipment (initial and long-term)	\$160,000 (sondes/stations-initial install, maintain, analyses); long-term equipment maintenance		



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Water Quality Monitoring (“Data Management”) Action Team							Technical	Financial	Technical	Financial		
Priority Initiative 1: Data Management												
											“transferred” to select (priority) areas across the county to capture water quality and macroinvertebrate data.	efforts overall are monitored by the CAP Coord team.
1.4	Display of monitoring results spatially to promote greater public involvement in the tracking process		SRBC, DEP, LCCD, LCCWC, municipalities, non-profits and private sector consultants	Countywide	Four per year	Funding and staff for collection and maintenance of units  Acquiring and incorporating WQ data from DEP  Willingness to share data	SRBC portal	NFWF Focus Lancaster grant (till 2020)	Software and web support to display data		2021: Data dump into the CWMT, but end user data display still under development (funding needed to assist-pursuing Campbell Found. for funding)  2020: Components and functionality of information for display has been established. Currently working through multiple platform interface “rules”.	Efforts focused on better defining long-term goals and measurement via long-term monitoring. This will dictate what the dashboard will look like in the long run. Efforts in 2022 are on-going with current focus on defining over-arching goals and objectives and subsequent activities.
							DEP web interfaces					
							CSDatum					
1.5	Implement GIS-based collaborative tool (Collaborative Watershed Management Tool (CWMT))			Countywide		Data alignment with other web-based/GIS-based tools (e.g. FieldDoc, PK, etc.)	CSDatum, WQ portals, etc. for WQ related information		Web support		2021: CWMT “upgrades” continue and a primary tool for the de-listing strategy. Pursuing funding (Campbell Found.) for better organization of WQ data “dumped” into platform  2020: The CMT is up and running; with continued development and data alignment activities underway.	CWMT is up and running. Per Action 1.4, a discussion is anticipated in 2023 to build or inject a level of communication or data transfer between differing platforms.
									Historical data analysis prior to transfer to CWMT			

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
1.1	Prioritize Act 167 planning in the County (develop new Act 167 plan that includes updated plan information and modeling for every County watershed. A new plan will provide updated ordinances to support regional runoff and flood management)		Lancaster County Planning Dept. (LCPD), Municipalities, Engineers	Countywide	When funding is available	Act 167 work is not currently funded adequately in the general budget at the state level. This could be remedied by funding that line item or dedicating other grant funds. Because the funding went away, we do not have the necessary data*.			Lead org. (Consulting engineer/ planner) to assist LCPC	\$3 million for Lancaster County	2021: County Planning Commission should take lead on this effort. It is important for financial and technical resources to be allocated to the County to update Blue Prints. Alternative is to petition DEP to allow CAP to count toward update and Action Teams as implementation resource.  2020: There is consensus that both an Act 167 plan update is appropriate; and an update should incorporate data, considerations, etc. that reflects water quality information and modeling to better ensure stormwater management and flood mitigation planning and project implementation balances both water quantity and quality. Actions to move this initiative forward are limited by financial considerations.	County planning (LCPD) is interested in updating the Act 167 Plan if the funding hurdle can be overcome. A draft scope for a two phase plan update has been generated.  LCPD has had preliminary meetings with the Clean Water Partners (Partners) and the Lanc Co Conservation District (LCCD) to discuss the importance of updating the Act 167 plan and feasibility of submitting a request for County ARPA funds. LCPD is creating an outline and scope of work to advance this effort. Next step to get feedback from PA DEP in coordination with the Partners and LCCD.  Partners staff mentioned that an alternative to ARPA funds is the \$8.8 mill in new State funding (formatted like GGG and would need a match)  LCPD would need funding for consultant to draft the plan as well as help managing the consultant.  LCPD staff must assess if it makes sense to update Blueprints or create an entirely new document. Blueprints strategic focus and strategies would not change, and not sure it makes sense to just update background info/base data.
1.2	Have 167 plan that has pollutants/modeling parameters consistent with CAST (dependent on 1.1)		County planning, Municipalities	Countywide	FY2020-2021	Modeling is not consistent with the CAST model and more accurate baselines are required.  New legislation at the state level to provide consistency between Act 167 and CAST model	Local consultants				2021: See Action 1.1  2020: See progress to date on Action 1.1.	Updated plan should definitely include data and modeling, and ideally would be consistent with the CAST model. Action is still coded red, but has been a subject of discussion for the Act 167 Plan update scope development noted under 1.1.

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
1.3	<span style="background-color: yellow;">Update model ordinance(s) for countywide and/or watershed goals</span>		County Planning, Municipalities, Solicitors, Community Stakeholders, Engineers	Countywide	FY2022-2023	Develop a robust model municipal stormwater ordinance(s) for Lancaster County that explicitly defines water quality goals, implementation requirements, buffer extents, and supports other initiatives in the County WIP, including green infrastructure, conservation overlays, riparian corridor standards, and restricting development and construction within floodplains and advocate for municipal adoption.  Time constraints, no funding, and municipal adoption	Local agencies, local consultants				2021: Intent is to develop model ordinance options under Stormwater Action Team and Lancaster Conservancy partnership. Tie county-wide stormwater ordinance model to Act 167 and/or new MS4 permit requirements.  2020: There is consensus an Act 167 plan update is appropriate, and a subsequent update to the model ordinance is necessary. The engineer's group has convened several times to move this action forward, but there is also consensus to wait until the next MS4 permit draft (2023-2028 cycle) is issued first.	Individual municipalities have largely moved forward on adopting new ordinances independently. Model ordinance should be updated in coordination with the Act 167 Plan, and because many Munis will have already adopted a new SWM ordinance, it would be best to wait until next MS4 permit cycle in 2024-2025.  LCPD staff are serving on Stormwater Action Team, Ordinance subcommittee and advocating for working together on updating the SWM ordinance and other related ordinances.
1.4	<span style="background-color: yellow;">Establish greater regionalization of runoff and flood management</span>	<i>Stormwater Performance Stds – Runoff Reduction (10,972 total acres treated/ 6,205 new acres treated)</i>  <i>Stormwater Performance Stds – Treatment (462 total acres treated/158 new acres treated)</i>	County Planning, Municipalities, Engineers	Countywide	On-going	Updated Act 167 and model ordinance(s) would establish basis for watershed-wide implementation of practices to cost-effectively achieve pollutant reduction goals.  <b>Localized plans (with conditions outlined in watershed permits or local SWMOs) that usurp Act 167 plans be a more efficient approach*</b>  BMP reconciliation during 2022-2023 will be critical	Local agencies, local consultants		Flexibility in regional management of water quality under Act 167	Funding for development of more advanced GIS tools: \$180,000 total to do; and funding for Act 167 Plan and subsequent elements (see Action 1.1)  Capital Cost of new BMPs: ~\$208 million (current assumption is ~60% of BMPs)	2021: Follow delisting strategy to work on priority watersheds. Identify opportunities for regional projects/permits/joint construction to comply with MS4 requirements and met CAP goals.  2020: Implementation of projects that provide regional and extended community benefits have become more prevalent across the county. Mechanisms to better track or plan for more targeted project locations would be ideal (see Actions 1.1 and 1.2).	LCPD is supportive of this regionalization effort. Best opportunity to include the planning portion of this initiative (not necessarily implementation) would be to incorporate this work into the Act 167 planning.

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
						to align accounting with on the ground conditions				simply need reported)		
<b>Priority Initiative 2: Update MS4 Performance Criteria, Oversight, and Implementation</b>												
2.1	Clarify and broadly publicize flexibility criteria allowing focus on watersheds rather than municipally regulated MS4-UAs (process for watershed-based permits established, understood, and implemented by permittees to allow for greater documentation recording, verification, and reporting of BMP beyond those located in MS4-UAs)		Lancaster County, municipalities	Countywide Priority Watersheds: Pequea Creek, Cocalico Creek Chiques Creek Others	CY2019-2021	As presented to permittees over the last ten years, DEP and EPA requirements and programs complicate this process and serve as a disincentive. However, recent guidance distributed to municipalities outlines a different methodology. Consistent training and regulation is vital.  <b>Generalized process for regional general permits (e.g. watershed-based) would be ideal.*</b>	Technical expertise is present; DEP clarification memo/letter watershed groups			12 plans (1 per watershed) at \$50,000 = \$600,000 minimum needed to do the plans	2021: Develop watershed permit in the Little Conestoga and implement Lititz Run WBP to demonstrate multi-municipal regional project. Take advantage of pre-application permit process with LCCD and DEP to discuss options for joint and/or regional watershed-based permits and plans.  2020: The development and implementation of watershed-based permits and plans is slowly progressing forward (Lititz Run WBP, Chiques Creek Report Card, Pequea WIP) that prioritizes watershed health have been moving along. Financial limitations are the primary hurdle for further efforts across other watersheds.	LCPD strongly supports watershed based or regional planning and permits that cross political boundaries, and which reflect natural watershed boundaries to the greatest extent possible. The Lititz Run WBP has been developed with assistance from NFWF and is currently planned to serve as the basis of the Warwick/Lititz Joint Individual MS4 Permit application in 2024.
2.2	Create goal line that is both definitive and does not stop at the end of a permit cycle (Establish quantifiable milestones that are consistent with CAST/Bay models, verifiable via consistent reporting templates that are consistent, accessible, and widely accepted)		Lancaster County, municipalities, Lancaster County Clean Water Consortium	Countywide	CY2019-2023	Milestones need to be consistent beyond those under current MS4 permits  Action is required by DEP/EPA to make this process less complicated DEP/EPA must provide clear direction with regard to pollutant reduction calculation methodologies, verification protocols, and reporting requirements.	Technical expertise is present			\$20,000 per year is necessary to create and maintain a local report.  \$80,000 – \$100,000 per year is necessary to host a point person for stormwater for the county	2021: Formalize metrics based on CAP goals. Work to create consistent reporting and counting of BMPs in CAP.  2020: While there is consensus this is an appropriate action to undertake, it is difficult to establish definitive and broad milestones due to changing technologies, changing requirements, and so on. This action may come to the forefront through the further development of watershed-based documents (see Action 2.1).	Conversations centered around expanded long-term monitoring that would measure progress towards goal lines are in early stages. See Water Quality "Action team" actions.

## Phase 3 Watershed Implementation Plan (WIP) Progress and Milestones Template

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
2.3	<p style="background-color: yellow;">Seek creative solutions to focus on the problem (pollution), not the geography (MS4 and urban areas) – Prioritize projects that include multiple benefits</p>	<p><i>Bioretention and rain garden – 394 total acres treated/273 new acres treated</i></p> <p><i>Bioswales – 1,389 total acres treated</i></p> <p><i>Filter strip runoff – 10 total acres treated/10 new acres treated</i></p> <p><i>Urban buffers – 256 total acres/144 new acres</i></p> <p><i>Impervious surface reduction – 58 total acres treated/58 new acres treated</i></p> <p><i>Wet ponds and wetlands – 948 total acres treated/322 new acres treated</i></p> <p><i>Stormdrain cleanout – 29,610 lbs. of sediment removed</i></p> <p><i>Grey infrastructure – 23,772 acres</i></p> <p><i>Street sweeping – 155 acres treated</i></p> <p><i>Dry ponds – 396 total acres treated/396 new acres treated</i></p> <p><i>Infiltration practices – 693 total acres treated/120 new acres treated</i></p> <p><i>Extended dry basins – 7,253 total acres treated/386 new acres treated</i></p>	Lancaster County, Municipalities	Countywide, Priority watersheds: Pequea Creek Cocalico Creek Chiques Creek, etc.	FY2021	<p>Current DEP and EPA requirements make it more difficult for municipalities to focus on water quality rather than specific, inefficient program requirements.</p> <p>MS4 permits shifting from TSS to TN reductions. –this will take new dollars and expertise from the municipalities and engineers.</p> <p>Process established for meeting water quality goals outside of regulated geography and in a cost-efficient manner</p> <p>PennDOT/turnpike coordination and collaboration (including legislator support to help facilitate the process)</p> <p>BMP reconciliation during 2022-2023 will be critical to align accounting with on the ground conditions (existing local databases uncovered show approximately 5,000 uncaptured/ unreported BMPs)</p>	Technical expertise is present	Dollars for PRP projects are listed in the PRP report but need to be updated based on final, approved PRP's	<p>Currently, Lancaster County MS4s will collectively spend appx. \$1M to achieve a 100,000-lb N reduction in the current MS4 permit cycle. This funding could be leveraged against future permit cycle compliance if it could be spent on watershed-based solutions that includes projects outside of the traditional MS4 area.</p>	<p>\$45,000 per watershed plan:</p> <p>- Dollars would be mostly for BMP's that will be listed in other Priority Initiatives but can receive credit in stormwater work</p> <p>Capital Cost of New BMPs: ~\$69 million (current assumption is ~50%~60% of BMPs simply need reported)</p>	<p>2021: Identifying and implementing projects that provide multiple benefits and extended community benefits is not the issue with this action. Changes to programmatic/policy requirements, coordination amongst multiple stakeholders</p> <p>2020: Identifying and implementing projects that provide multiple benefits and extended community benefits is not the issue with this action. Changes to programmatic/policy requirements, coordination amongst multiple stakeholders, and so on inherently slows the overall process down. There are more opportunities (projects) than current funding streams.</p>	Several municipalities have collaborated together and partnered in an official capacity (Intergovernmental Cooperation Agreement(s)- Lititz & Warwick, East Hempfield & West Hempfield, etc.) for BMP implementation, and focused on ag-based reductions (East Lampeter Twp., East Cocalico Twp., etc.) directed at priority areas.

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
		<i>Vegetated open channel – 442 total acres treated/432 new acres treated</i>  <i>Filtering Practices - 137 total acres treated</i>  <i>Permeable Pavement – 8.3 total acres treated/1 new acre treated</i>										
<b>Priority Initiative 3: Create Programmatic Consistency</b>												
3.1	Align permit parameters to water quality goals		Lancaster County, municipalities, DEP	Countywide		<p>If a municipality is asked to submit the same information for each plan (102, 537, etc.), they should not need to duplicate efforts like hiring engineers twice or reformulate the data each time.</p> <p>Various DEP and EPA strategies are presently not aligned and improvements are not accounted for across programs (102, 105, 537, NPDES, MS4, etc.)</p>	Technical expertise is present		Staff time at DEP		<p>2021: Consistent data across DEP, other state agencies and funding programs should align to “count” all projects that affect water quality.</p> <p>2020: The municipalities in the Lititz Run watershed are progressing with this action (but they are currently the only ones). There has been pushback from various departments at DEP regarding this effort. The draft Lititz Run WBP is anticipated to be submitted to DEP during the first quarter of 2021.</p>	Action is still coded red. However, there is anticipation that the DEP MS4 workgroup organized for 2022-2023 discussions may address this item and next steps would reveal themselves.
3.2	Create greater consistency and accountability for review, inspections, and documentation of operation and maintenance of permit sites		Lancaster County, municipalities	Countywide	<p>Understanding full funding and human resource needs is still under development</p>	<p>County and municipalities should clarify and implement protocols to ensure consistent reporting for Bay TMDL compliance.</p> <p>Tied to long-term verification processes inventory efforts.</p> <p><b>Clarification of appropriate procedure to report verifications per the BMP Verification Plan is needed*</b></p>	<p>Technical expertise is present</p> <p>PennDOT Connect</p>	<p>Consistent inspection requires staff time from LCCD E&amp;S staff and DEP; documentation and reporting protocols for operation and maintenance.</p>	<p>More funding for staff and staff training (details under development)</p>	<p>2021: Human and capital resources are the main limitations for fully implemented programs. There are several efforts underway to use stormwater fees to fund inspection and maintenance activities (including for privately-owned BMPs).</p> <p>2020: There is strong consensus and support for this action. Human and capital resources are the main limitations for fully implemented programs. There are several efforts underway to use stormwater fees to fund inspection and maintenance</p>	<p>Urban/suburban guidance document and associated LTVPs development and implementation across all municipalities was pursued in 2022. 2023 would include direct assistance efforts to help select municipalities.</p>	

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<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
											activities (including for privately-owned BMPs).	
<b>Priority Initiative 4: Project Funding</b>												
4.1	Seek and acquire creative legislation and funding for implementation, operation, and maintenance of water quality projects (obtain sufficient funding for implementation and ongoing maintenance of all BMPs necessary to achieve Bay TMDL compliance)	Nutrient management planning – 10,577 acres	Lancaster County, municipalities, private companies related to fertilizer legislation	Countywide	Coordination with Ag Action Team	Current state legislation that complicates and/or prohibits various public-private initiatives should be addressed to facilitate P3 initiatives and allow for private and public funds to be used collaboratively.  The goal for this BMP is taken from the state recommendation, which relies on a change in the fertilizer legislation. Without that legislative change, we can only strive to treat 100 acres.	Technical expertise is present			<b>Funding and legislation to support larger goal*</b>	2021: Funding mechanism would remove many barriers  2020: This may always be a limiting factor.	Creative funding mechanisms were explored in more detail during 2022 (including N4W with East Lampeter) along with collaboration events held by LCWPs to align different entities with known funding streams and unifying support for pursuit of different funding streams.
4.2	Employ market-driven solutions for project funding (e.g. stormwater offset, credit trading, environmental impact bonds, etc.)		Lancaster County, municipalities	Countywide	On-going	Practices such as stormwater offsets and wetlands banking transfers need to be enabled and established by DEP. EIB, green-crowd funding, and other private investments programs must be permitted via legislative change.	Technical expertise is present			Funding	2021: Efforts continue  2020: Efforts have been underway implementing strategies or components of market-driven solutions (developer implemented regional stormwater management projects, social impact bonds, mitigation banking, and so on). Legislative or programmatic support would be ideal to knocking down remaining barriers for desired actions related to P3 efforts.	This action is a fundamental component of discussions regarding creative funding mechanisms, regional opportunities, etc. Lancaster County saw a surge in interested organizations identifying opportunities, potential mechanisms, etc. for implementation over the next few years.

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
4.3	Revise funding criteria to ensure alignment with adopted policy and planning goals		Lancaster County MPO/TIP, Smart Growth Funds, Lancaster County Ag Preserve Board, LGH Lighten Up Lancaster	Countywide	On-going	Increase funding for Green Infrastructure and water quality BMPs for preserved farms, transportation and bridge projects, and complete streets	Technical expertise is present			Funding	<p>2021: Water quality and regional projects have seen greater emphasis in local funding programs. Technical resources are needed to develop master list of projects in county to tie together limited resources.</p> <p>2020: There is consensus this is needed, but limits to financial resources are real.</p>	<p>MPO is currently modifying the TIP scoring process, and draft version has removed environmental factors in selection process. However, the LCPD and MPO is still supportive of this effort through the PennDOT Connects Program. LCPD/MPO do not see this as a funding criteria issue now, but instead a partnership issue after projects are selected.</p> <p>Adjusted the sub-grants program to align with GG program</p>
4.4	Build water quality improvement measures into capital and maintenance projects	Dirt and Gravel Roads E&S – 224,245 total linear feet/181,151 new linear feet	Municipalities, Municipal Authorities, Lancaster County Conservation District Watershed team for Dirt and Gravel Roads program	Countywide	2025	Increase # of green infrastructure projects and water quality BMPs installed with municipal capital and maintenance projects				Capital Cost of new BMPs: ~\$2.88 million	<p>2021: Continuing as originally envisioned.</p> <p>2020: The Dirt &amp; Gravel Road/Low-Volume Roads program is very popular (even amongst boroughs and urbanized areas). Several municipalities have been implementing true asset management programs that provides considerations for stormwater facilities and water quality improvements in other focus areas (e.g. transportation improvements).</p>	<p>This action could be considered a fundamental component of capital improvement plans now. However, there is also an elevated focus on building resiliency into proposed projects.</p>
<b>Priority Initiative 5: Identify alternate sources of project identification</b>												
5.1	Identify projects from hazard mitigation planning initiatives		Municipalities, Lancaster County	Countywide	On-going	<p>Regular review of hazard mitigation plans</p> <p>Limited staffing to review materials</p>		Dirt and Gravel Roads program and dollars			<p>2021: Continuing as originally envisioned.</p> <p>2020: This is becoming more normal in overall project development and implementation efforts. However, human and capital resource limitations slow efforts to fully implement and coordinate/prioritize opportunities.</p>	<p>Not uncommon for municipalities to prioritize projects with multiple benefits. Limitations are only related to funding, permitting, and contractor availability bottlenecks.</p>



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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
5.2	Identify projects from municipal capital improvement plans		Municipalities, Municipal Authorities, Lancaster County	Countywide	On-going	Regular review of municipal capital improvement plans  Limited staffing to review materials		Dirt and Gravel Roads program and dollars			2021: See Action 5.1  2020: See Action 5.1	See Actions 4.4. and 5.1.
5.3	Identify projects from local county, and state infrastructure improvement plans		Municipalities, Municipal Authorities, Lancaster County	Countywide	On-going	Regular review of local, county, and state infrastructure improvement plans  Limited staffing to review materials		Dirt and Gravel Roads program and dollars			2021: See Action 5.1  2020: See Action 5.1	See Actions 4.4 and 5.1
5.4	Identify projects from watershed plans		Municipalities, Conservation District, Watershed groups, Lancaster County	Countywide	On-going, with emphasis on de-listing strategy priority locations	Regular review of watershed plans  Limited staffing to review materials		Dirt and Gravel Roads program and dollars			2021: See Action 5.1 and watershed plans provided a starting point for the de-listing strategy  2020: See Action 5.1	This has become a primary driver in certain watersheds for selecting BMPs for implementation including Chiques, Litz Run, and Pequea watersheds.
<b>Priority Initiative SR1: Stream Restoration</b>												
SR1.1	50 projects plus basic, cost effective monitoring (field inspections) of before and after water quality results that are shared (include sourcewater protection work)	<i>In-stream restoration - Urban (35,180 total linear ft/35,179 new linear feet)</i>  <i>In-stream restoration – Non-urban (138,948 total linear ft/76,775 new linear feet)</i>	Municipalities, LCCD, WSI, watershed groups, DTU, USFWS, LandStudies, USACE, DEP, Lancaster County Clean Water Consortium, DEP, PAFBC, EPA	Contiguous projects in priority watersheds TBD  Specific sites TBD based on opportunity, permit cycles, and compliance needs  The intention is to address	2019 – 2025 (and beyond)	As site specific details become available, we will use the alternative BMP template for floodplain and stream restoration projects with legacy sediment.  Lack of funding available to achieve the projects at the pace we need  Long permit timelines	Practice Keeper as data hub for permits and projects  Data experts like the Academy of Natural Science, SRBC, WSI, Chesapeake Conservancy, PSU, and more	319 funding for Mill Creek, Conowingo, and Conewago  Growing Greener funding	Outreach staff to make initial contact with landowners  Permit processors (Harrisburg-based work)	Funding  Capital Cost of new BMPs: ~\$58 million	2021: Projects have been implemented but data management has not caught up to be able to track implementation progress. CAP funding is providing another source of funding for implementation but funding remains the limiting factor.  2020: There is no shortage of opportunities and potential projects. Shortage of financial resources is the only limiting factor.	Discussions regarding expanded monitoring (not just projects) underway  Regional-based stream restoration type projects under development (Little Conestoga)

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
		Wetland restoration/creation in floodplain – 452 total acres/266 new acres		source water issues as well		<p>Presumed contiguous willing landowners when that may not be the case, especially in the short term</p> <p>Develop an acceptable monitoring protocol that includes a publically viewable format</p> <p>Greater state/federal permit process speed (especially for commercial projects)</p> <p>Current MS4 set up limits municipal interest/availability to participate</p> <p>In general, current municipal ordinances do not make these projects an easy “yes” for a developer.</p>	Exelon funding	Excavators	\$75,000 per acre of wetland restoration			
							Private funding	Technical assistants to install projects (contractors) and project managers	Add 20% on top of all costs for pre- and post-project work (finding willing land owners, identifying the best project locations, followed by monitoring, maintenance, etc)			
							NFWF funding	Monitoring equipment and data analysis experts				
SR1.2	Dam removal notification system so that appropriate restoration accompanies any removals (programmatic recommendation)		County, PAFBC, Water Science Institute	All areas	2025	A necessary comprehensive approach with connection between dam removal and restoration work; current situation allows a dam to be removed and the permittee to walk away, which results in much more sediment pollution	County, PSU, watershed specialists, PAFBC				<p>2021: Emphasize greater communication and coordination with state agencies prior to scheduled removal.</p> <p>2020: This became a specific issue in the Chiques Creek watershed and revealed an inherent gap in the overall coordination efforts that have been accomplished. Programmatic/policy changes are requested to address this issue.</p>	Collaboration and engagements with entities known to target dam removals (e.g. American Rivers) was elevated to increase the awareness of proposed dam removals.
<b>Priority Initiative LP1: Growth Management</b>												

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
LP1.1	Direct growth to UGA's and VGA's (DGA's). Prioritize redevelopment and infill in DGAs. Build more compactly and efficiently		Municipalities, Lancaster Co Planning Commission (LCPC), and developers.	Countywide (Focus: Designated Growth Areas)	LCPC Growth tracking - 2 year increments	Municipal participation  Increase % of new dwellings in UGAs to accommodate projected pop and increase % of new non-residential SF. Increase residential net density to target density for each UGA; 9.0+ DU/Ac, 6.5 DU/Ac or 5.5 DU/Ac depending on the UGA.	Municipalities (Regs & Impl.). LCPC staff for growth tracking			Grants and resources needed by municipalities	2021: Coordinate with LCPC and county planning to coordinate model ordinances around UGAs and VGAs  2020: There is consensus for this action. Economic and political realities limit observance from time to time.	The LCPD is actively working towards this goal, and it is a priority initiative, however full cooperation is needed from Municipalities.  Unfortunately, the LCPD doesn't have any recent growth tracking data to demonstrate progress on this item, last time period is from 2015-2019. This will be updated in the near future.
LP1.2	Utilize low impact development (LID) practices	Conservation Landscaping – 125 total acres	Municipalities, LC Clean Water Consortium, Developers, and LCPC	Countywide (Focus: Designated Growth Areas)	2019-2025	Increase use of LID practices.  Municipal participation  Developer resistance	Staff of various partners			Capital Cost of new BMPs: ~\$26,000	2021: Baseline component of most stormwater projects (green infrastructure or GI-based elements included on a majority of applications)  2020: This is a fundamental component of implemented projects.	LCPD recommends including LID best practices in the model SWM ordinance drafted with the Act 167 Plan. Could be an appendix item, and even voluntary and suggested, but would be good to advocate for the use of LID practices. The LCPD already has a document of "Recommended Model Development Principles" dated Nov 2004 that could serve as a start.
LP1.3	Limit large-lot suburban development in rural areas		Municipalities and LCPC	Countywide (Focus: Designated Growth Areas)	LCPC Growth tracking - 2 year increments	Reduce total acres developed per year in rural areas, and reduce % of new dwellings outside UGAs  Municipal participation  Developer resistance	LCPC staff for growth tracking				2021: More naturalized open spaces being observed with large-lot subdivisions, which may be the compromise.  2020: There is consensus for this action. Economic and political realities limit observance from time to time.	LCPD has policies in place and is tracking this.  Unfortunately, the LCPD doesn't have any recent growth tracking data to demonstrate progress on this item, last time period is from 2015-2019. This will be updated in the near future.

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<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
LP1.4	Plan to fully serve Urban Growth Areas (UGAs) and align water and sewer service with UGA's	Septic connection of 3,008 total systems (to municipal service)/2,645 new systems	Municipalities, Municipal Authorities and LCPC (education & advocacy)	Countywide (Focus: Designated Growth Areas)	LCPC Growth tracking - 2 year increments	Increase % parcels in UGA with water and sewer service  Costs, Municipal participation, Authority participation	LCPC staff for growth tracking			Matching funds to municipalities for Act 537 plans (of approx. \$100,000 per muni)*  Capital Cost of new BMPs: ~\$38.2 million	2021: Financial resource limitations still exist.  2020: There is consensus for this action. Economic and political realities limit observance from time to time. Financial resource limitations hinder full realization of this action.	LCPD has policies in place to encourage this. LCPC is currently working on a water and sewer capacity analysis – mapping tool and has performed edge parcel analyses for regional comp plan implementation meetings. LCPC intends on conducting review/reassessment of designated growth areas (DGA's) boundaries with municipalities in the future.
LP1.5	Plan for appropriate wastewater management in rural areas	Septic pumping of 10,000 systems	Municipalities, Municipal Authorities, PA DEP and LCPC	Countywide (Focus: Rural Areas)	2019-2025	Reduce number of failing on-lot disposal systems (OLDS)  Costs, Stricter regulations required from state, municipal participation				Funding for countywide system (details TBD)	2021: Efforts under consideration to collect data on total septic systems, annual pump outs, condition and immediate failures. Coordinate with Sewer Authorities for service areas and areas to upgrade.  2020: There is consensus for this action. Economic and political realities limit observance from time to time. Financial resource limitations hinder full realization of this action.	This effort was not considered a priority in 2022, and may not come to front burner until 2024.
LP1.6	Adopt and/or Update Act 537 Plans		Municipalities, PA DEP, and LCPC	Countywide, with emphasis on priority areas determined by de-listing strategy	2019-2025	Increase number of municipalities that adopt or update their Act 537 Plans  Costs, Stricter regulations required from state, municipal participation				Matching funds to municipalities for Act 537 plans (approx. \$100,000 per muni)*	2021: Due to limited resources, needs will originate in priority areas  2020: Financial resource limitations hinder full realization of this action. This may be resolved through WBPs and fully integrated water resource plans as noted in previous initiatives.	LCPC reviews Act 537 plans as part of the municipal and DEP adoption process, but this process is entirely driven by municipalities and funding resources. Recent Act 537 Plans to be reviewed and adopted include West Cocalico Twp and West Earl Twp

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<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
LP1.7	Utilize TDRs for Ag land, woodlots and other natural areas as a tool to promote greater density in UGAs/VGAs		Municipalities, LCPC (guidance)	Countywide	2019-2025	Increase # of muni using TDRs. Explore possibility of a pilot TDR ordinance between multiple municipalities  Logistical hurdles, municipal participation				Funding/grants to revise or draft ordinances	2021: Elements are being observed in select areas.  2020: This is a complicated subject, but interest in adopting this approach or elements of this approach is growing.	While the LCPD recognizes this as one possible tool, it is not specifically mentioned in places2040, and while supportive of these when proposed by municipalities, they do not typically advocate for them. This is considered a potential tool in the toolbox where it could be a fit if other approaches are exhausted.
<b>Priority Initiative LP2: Improve Planning and Design</b>												
LP2.1	Improve Planning & Design and Utilize Integrated Water Resource Planning and Management (IWRP & IWRM)		Municipalities, with LCPC	Countywide	2019-2025	Increase number of Comprehensive watershed management, water/sewer infrastructure, rural wastewater management, stormwater management and green infrastructure plans  Funding. Municipal participation				Grants and funding (\$50,000 - \$100,000 per plan/ordinance)	2021: Limitations hinder progress.  2020: There is consensus for this action. Economic and political realities limit observance from time to time. Financial resource limitations hinder full realization of this action.	IWRP & IWRM types of approaches will become more apparent with the next MS4 permit cycle.
LP2.2	Amend or adopt local ordinances that minimize stormwater runoff and regulate development that protects water resources (tied to Act 167 focus areas and goals)		Municipalities, with LCPC	Countywide	2019-2025	Increase number of ordinances municipalities adopt that minimize stormwater runoff and regulate development that protects water resources; including Zoning, SALDO, stormwater and floodplain management, well head protection ordinances, conservation zoning district and natural resource protection standards)  Municipal part.				Funding/grants to revise or draft ordinances (\$50,000 - \$100,000 per plan/ordinance)	2021: Sub-committee of Stormwater Action Team to develop model ordinances with municipal officials.  2020: There is consensus for this action. Economic and political realities limit observance from time to time.	The LCPD began to address this initiative through the comp plan catalytic tool "Simplified Zoning". Water Quality & Stormwater Management Workshop Topic reports with strategies to implement various ordinances were created and can be used to help advocate for this item.  LCPD staff serves on the Stormwater Action Team ordinance subcommittee.

## Phase 3 Watershed Implementation Plan (WIP) Progress and Milestones 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		Annual Progress to Date (2020 + 2021)	Annual Progress to Date (2022)
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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
LP2.3	Revise Project Funding Criteria		Municipalities, LCPC, Lancaster Co MPO (TTAC), DEP and DCNR	Countywide	2019-205 (i.e. 2019-2022 MPO/TIP)	Funding criteria should be revised to ensure alignment with adopted policy and planning goals.  Current PennDOT, DEP, and DCNR regs do not require consistency.  Consistency between Central office and districts.  Coordination between MPO and municipalities				Need to leverage existing funding	2021: Progress has been made and several local, county, and state funding programs have shifted to include water quality goals part of funding criteria. Additional technical resources needed.  2020: Programmatic and/or policy changes outside the control of local governments is necessary for this action to be fully realized.	MPO is currently modifying the TIP scoring process, and draft version has removed environmental factors in selection process. However, the LCPD and MPO is still supportive of this effort through the PennDOT Connects Program. LCPD/MPO do not see this as a funding criteria issue now, but instead a partnership issue after projects are selected. The PennDOT Connects program relies on strong partnership and collaboration with LCPD/MPO and its municipal planning partners.
LP2.4	Water quality improvement measures should be built into capital and maintenance projects		Municipalities, Municipal Authorities, LCPC, Lancaster MPO (TTAC)	Countywide	2019-2025 (i.e. 2019-2022 MPO/TIP)	Increase # of green infrastructure projects installed with municipal capital and maintenance projects  Municipal participation, funding				Need to leverage existing funding	2021: Several instances where the development of parks is intersecting with water quality improvement projects. <i>STORY LINKS &gt;</i> <a href="https://www.lancasterpublicart.com/cullitonpark">https://www.lancasterpublicart.com/cullitonpark</a>  <a href="https://lancastersciencefactory.org/cullitonpark/">https://lancastersciencefactory.org/cullitonpark/</a>  <a href="https://pacleanwateracademy.remote-learner.net/mod/page/view.php?id=4342">https://pacleanwateracademy.remote-learner.net/mod/page/view.php?id=4342</a>  <a href="https://lancastercleanwaterpartners.com/2020/07/murry-ridge-park-green-infrastructure-improvements/">https://lancastercleanwaterpartners.com/2020/07/murry-ridge-park-green-infrastructure-improvements/</a>	As noted in Action 4.4, this is a fundamental consideration when developing and implementing projects.

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
LP2.5	Practice regional and place-based planning and analysis		Municipalities, LCPC	Countywide	2019-2025	<p>Increase # of municipalities with regional comprehensive plans and natural resource and water resource plans</p> <p>Municipal participation, resistance to regionalization</p>	LCPC and municipal staffs				<p>2021: Underway, albeit minimal locations <i>STORY LINK &gt; <a href="#">Save the Bay Magazine - Spring 2020 - Chesapeake Bay Foundation (cbf.org)</a> (p.7)</i></p> <p>2020: There is consensus for this action. Economic and political realities limit observance from time to time.</p>	The LCPD is currently working with local municipalities on three multi-municipal regional plans: South Region, Northwest Region, and Cocalico Region. These plans will serve as those required municipal regional comprehensive plan updates.
LP2.6	Utilize official maps for regional stormwater management and protection of natural resources		Municipalities, LCPC	Countywide	2019-2025	<p>Increase number of municipalities participating in regional official maps</p> <p>Municipal participation, lack of municipal familiarity with official maps under MPC</p>	LCPC and municipal staffs			<b>Funds and ability to municipalities for utilizing official maps for regional SWM*</b>	<p>2021: Political and regulatory restrictions limit use of official maps. Credit could be offered in MS4 permit for those municipalities that utilize official map with water quality elements.</p> <p>2020: There is consensus for this action. Economic and political realities limit observance from time to time.</p>	<p>The LCPD advocates for including stormwater management and natural resource protection elements on Official Maps.</p> <p>Four official maps were adopted or amended in 2021, so far none in 2022. These included Denver Boro (incl. trails and corridors), East Hempfield Twp (Incl. open space/parks/trails &amp; regional stormwater management BMPs), Manor Twp (incl. proposed conservation easements &amp; pedestrian trails), and Quarryville Boro (Incl. water network improvements &amp; trails).</p>
LP2.7	Utilize agricultural preservation process to promote greater implementation of agricultural BMPs		Lancaster County Agricultural Preserve Board, Lancaster Farmland Trust, Lancaster County Conservation District	Countywide (Focus: Rural Areas)	2-19-2025	<p>Increase number of BMPs implemented on preserved farms</p> <p>The purchase of development rights does not carry BMP obligations</p> <p>Ag Action Team coordination and tie-in to Action LP3.5.</p> <p>Multiple planning and programmatic tools will</p>	APB and LFT staff				<p>2021: Expanding considerations and exploring needed/ additional tools to increase ag preservation beyond simply promoting the need.</p> <p>2020: Ag Action Team has taken the lead</p>	<p>The LCPD is not listed under responsible parties, but we are encouraging the LFT and APB to implement ag BMPs, especially stream buffers, and when possible, use as a criterion in selecting farms for preservation.</p> <p>Current conversations are centered around potential increased TSP support for APB staff or at a minimum a coordination platform.</p>

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
						be necessary to expand pockets of success (zoning (limit # of homes or subdivisions that can exist on ag zones property), TDRs, easements, etc.). <b>Passage of SB64 by the House would allow private land trusts access to state funding for easement acquisition for farm preservation.*</b> With significant ag land use in Lancaster County, multiple tools and avenues for preservation will be necessary to improve BMP implementation rates.						
<b>Priority Initiative LP3: Natural Resources, Open Space and Parks</b>												
LP3.1	<b>Preserve natural and forested lands</b>		Lancaster County Conservancy, Municipalities, LCPC, State	Countywide (Focus: Rural Areas)	2019-2025	Preserve natural lands and land with forest cover (2,000-3,000 acres).  Prioritize contiguous areas.  Funding, landowner participation	Current LCC staff	Conservation Fund	Staff & maintenance	County funding	2021: Preservation is still a fundamental component of efforts, but retirement to open space is not the ideal metric  2020: There is strong consensus and realized actions associated with this initiative. Human and financial resources for outreach, long-term maintenance, etc. are the primary limiting hurdles still working through.	This is one of the policies of places2040, under the Big Ideas, "Preserve large contiguous areas of agricultural and natural land and we actively advocate for this policy.  The LCPD completed an Ag and natural lands analysis for it's Fall 2021 Comp Plan implementation workshops to encourage this initiative.
							State agencies (Game Comm., State Parks, Forestry, DCNR)	State funding				
LP3.2	<b>Conserve natural resources and services throughout Lancaster County's urban, suburban and rural areas</b>		Municipalities, Lancaster County Conservancy Lancaster County Parks, LCPC	Countywide		Funding, landowner participation  Increase acreage (or number) of areas being conserved for wise use & management to maintain ecological functions (wetlands, steep slopes, erodible soils, forest blocks < 100 acres.					2021: Human and financial resources for outreach, long-term maintenance, etc. are the primary limiting hurdles still working through. One example such as turf to meadow BMP could be employed in suburban and rural areas. Improvements in model ordinances might assist with this (see Action LP1.2)	This is an unspoken-but inherent-objective of the Long-Term Verification Processes (LTVPs) under development and implementation in the county.



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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
											2020: There is strong consensus and realized actions associated with this initiative. Human and financial resources for outreach, long-term maintenance, etc. are the primary limiting hurdles still working through.	
LP3.3	Restore ecological connections and natural resource systems throughout Lancaster County's urban, suburban and rural areas		Municipalities, Lancaster County Parks, LCPC, Lancaster County Conservancy	Countywide	2019-2025	Increase number of ecological connections through restoration efforts.  Funding, landowner participation					2021: Some funding programs are giving priority to projects in close proximity to other projects, headwaters, and natural areas.  2020: There is strong consensus and realized actions associated with this initiative. Human and financial resources for outreach, long-term maintenance, etc. are the primary limiting hurdles still working through.	The LCPD Simplify Zoning implementation team addressed this issue (11/24/21) Recommends drafting a model ordinance to protect sensitive natural features.  The LCPD is actively working on this, especially with trail planning and development.
LP3.4	Neighborhood and regional parks, greenways and trails (5 acres in county/regional parks and 10 acres in local/municipal parks)		Municipalities, Lancaster County Parks, LCPC, Lancaster County Conservancy	Countywide	Check progress towards goal in 2025	Increase number and acreage of neighborhood and regional parks, greenways and trails. Adopted County standard: 15 acres of parkland/1,000 residents.  Funding, County and municipal participation			Funding and grants		2021: Several municipalities are taking on this goal (Conewago Restoration Project, Ephrata Project CAP application)  2020: There is strong consensus and realized actions associated with this initiative. Human and financial resources for outreach, project implementation, long-term maintenance, etc. are the primary limiting hurdles.	The LCPD is actively working on this item, especially related trail planning and development. No updated metrics available at this time.

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<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
LP3.5	Utilize TDRs as a tool to preserve high quality ag land, woodlots and other natural areas		Municipalities, LCPC	Countywide	2019-2025	Increase # of muni using TDRs. Explore possibility of a pilot TDR ordinance between multiple municipalities  Logistical hurdles, municipal participation  Tie-in to Action LP2.7					2021: Lancaster has experienced an increase in residential and commercial development. TDRs (or similar) have not been historically needed to assist in the development process. TDRs are now present in Caernarvon, Manheim, Penn, Warwick, West Hempfield, and West Lampeter Townships.  2020: See LP 1.7	See LP 1.7.
<b>Priority Initiative LP4: Tree Canopy</b>												
LP4.1a	Conduct a tree canopy assessment (Conduct a new tree canopy assessment in 2020, to compare to 2010 baseline)		County, Municipalities, Lancaster County Conservancy, Chesapeake Bay Conservancy	Countywide	2020	Funding, staffing	DCNR	CBF K10 Campaign, DCNR	GIS technology and staff		2021: Baseline does not exist for the county, but efforts are underway in key areas to improve canopy.  2020: Activities are moving forward, but human and financial resource limitation hinder timely progress.	All Tree Canopy (LP4) items are part of a process outlined in Blueprints. Funding for LCPD to do a tree canopy assessment is not available, however this data might be available through the Chesapeake Conservancy.
LP4.1b	Set tree canopy targets, and implement tree canopy action plans at county and municipal level		LCPC, Municipalities, Lancaster County Conservancy, and Lancaster Clean Water Consortium.	Countywide	2019-2025	Increase number of municipalities setting targets  Funding, staffing  Possibly select 3 priority large watersheds for initial imp.	DCNR  Lancaster County GIS	CBF K10 Campaign, DCNR	GIS technology and staff		2021: See LP4.1a  2020: Activities are moving forward, but human and financial resource limitation hinder timely progress.	This is one of the strategies listed in Blueprints, Action Item #14, but no action recently. Need a model Tree preservation ordinance.
LP4.1c	Increase tree canopy cover	Tree planting of 10 total acres (urban tree canopy)  Urban forest planting – 27 total acres/23 new acres		Priority watersheds	2030	Increase % tree canopy cover in priority watersheds by 2030  Municipal buy-in	Tree Canopy Report  Releaf Report (DCNR)			Capital Cost of new BMPs: ~\$21,000	2021: See LP4.1a  2020: Definitive buy-in and projects implemented.	Several implementation grant projects included tree canopy BMP implementation.

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<b>Stormwater Action Team</b>												
<b>Priority Initiative 1: Update Act 167 Integrated Water Resources County Plan</b>												
LP4.2a	Create a model tree preservation ordinance or "Planning Guide"		LCPC, municipalities, developers	Countywide	2019-2025	Adopt a model tree preservation ordinance or "Planning Guide"	PA Land Trust Assoc. (PALTA). DCNR				2021: Ordinance sub-team being formed within Action Team  2020: No update at this time.	Recently, the Simplify Zoning implementation team addressed this issue in the Water Quality and Stormwater Management Workshop Topic report (11/24/21). Recommends drafting a model ordinance. Resources for creating a tree preservation ordinance are provided.
LP4.2b	Adopt (or amend) tree preservation ordinances at municipal level		Municipalities, developers, LCPC	Countywide	2019-2025	Increase number of tree preservation ordinances adopted  Municipal capacity	PALTA				2021: See LP4.2a  2020: No update at this time.	Process identified in the Water Quality and Stormwater Management Workshop Topic report (11/24/21).
LP4.2c	Enforce existing landscape ordinances and existing or new tree preservation ordinances		Municipalities, developers	Countywide	2019-2025	Preserve existing landscaping and trees  Municipal Capacity, Developer/land owner cooperation			Municipal staffing		2021: See LP4.2a  2020: Conflicts between ordinance language and water quality goals have been encountered.	Several municipalities have updated their ordinances to better align landscape considerations and requirements with water quality objectives.
LP4.3	Education and Outreach		Lancaster County Conservancy, Tree Tenders, LCPC, DCNR	Countywide	2019-2025	Conduct trainings					2021: Coordinate with City of Lancaster and Alliance for the Chesapeake Bay Green Infrastructure Coordinator  2020: Human and financial resource shortfalls limit capacity and ability to expand training efforts.	Tree preservation and increasing tree canopy is a topic that the LCPD will be addressing in the future.

## 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).