

Countywide Action Plan Overview

Lebanon County

Plan Highlights

The Lebanon Countywide Action Plan (Lebanon CAP) is a summary of approaches, initiatives, and considerations for existing and proposed water quality improvements in the county. The initiatives are intended to protect the future of Lebanon County's natural resources while preserving other community goals and focus areas. Local improvements will benefit the community while assisting the state with meeting its Chesapeake Bay obligations.

The Lebanon CAP in conjunction with state efforts aims to reduce nearly 2.3 million pounds of nitrogen and 120,000 pounds of phosphorus annually delivered to local streams through BMPs implemented by 2025. Additionally, the proposed BMPs will provide significant reductions in sediment (over 75 million pounds reduced annually). Despite the short time frame for BMP implementation, the Lebanon CAP is also intended to serve as a long-term blueprint for improved local water quality beyond 2025.

The Lebanon CAP is a dynamic and adaptive plan summarizing approaches and tracking implementation efforts for local water quality improvements. The plan is aspirational but realistic. The CAP will be updated on an annual basis and reports will be provided to both local stakeholders and PADEP through 2025 summarizing progress towards identified long-term goals or adjustments to overall approaches. Key goals and objectives of the Lebanon CAP are:

- Capturing and memorializing collaborative and cooperative efforts of the many existing entities ("Legacy Partners") that have been working towards water quality improvements or improved quality of life in Lebanon County.
- Outlining realistic scenarios of Best Management Practices (BMPs) implementation balancing theoretical improvements with actual on-the-ground conditions.
 - Continually adjust BMP implementation scenarios based on new opportunities, successful outreach initiatives, and on-going calculated nutrient reductions.
- Formation of a Steering Committee with experts and leaders across multiple sectors to help guide CAP development and implementation efforts.
- The overall approach, message, and benefits are for Lebanon County and its' residents and businesses first and foremost; but will inherently assist the state with Chesapeake Bay obligations.
- Development of a Catchment Management Database (CMD) to help guide targeting of BMP types and resources within priority small drainage basins.

LEBANON COUNTYWIDE ACTION PLAN

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- CAP encompasses and considers all areas of the county (developed, agricultural, and forested/natural areas).
- Organization of Action Teams focused on agriculture, education, data management & monitoring, stormwater, and general coordination.
- Focus on the approximate 270 miles (of 555 total stream miles) of impaired streams in Lebanon County for restoration and implementation of agricultural and urban/suburban practices improving local water quality, reducing flood damage, preserving drinking water supply, and protecting infrastructure.
- While reductions are based on reduced nutrient loadings, significant sediment reductions are proposed to ensure the long-term health of local waterways.

Key Findings

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

- Formation of a steering committee and action teams to guide CAP development and monitor implementation efforts, with a long-term objective of formalizing the organizational structure.
- Immediate and future decision points are strongly supported by data.
- Local (and statewide) legislator support.
- Creative and long-term funding streams.
- Unified and creative branding and messaging of the overall effort and process at the state level.
- Successful BMP implementation in the agricultural sector will be a key ingredient to achieving significant reductions.
 - Specific focus on individual agricultural industries (e.g. dairy, poultry, etc.) is necessary.
- Providing a coordination and collaboration platform(s) for multiple entities already working across Lebanon County (e.g. Quittapahilla Watershed Association, the Conewago Initiative, Lebanon County Clean Water Alliance, Lebanon County Stormwater Consortium, Trout Unlimited, and so on).
- Well-organized and monitored set of long-term verification processes ensuring implemented BMPs continue to perform.

Opportunities for Success

CAP development included the identification of appropriate collaborations, priority areas, and funding needs specific to Lebanon County that would improve

implementation success while providing extended benefits to the community. Opportunities and considerations that will improve success of CAP implementation include:

- Quittapahilla Coordinating Committee between municipalities and the watershed association for 319 Plan and Pollutant Reduction Plan implementation.
- Continual monitoring and updates to an active funding resources inventory to align projects with applicable funding assistance.
- Engagement with the National Fish and Wildlife Foundation (NFWF) for a grant program specific to Lebanon County for project implementation
- Alignment of proposed practices in the CAP with existing efforts conducted by “Legacy Partners”.
- New and innovative stormwater management approaches that achieve both economic development improvements and protect local natural resources.
- Re-imagined education and outreach approach to increase public knowledge and buy-in.
- Foster collaborative arenas focusing on agricultural and urban area boundaries.
- Alignment of data management platforms to ensure decision points and approaches by multiple groups complement each other in lieu of competing with one another or duplicating efforts.
- Engagement with large-scale agricultural/farm operators.
- Combine considerations for aquifer protection, source water protection, and sinkhole remediation along with economic development opportunities, transportation initiatives, and agricultural preservation for a more fully integrated approach.

Challenges to Implementation

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

- Funding for BMP implementation and future inspections.
- Efficient and effective long-term verification processes.
- Adoption of the fertilizer legislation at the state level.
- Public buy-in and extent of local landowner willingness to participate.
- Conflicting and/or inconsistent regulatory requirements.
- Relative short timeframe for BMP implementation to achieve significant nutrient reductions.

- Implementation fatigue, “spinning wheels”, or loss of interest by the general public or stakeholders

Plan Summary

The implementation of the Lebanon Countywide Action Plan (Lebanon CAP) will center around five (5) priority initiatives: 1) agriculture, 2) stormwater, 3) education and outreach, 4) data management and monitoring, and 5) coordination. Working groups were established with the purpose of organizing fully functioning Action Teams responsible for oversight of focus points under each Priority Initiative.

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

Priority Initiative 1: Agriculture

- Action 1.1 Reconcile ag-specific Bay model theoretical BMP implementation and loading numbers with on-the-ground and real conditions
- Action 1.2 Expand implementation of cover crops (specific focus on alternative approaches that may count as reductions)
- Action 1.3 Coordinate and develop game plan with NRCS for ag plan and implemented BMP capture for long-term verification processes
- Action 1.4 Engage industrial and large ag operation farmers
- Action 1.5 Develop and implement game plan for development and/or capture developed conservation plans into PracticeKeeper
- Action 1.6 Promote and assist implementation of Agricultural Compliance practices in priority areas
 - Soil Conservation and Water Quality Plans (57,000 total acres)
 - Core Nitrogen Nutrient Management (50,000 total acres)
 - Core Phosphorus Nutrient Management (15,000 total acres)
 - Barnyard Runoff Controls (112 new acres)
- Action 1.7 Promote and assist implementation of Soil Health practices in priority areas
 - High Residue Tillage Management (24,000 acres/year)
 - Conservation Tillage Management (13,000 acres/year)
 - Traditional Cover Crops (13,700 acres/year)
 - Traditional Cover Crops with Fall Nutrients (18,000 acres/year)
 - Commodity Cover Crops (3,000 acres/year)

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- Prescribed Grazing (6,000 total acres)
- Action 1.8 Promote and assist implementation of expanded nutrient management practices in priority areas
 - Core Nitrogen Nutrient Management (6,000 acres)
 - Core Phosphorus Nutrient Management (2,000 acres)
 - Nutrient Management-Nitrogen Rate (10,000 acres)
 - Nutrient Management-Phosphorus Rate (10,000 acres)
 - Nutrient Management-Nitrogen Placement (12,000 acres)
 - Nutrient Management-Phosphorus Placement (10,000 acres)
 - Nutrient Management-Nitrogen Timing (13,000 acres)
 - Nutrient Management-Phosphorus Timing (10,000 acres)
- Action 1.9 Promote and assist implementation of improved animal unit practices in priority areas
 - Manure Storage Facilities (118,000 New Animal Units (AUs))
 - Dairy Cow Precision Feed Management (20,000 Dairy Cow Animal Units (AUs))
 - Manure Transport out of Lebanon County (25,000 dry tons/year)
- Action 1.10 Promote and assist implementation of buffers in agricultural riparian zones in priority areas
 - Forest Buffer (3,100 new acres)
 - Forest Buffer with Streamside Exclusion Fencing (962 new acres)
 - Grass Buffer (1,900 new acres)
 - Grass Buffer with Streamside Exclusion Fencing (550 new acres)
- Action 1.11 Engage the Conewago Initiative to align over-arching CAP goals with efforts
- Action 1.12 Identify and foster ag-specific funding streams and opportunities to assist farmers and BMP implementation
- Action 1.13 Develop and implement game plan outlining identification of farms missing plans, plan development assistance, long-term inspection processes, and BMP verification processes

Priority Initiative 2: Stormwater (Developed Areas) (e.g. Stormwater)

- Action 2.1 Engage legacy partners (Stormwater Consortium, etc.) to ensure capture and support of initiatives as it relates to local WQ improvements
- Action 2.2 Integrate other water resources initiatives (e.g. source water protection) into overall approaches
- Action 2.3 Pursue regional stream and wetland restoration projects that provide additional benefits to multiple communities and MS4s
 - Urban Stream Restoration (6,000 new linear feet)
 - Non-urban Stream Restoration (55,068 new linear feet)

LEBANON COUNTYWIDE ACTION PLAN

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- Wetland Restoration (125 acres)
- Action 2.4 Engage and collaborate with PSU Extension to coordinate efforts for protection of private wells
- Action 2.5 Engage Lebanon County MS4 permittees for identification and support for known BMPs for implementation, funding streams, maintenance, and related needs
- Action 2.6 Identify and foster potential alternative stormwater BMP Implementation approaches (e.g. developer implemented regional stormwater facilities)
- Action 2.7 Promote and assist implementation of riparian zone, habitat, and tree canopy, and conservation practices in priority areas
 - MS4 Riparian Forest Buffers (69 new acres)
 - Non-MS4 Forest Buffers (50 new acres)
 - Conservation Landscaping (125 new acres)
 - Urban Forest Planting (125 new acres)
 - MS4 Urban Tree Canopy (12 new acres)
 - Farmland Conservation (2,000 total acres)
 - Forest Conservation (2,300 total acres)
 - Wetland Conservation (125 total acres)
- Action 2.8 Promote and assist implementation of urban/suburban sector controls for nutrient and sediment reductions
 - Advanced Grey Infrastructure for IDD&E Control (4,000 acres treated)
 - Impervious Surface Reduction (15 acres)
 - Urban Nutrient Management (2,000 acres)
 - Street Sweeping (122 acres treated)
- Action 2.9 Promote and assist implementation of stormwater control measures that incorporate Low Impact Development (LID) approaches
 - Wet Ponds and Wetlands (197 acres treated)
 - Stormwater Performanc Standards-Runoff Reduction (915 acres treated)
 - Bioretention/Raingardens (24 acres treated)
 - Bioswale (9 acres treated)
 - Vegetated Open Channels (15 acres treated)
 - Filtering Practices (8 acres treated)

Priority Initiative 3: Education and Outreach

- Action 3.1 Identify alternative and creative messaging and outreach methods
- Action 3.2 Collaborate with the state to improve statewide branding and messaging
- Action 3.3 Unify messaging and outreach methods across sectors
- Action 3.4 Support Agriculture Action Team outreach efforts

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- Action 3.5 Support and build on existing education and outreach efforts while preserving the messaging the central focus is Lebanon County
- Action 3.6 Provide oversight and guidance for CAP-specific media outreach approaches and methods (website, radio, etc.)

Priority Initiative 4: Data Management and Monitoring

- Action 4.1 Identify and expand water quality monitoring efforts to assist with prioritization of BMP implementation and measure long-term success
- Action 4.2 Build a Lebanon County-specific monitoring network
- Action 4.3 Maintain an inventory of acceptable BMP verification processes for long-term monitoring efforts
- Action 4.4 Identify potential additional monitoring activities that may accompany existing monitoring activities to capture missing or needed information
- Action 4.5 Establish FieldDoc use and access protocols (SOPs)

Priority Initiative 5: Coordination

- Action 5.1 Establish and maintain a coordination sub-committee focused on implementation of the QWA 319 plan and local municipal PRPs/efforts
- Action 5.2 Engage and support The Conewago Initiative
- Action 5.3 Continually engage and update local legislators for CAP implementation support
- Action 5.4 Collaborate with Lancaster County for shared watersheds (Upper Hammer, Chiques, etc.)
- Action 5.5 Engage local/regional programs (e.g. Master Watershed Stewards) to coordinate efforts for long-term CAP implementation success
- Action 5.6 Assist with progressing efforts in the Swatara (with the Lower Little Swatara as a priority watershed)

Programmatic/Policy Recommendations: Lebanon County

- Action 1.1 Expand the definition for cover crops to include other successful approaches accepted and working in Lebanon County
- Action 1.2 Develop a unified and alternative approach to educational messaging to reduce disjointed efforts and improve success of public buy-in and knowledge
- Action 1.3 Act 537 Plan funding
- Action 1.4 CAP Team provided ability to serve as local coordinating/management entity for Quittapahilla 319 Plan and local MS4 PRP implementation
- Action 1.5 Watershed/regional permitting approach