

Summary of Lebanon County Clean Water Initiatives

Document Name	Document Date	Prepared For	BMP/Project	Amount of BMP	Watershed(HUC10)	Subwatershed where BMP implemented	Municipality of Proposed BMP	Land use where BMP applied (crop, pasture, pervious Developed land, impervious ag/suburban/urban)	Organization responsible for implementation	General recommendations for action	Priority Ranking	Watershed Threats	Implementation related to:Outreach, Public Education, Policy	Notes
Chiques and East Conewago Creek WRAS	2003		\$75000 to develop restoration plan for the Conewago Creek	1 Restoration Plan	Chiques/Susquehanna River	Chiques and East Conewago Creek (State Water Plan Subbasin 07G)	Lancaster Dauphin and Lebanon Counties. Majority of focus is within Lancaster County. Municipalities within the watersheds in Lebanon are South Londonderry, West Cornwall and Cornwall		Tri-County Conewago Creek Association (TCCCA)	Provides a list of restoration protection initiatives and funding when the report was written (2003).		increased res. And non-res. development/ stormwater, increase water demand affecting stream baseflow		Headwaters of these streams located within Lebanon Co. They are attaining their designated uses. Provides TMDL info
Chiques Creek Watershed Assessment	2002	Chiques Creek Watershed Association	stream restoration (identified in report as reach C11)	1200	Chiques	Chiques	West Cornwall	forested		stream restoration - all other reaches identified were in Lancaster County				geomorphic and habitat assessments performed
Conewago Creek Restoration Plan	2006	Tri County Conewago Creek Association	Most recommendations are for vegetative buffer strip, fencing, stabilization, some nutrient management, terraces, grazing management, ect.	6 projects in Little Conewago Creek; 6 projects in the headwaters; and 11 projects in subbasin A (some may be out of Lebanon Co.).	Susquehanna River	Conewago Creek Watershed	Lebanon Co. - primarily South Londonderry Twp, Small area of South Annville and West Cornwall	Soil conservation farming practices, Riparian Practices, Pastureland management practices, Nutrient management practices	TCCCA, CBF, Conservation Districts, NRCS	Implement restoration projects identified in order of the priority identified.			Outreach, water quality, public education, policy, recreation	models the load reductions resulting from BMP implementation
Conewago Creek Watershed Non-Point Source Pollution Assessment	1988				Susquehanna River	Conewago Creek Watershed								
Conewago A Baseline Water Quality Assessment of Conewago Watershed Fall 2002-2003					Susquehanna River	Conewago Creek Watershed								
A Baseline Water Quality Assessment of the Furnace Run Watershed Fall 2001-2002	2001-2002	Prepared by Honors Biology class, Lebanon High School	Watershed assessment	N/A	Furnace Run, Segloch Run	N/A	Lebanon/Lancaster Counties	Sites assessed were ag/forested	Prepared by Honors Biology class, Lebanon High School	Deny Heidelberg Township's Request to discharge wastewater effluent into Furnace Run. Plant trees to stabilize banks and prevent erosion. Plant buffers and increase aerial coverage. Fence out livestock.			Assessment	
Furnace Run - CV High School														
Coldwater Conservation Plan - Furnace Run/Segloch Run	2004	Furnace Run/Segloch Run Watershed Alliance	Control road pull-offs, maintain horseshoe trail, landowner education, habitat improvements, redirect spring flow directly to stream,	Specific tracts referenced in report	Cocalico Creek	Furnace and Segloch Run	Heidelberg Twp							Segloch Run is EV Furnace Run is HQ
Hammer Creek and Speedwell Forge Watershed Assessment			30 sites in Lebanon Co.	Watershed drains 571 m <sup>2</sup> in both Lebanon and Lancaster Counties	Cocalico Creek	Hammer	Heidelberg, South Lebanon, Cornwall Borough	Undeveloped forestland, ag fields and farms, residential/urban (Ag is the dominant land use but urban is rapidly increasing)	Multiple					
Speedwell Forge Lake 319 Watershed Assessment Study	2003	PAFBC, PADEP	agricultural BMPs (including waste storage facilities on all active livestock operations) stream fencing and crossings, buffers, nutrient management plans	no specific BMP amounts/locations	Cocalico Creek	Hammer	Heidelberg, South Lebanon, Cornwall Borough	Agricultural/Rural	Lebanon County Conservation District	Reduce nutrient/sediment non-point source pollution that is affecting water quality in Speedwell Forge Lake				
Speedwell Forge Lake 319 Watershed Assessment Study	2003	PAFBC, PADEP	stream stabilization,	no specific BMP amounts/locations	Cocalico Creek	Hammer	Heidelberg, South Lebanon, Cornwall Borough	urban/suburban/rural						
Speedwell Forge Lake 319 Watershed Assessment Study	2003	PAFBC, PADEP	dirt and gravel road program,	no specific BMP amounts/locations	Cocalico Creek	Hammer	Heidelberg, South Lebanon, Cornwall Borough	rural	Lebanon County Conservation District					
Speedwell Forge Lake 319 Watershed Assessment Study	2003	PAFBC, PADEP	constructed wetlands, stormwater management facilities that address WQ, LID techniques,	no specific BMP amounts/locations	Cocalico Creek	Hammer	Heidelberg, South Lebanon, Cornwall Borough	urban/suburban						
Speedwell Forge Lake 319 Watershed Assessment Study	2003	PAFBC, PADEP	Update Act 537 plans	N/A	Cocalico Creek	Hammer	Heidelberg, South Lebanon, Cornwall Borough	urban/suburban/rural	Municipal Governments					
Speedwell Forge Lake 319 Watershed Assessment Study	2003	PAFBC, PADEP	Update Township Ordinances (LID, riparian buffer ordinance, open space provisions, ect.)	Unknown number of ordinances that may require updates	Cocalico Creek	Hammer	Heidelberg, South Lebanon, Cornwall Borough	urban/suburban/rural	Municipal Governments					

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Speedwell Forge Lake 319 Watershed Assessment Study	2003	PAFBC, PADEP	Additional watershed investigations to identify stream instability and other non-point sources; also develop and inventory of all drainage facilities along state and federal highways and their condition	N/A	Cocalico Creek	Hammer	Heidelberg, South Lebanon, Cornwall Borough	urban/suburban/rural	Various/undetermined					
Speedwell Forge Lake 319 Watershed Assessment Study	2003	PAFBC, PADEP	develop a comprehensive watershed education program	develop educational material for diverse stakeholder groups	Cocalico Creek	Hammer	Heidelberg, South Lebanon, Cornwall Borough, coordinate with Lancaster Co. municipalities	urban/suburban/rural	Various/undetermined					
Heidelberg Township Wellhead Protection Program and Management Plan	2004	Heidelberg Township and Heidelberg Municipal Authority	Development of wellfield/wellhead area protection zones	3 protection zones	Hammer Creek, Tulpehocken Creek, Mill Creek, Middle Creek		Lebanon County	Mixed	Heidelberg Township	Enforce protection zones, encourage farmer participation in development of nutrient management plans		Nutrient runoff, contamination	Encouragement to landowners to participate in developing nutrient management plans. Public education, policy	
Lower Susquehanna-Swatara Rapid Watershed Assessment			Ag conservation practices (crop rotation, contour farming, nutrient management, buffers, diversions, waterways, field borders, cons tillage, residue mgmt, stripcropping, terraces, prescribed grazing)	Very high level - amounts not provided. Resource concerns addressed called out in the plan include erosion, cropland organic matter and productivity, sedimentation, degradation of stream quality, conversion of non-urban land to urban,	Lower Swatara, Upper Swatara, Little Swatara, Quittapahilla,		Cold Spring, Bethel, Swatara, Union, East Hanover, North Annville, South Annville, North Londonderry, South Londonderry, Palmyra, Anneville, Cleona, west Lebanon, Lebanon, North Lebanon, North Cornwall, West Cornwall, Cornwall, Jackson,	Agriculture					Outreach/Education - report is a foundation for watershed studies or area planning	includes inventory of avg precip, NWI, impaired streams (2006), abandoned mine land, EV streams, trout waters, TMDL, WQ testing points, water withdrawals, discharges, ect., heritage inventory sites, bird atlas, soils,
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	Agriculture	evaluated various BMP implementation scenarios using AVGWLF and predict models by subwatershed	Quittapahilla	all - prioritized in report. Upper Killinger Creek top for nutrients and sediment and Gingrich run for sediment	South Anneville, Annville, North Annville, North Londonderry, Londonderry, Palmyra, Cleona, West Lebanon, Lebanon, North Cornwall, Cornwall, South Lebanon, North Lebanon,	ag	suggests conservation district and NRCS work with farmers to implement BMPs	subwatersheds draining to the city of Lebanon ranked the highest priority for urban BMP implementation, prioritized watersheds for Ag BMP implementation based on the results of AVGWLF and Predict modeling			outreach and education	
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	9 Urban BMP sites (all wet ponds) identified in and adjacent to Lebanon - detail info provided	various	Quittapahilla	Quittapahilla, Brandywine	Lebanon, North Lebanon, South Lebanon, North Cornwall	urban		implement projects				regional approach, lots of detailed cost info, concept plans, ect.
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	Stream restoration - projects range form fencing, buffers, dam removal, wetland creation and restoration	16 projects - 23,206 ft	Quittapahilla	Bachman Run	West Cornwall and South Annville	agriculture?, various		implement restoration projects - report prioritizes watersheds, not projects. MS Quittapahilla at confluence with Beck and Snitz Creek, Lower Snitz Creek, MS Quitt. Confluence with Killinger Creek, Brandywine Creek...				
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	stream restoration and stormwater wetland basins	8 projects - 9945 ft	Quittapahilla	Brandywine Creek	North Lebanon and Lebanon	seems like mostly urban/suburban						
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	dam removal, stream restoration, livestock fencing, riparian buffer, livestock crossing, wetland creation,	19 projects - 30550 ft	Quittapahilla	Beck Creek	South Annville, North Cornwall, West Cornwall	agriculture, golf course, lawn/developed?						
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	restoration, fencing, riparian buffer, bank grading	5 projects - 10155 ft	Quittapahilla	Buckholder and Gingrich Run	South Annville	mostly ag with some developed						
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	Stream restoration - projects range form fencing, buffers, bank stabilization, wetland creation and restoration	10 projects - 16710 ft	Quittapahilla	Killinger Creek	South Annville, South Londonderry, North Londonderry, North Annville	primarily ag, some urban/concrete channels						

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Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	Stream restoration - projects range form fencing, buffers, dam removal, wetland creation and restoration	24 projects - 37670 ft	Quittapahilla	Snitz Creek	Cornwall, West Cornwall, North Cornwall	minimal ag, mostly developed?						
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	Stream restoration - projects range form fencing, buffers, dam removal, wetland creation and restoration	10 projects - 13000 ft	Quittapahilla	Upper Quittapahilla	Lebanon and South Lebanon	minimal ag, mostly urban/suburban						
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	stormwater wetland creation, restoration, bank stabilization, remove debris jams, address bridge spans, grade control and habitat structures,	29 projects - 69760 ft	Quittapahilla	Main stem Quittapahilla	North Cornwall, Cleona, Annville, South Annville, North Annville	seems mostly urban/suburban						
Quittapahilla Creek Watershed Assessment Vol. 2 Restoration and Management Plan	2006	Quittapahilla Watershed Association	restoration, fencing, livestock crossings, riparian buffer	5 projects - 9315	Quittapahilla	unnamed tribs	North Annville, North Londonderry	mostly ag/rural						
Quittapahilla Creek TMDL - sediment	2000	Quittapahilla Watershed Association	Agricultural BMPs - emphasizes riparian buffer zones, contour strips and cover crops because of their efficiency. Additional streambank stabilization and fencing	Reductions to meet the TMDL are allocated entirely to AG to reduce sediment	Quittapahilla		South Anneville, Annville, North Anville, North Londonderry, Londonderry, Palmyra, Cleona, West Lebanon, Lebanon, North Cornwall, Cornwall, South Lebanon, North Lebanon,	Ag						TMDL
Quittapahilla Creek TMDL - Phosphorus	2000		Agricultural BMPs - emphasizes riparian buffer zones, contour strips and cover crops because of their efficiency. Additional streambank stabilization and fencing	Reductions to meet the TMDL are allocated entirely to AG to reduce phosphorus	Quittapahilla	Bachman Run, Beck Creek, Killinger Creek, Snitz Creek	South Anneville, Annville, North Anville, North Londonderry, Londonderry, Palmyra, Cleona, West Lebanon, Lebanon, North Cornwall, Cornwall, South Lebanon, North Lebanon,	Ag						TMDL
Rausch Creek Assessment Report of Field Results and Remedial Options	26-Mar-10	TU Doc Fritchey Chapter	Water quality sampling, "no build" option: no action except continued use of limestone diversion well, limestone sand treatment (limestone sand added to streambed in high gradient headwater drainages to regulate pH from acid mine drainage.)	11 sites sampled. If limestone sand added, 256 tons	Stony Creek	Rausch Creek		Forested, ag, abandoned mines	TU Doc Fritchey	URS recommends the limestone sand addition		Acid mine drainage	Water quality + monitoring	
Stoney Creek Effects of Acid Mine Drainage on Upper Stony Creek Watershed	1999-2000	Prepared by Honors Biology students at Lebanon High School	Assessment and determination of effectiveness of limestone diversion well	N/A	Stony Creek	-	Dauphin and Lebanon Counties	Forested	Lebanon High Schhol	Watershed should continue to be maintained in its natural condition with limited public access. Limestone well appears to be bennefical. Further studies recommended on tributaries. Investigate treatment wetlands as an option for treating effluent from diversion well.		Acid mine drainage	Assessment and monitoring	
Assessment of Non-Point Source Pollution in the Swatara Creek Watershed	Dec-88	For PA DEP by Lebanon County Conservation District	Assessment. Proposed plan to 1. reduce soil erosion. 2. reduce nutrient loss through mismanagement of nutrients	10,203 feet of waterways, 9,640 feet of terraces, 867 feet of diversions, 708 acres of strip cropping, 364 acres of conservation tillage, 227 acres of cover crops, 5 wastewater storagesystems, 7,721 acres of applied nutrient management plans, 3,7499 acres of filter strips, 370 acres of permanent vegetative cover, 10,727 ft. of streambank protection	Swatara Creek	Inwood Gap, Stony Creek, lickdale, Indiantown Creek, Elizabeth Run, Earkill, Raccoon Creek, Waterworks, Little Swatara, Deep Run, Lower Quittapahilla, Lebanon, Killinger Creek, Bachman Run, Annville-Cleona	Lebanon County	50% ag		Implement nutrient management and erosion control BMPs.		Erosion and nutrient mismanagement	Assessment and BMP implementation. Public outreach and education through work with landowners	Proposed plan will take five years to develop at a cost of \$85,501 per year. Approximately 47 farmers will participate in the program
Swatara Rivers Conservation Plan	2000	Swatara Creek Watershed Association?	project area characteristics, land resource recs, water resouce, biologica, cultural, and greenway recommendations	Approach recommendations only	Lower Swatara, Upper Swatara, Little Swatara, Quittapahilla,	all subwatersheds	Annville, Bethel, City of Lebanon, Cleona Borough, Corwall Borough, East Hanover Twp, Jackson, Jonestown, North Annville, North Cornwall, North Lebanon, North Londonderry, Palmyra, South Annville, South Lebanon, South Londonderry, Swatara, Union, West Cornwall, West Lebanon	majority of watershed in Lebanon is Ag		general calls to action to address watershed concerns related to policy, education and outreach, invasive species, restoration, ect. No specific restoration projects provide. Specific recommendations for policy, ect. are provided.			general calls to action to address watershed concerns related to policy, education and outreach, invasive species, restoration, ect. No specific restoration projects provide. Specific recommendations for policy, ect. are provided.	43% of watershed in Lebanon Co. Very detailed watershed description/analysis.

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Swatara WRAS	2001		Doesn't call for specific action. More of a summary of existing/proposed actions, TMDLs, impacts to water quality, ect.	Summary of actions to date	Lower Swatara, Upper Swatara, Little Swatara, Quittapahilla,	all subwatersheds	Anneville, Bethel, City of Lebanon, Cleona Borough, Corwall Borough, East Hanover Twp, Jackson, Jonestown, North Annville, North Cornwall, North Lebanon, North Londonderry, Palmyra, South Annville, South Lebanon, South Londonderry, Swatara, Union, West Cornwall, West Lebanon	majority of watershed in Lebanon is Ag		Summary of existing actions and funding		Ag and Urban Runoff, AMD a threat upstream of Lebanon Co.	Money for educational grants (northern Lebanon co school district), Lebanon Valley Conservancy restoration projects, geomorph assessment of the Quittapahilla, stream restoration and fencing in Quittapahilla, Lebanon cons. District for ag BMP implementation, streambank fencing and planting on the Little Swatara, City of Lebanon - passive treatment systems for drinking water reservoir to remove AMD,	
Tulpehocken Creek Watershed Protection Plan and Environmental Assessment	1997	Prepared by USDA, NRCS, Berks County Conservation District, Lebanon County Conservation District	Resource Protection Alternative plan. Extensive accelerated land treatment (ag waste management systems, erosion and sediment control, nutrient management, establishment of riparian forested buffers, restoration of wetlands, livestock exclusion, eroding bank stabilization, acquisition of perpetual floodplain and wetland easements), acquisition of land conservation easements, aquatic habitat improvements with emphasis on wild brown trout.	55 waste management systems, 50 backyard runoff control systems, 23,000 acres cropland erosion systems, 18,000 acres nutrient management, 26 miles riparian forested buffers, 150 acres wetland restoration, 15 miles livestock exclusion from streams, 1 mile streambank stabilization, 45 miles wetland or floodplain easements, 4.7 miles aquatic habitat improvements	Tulpehocken	-	Berks and Lebanon Counties	Mostly ag	USDA/NRCS, Berks/Lebanon Conservation Districts	Implementation of land treatment practices		Water quality impairments, ag runoff/nutrient mismanagement, livestock damage to streams, stormwater runoff, urban/rural conflicts, damage to croplands, odor objections, damage to fishes	BMPs to address significant issues in watershed.	
Tulpehocken Creek Watershed WRAS	2004		Doesn't call for specific action. More of a summary of existing/proposed actions, TMDLs, impacts to water quality, ect.	drains a 358-square mile area	Tulpehocken Creek	Tulpehocken Creek, Hay Creek, and the Schuylkill River	Millcreek, Richland, Jackson, Myerstown, South Lebanon, North Lebanon	Primarily ag, some urban with golf courses, industries, forests and open space.						Mostly Berks county
Tulpehocken Greenway Feasibility Study	2005	Lebanon Valley Conservancy and Berks County Conservancy	Greenway	88.75 mi <sup>2</sup>	Tulpehocken Creek Watershed	(upstream of the Tulpehocken's confluence with Northkill Creek)	<ul style="list-style-type: none"> <li>• Heidelberg Township, Berks County</li> <li>• Heidelberg Township, Lebanon County</li> <li>• Jackson Township, Lebanon County</li> <li>• Jefferson Township, Berks County</li> <li>• Marion Township, Berks County</li> <li>• Millcreek Township, Lebanon County</li> <li>• Myerstown Borough, Lebanon County</li> <li>• North Heidelberg Township, Berks County</li> <li>• North Lebanon Township, Lebanon County</li> <li>• Richland Borough, Lebanon County</li> <li>• South Lebanon Township, Lebanon County</li> <li>• Tulpehocken Township, Berks County</li> <li>• Womelsdorf Borough, Berks County</li> </ul>	Fertile farmland/pasture land/crop land  (Corn/soybean are most common crops, and pasture land is mostly used for cattle grazing)	Lebanon Valley Conservancy and Berks County Conservancy				Outreach, public education, recreation	
Tulpehocken Creek Watershed Act 167 Stormwater Management Plan	2001	Berks Co Commissioners								implement non point source pollutant removal technologies, maintain groundwater recharge, reduce channel erosion, manage overbank flood events, manage extreme flood events				