Chesco Chesapeake Communities Action Plan (C3AP)

An adaptive plan summarizing approaches and tracking implementation efforts for local water quality improvements

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INTRODUCTION AND BACKGROUND

Plan Purpose
The Pennsylvania Department of Environmental Protection (PADEP) began work on Phase three of the Chesapeake Bay Watershed Implementation Plan (Phase 3 WIP) in 2018. The Phase 3 WIP includes all the counties in the Chesapeake Bay basin. The plan follows a bottom-up approach, focusing on lowering water pollution locally to reach statewide goals by 2025. This approach gives each county the flexibility to create a plan that meets their unique local needs.

The Chesco Chesapeake Communities Action Plan (C3AP) acts as a hub for coordinating clean water actions across the county. It also lays out the approach local stakeholders and agencies will follow to reduce pollution in local waters. Importantly, these actions will also help the state meet its pollution reduction goals. The C3AP is intended to be responsive to changing goals and conditions on the ground. This flexibility allows the plan to stay timely, relevant, and effective over time.

Plan Highlights
The C3AP summarizes current and planned clean water efforts in the areas of the county that drain to the Chesapeake Bay. Such work has been ongoing in the county for several years now. Recognizing this, the C3AP team took time to gather information about related plans and projects in the county so they could be accounted for. This holistic approach means previous success will help guide future efforts (e.g. the C3AP builds on the Chester County Implementation Plan (CIP) developed by the Chester County Conservation District (CCCD) in 2014). The plan also reflects clean water goals set by local communities.

Actions in the C3AP were carefully chosen based on their ability to help the county reduce the amount of nitrogen and phosphorus entering local waters. What came out of this work was a plan that is both aspirational and realistic. The county has a goal of reducing yearly nitrogen loading by 914,000 million lbs. and yearly phosphorus loading by 39,000 lbs. by 2025. Strategies currently included in the C3AP will reduce yearly nitrogen loading by ~55% (510,000 lbs.) and yearly phosphorus loading by ~97% (38,000 lbs.). Important first steps in the C3AP include seeking out new ways to reduce nitrogen to bring the county closer to the 2025 goal. As such, the BMP implementation scenario will be reviewed and updated in 2023 to include new and improved efforts.

The C3AP is dynamic and adaptive. It includes steps for reducing pollution reaching local waters and tracking those efforts. A key feature of the C3AP is the plan to build an inventory of BMPs that are currently uncaptured or unreported. This will result in more accurate county BMP scenarios over time. To reflect this, the C3AP will be updated every year and annual status reports will be shared with local stakeholders and PADEP.
Key goals and objectives in the C3AP include:

- Conservation needs should drive approaches in lieu of fitting improvements into programs.
- Prioritization and implementation steps driven by assessments of individual catchments (organized through the Catchment Management Database; 59 total catchments).
- Action Teams focused on agriculture, buffers & streams, municipal, data management, and catchment targeting initiatives.
- Balance theoretical reductions with real-world improvements for prioritization of BMP implementation.
- Continually asking “what are we missing?” during assessments, prioritization, and targeting exercises.
- Reconcile and report uncaptured and/or under-reported BMPs across all sectors against proposed BMP implementation rates.
- Initiate implementation during the last quarter of 2021 to provide sufficient time and ability to capture data and information prior to the 2023 BMP implementation scenario revisions, and build an inventory of uncaptured BMPs and opportunities across multiple catchments.

**Key Findings**

C3AP success relies on a mix of factors and support coming together. This includes adequate funding, regulatory flexibility, innovative BMPs, and political will. Here are some of the Steering Committee’s findings on what it will take to be successful:

- Formation of a steering committee and action teams to guide C3AP development and monitor implementation efforts.
- A methodical data capture and opportunities identification exercise (Catchment Targeting Initiative) is necessary to balance BMP reconciliation and conservation needs identification efforts.
- Creative and long-term funding streams will be necessary not only for BMP implementation, but also for long-term maintenance and verification processes.
- Success is highly predicated on financial and funding assistance.
- Strong GIS capabilities countywide.
- Broad presence of technical service providers (TSPs) assisting the agricultural community.
- It is necessary to complement existing programs and plans in place (countywide Act 167 plan, Comprehensive Plan, etc.) in lieu of competing with existing programs and plans.
- The mushroom industry is a critical element of the agricultural community in Chester County.
- A set of detailed “game plans” that have been identified for specific actions under Priority Initiatives require additional discussions and deliberate tasks that will be necessary for reducing barriers to implementation. The game plans are intended to
provide more details behind the who, what, when, how, etc. Game plans are required for:
  o Catchment assessments “step-by-step” analysis process (Action 1.1)
  o Plain sect community outreach plan and general agricultural outreach plan and materials (and associated education (EE) grant application) that would provide needed funding to support identified goals (Action 2.1 and Action 2.2).
  o Processes for road run-off to farms (Action 2.8)
  o “Buffer Bonus” program (Action 3.4)
  o Complete list of existing plans, efforts, etc. from an urban/suburban standpoint that needs to be considered and/or encompassed by the Catchment Targeting Initiative (Action 4.7).
  o Conversion or translation of County Health Dept. septic system information and data for reporting and realizing nutrient reductions (Action 4.12)
  o Potential expansion of the Lancaster County Collaborative Watershed Mapping Tool into Chester County (Action 5.1)

**Opportunities for Success**

Part of developing the C3AP included looking for existing partnerships, projects, and funding gaps that aligned with the new clean water goals. Including these efforts in the plan benefits the community by consolidating projects and reducing costs. Some examples include:

- Leveraging existing groups, funding, and efforts where the C3AP can complement efforts.
- Potential expansion of the Lancaster County Collaborative Mapping Watershed Tool into Chester County.
- Build upon the Octoraro Watershed Association (OWA)’s water quality monitoring program under development for other areas for long-term monitoring goals.
- Separate compliance vs. conservation with farmer engagements.
- Collaboration and buy-in amongst multiple local, state, and federal agencies.
- Piggy-back onto existing outreach and social media accounts to support general efforts.
- Specific C3AP objectives or initiatives should be based on previously identified focus areas found in existing plans.
- One-on-one engagements with farmers in the agricultural community and with individual municipalities is absolutely critical for long-term success.
- Long-term funding for “boots-on-the-ground” engagements/assessments and BMP implementation.
- Organize and launch Action Teams during last quarter of 2021 to detail game plans and coordinate efforts.

**Challenges to Implementation**

It is reasonable and prudent to expect that the C3AP will face challenges along the way. How easily these challenges are overcome will factor into how successful the C3AP is in the end. Some challenges identified by the C3AP team include:
INITIATIVES

Summary

The C3AP includes actions and goals to guide the county’s clean water efforts for the next several years. These are included in the Planning and Progress Templates and the State Programmatic Recommendations. The central coordinating and driving effort for all actions is Priority Initiative 1 (Catchment Targeting Initiative). This initiative is a technically-driven and engagement-heavy set of actions intended to define the details and framework of discrete areas (catchments) from which all action teams can implement individual initiative actions.

BMP implementation targets are based on high level assumptions and limited data (CAST data was used to define total available acres with desktop analyses conducted to establish assumptions of current implementation rates). Long-term approach is governed by moving one catchment to the next to build an inventory and foster opportunities. However, if opportunities arise outside of the catchment targeting processes, those opportunities will be pursued. For ease of review, the Priority Initiatives and Action Items they include are summarized below.

Priority Initiative 1: Catchment Targeting Initiative

- Action 1.1 Catchment Assessments and Prioritization
- Action 1.2 Conservation Opportunities
  - Farmland Conservation – 4,000 total acres
  - Forest Conservation – 300 total acres
  - Wetland Conservation – 20 total acres
- Action 1.3 Low Volume/Dirt & Gravel Road Opportunities
  - Driving Surface + Raising the Roadbed – 2,000 new linear feet

Priority Initiative 2: Agriculture

- Action 2.1 Plain sect farmers outreach and engagement
- Action 2.2 General ag-focused education and outreach
● Action 2.3 Catchment Targeting Initiative
● Action 2.4 Focused Ag BMP Implementation
  ○ Soil Conservation and WQ Plans – 26,210 total acres
  ○ Nutrient Management/Core Nitrogen – 12,000 total acres
  ○ Nutrient Management/Core Phosphorus – 8,000 total acres
  ○ Barnyard Runoff Controls – 20 new acres
  ○ Prescribed Grazing – 1,350 total acres
  ○ Manure Storage Facilities – 11,925 new Animal Units (AUs)
  ○ Precision Feeding – 4,000 Dairy Cow Animal Units (AUs)
● Action 2.5 Mushroom Farms Conservation
● Action 2.6 BMP Reporting Reconciliation
● Action 2.7 Horse Farms Conservation
  ○ Horse Pasture Management – 1,450 total acres
● Action 2.8 Road run-off to farms
● Action 2.9 Farmer’s Only Roundtable
● Action 2.10 Soil Health BMP implementation
  ○ High Residue Tillage Management – 11,000 total acres/year
  ○ Conservation Tillage Management – 8,000 total acres/year
  ○ Traditional Cover Crops – 6,000 total acres/year
  ○ Cover Crops with Fall Nutrients – 12,500 total acres/year
  ○ Commodity Cover Crops – 300 total acres/year
● Action 2.11 Expanded Nutrient Management
  ○ Nitrogen Rate – 5,000 acres
  ○ Nitrogen Placement – 4,000 acres
  ○ Nitrogen Timing – 4,000 acres
  ○ Phosphorus Rate – 5,000 acres
  ○ Phosphorus Placement – 4,000 acres
  ○ Phosphorus Timing – 4,000 acres
● Action 2.12 Manure Transport
  ○ Manure Transport out of Chester County – 1,000 dry tons/year

Priority Initiative 3: Riparian Buffers and Streams
● Action 3.1 Buffer Opportunities and Targeting Tools
● Action 3.2 Ag Riparian Zones
  ○ Forest Buffer – 300 new acres
  ○ Forest Buffer with exclusion fencing – 300 new acres
  ○ Narrow Forest Buffer with exclusion fencing – 200 new acres
  ○ Grass Buffer – 200 new acres
  ○ Grass Buffer with exclusion fencing – 110 new acres
  ○ Narrow Grass Buffer with exclusion fencing – 80 new acres
● Action 3.3 Urban/Developed Areas Riparian Zones
  ○ MS4 Riparian Forest Buffers – 20 new acres
  ○ Non-MS4 Forest Buffers – 30 new acres
● Action 3.4 Buffer Bonus Program
• Action 3.5 Focused Stream Corridor BMP Implementation
  ○ Urban Stream Restoration – 12,000 new linear feet
  ○ Non-urban stream restoration – 22,430 new linear feet
  ○ Wetland Creation – 15 new acres
  ○ Wetland Restoration – 30 new acres

Priority Initiative 4: Municipal
• Action 4.1 Basin Retrofits Pilot Project
• Action 4.2 MS4 Compliance Assistance
  ○ Advanced IDD&E Control – 3,000 acres treated
• Action 4.3 MS4 Circuit Rider
• Action 4.4 Existing BMPs Needs
• Action 4.5 Catchment Targeting Initiative
• Action 4.6 BMP Reporting Reconciliation
• Action 4.7 Existing Plans Alignment
• Action 4.8 PennDOT PRP Reductions
• Action 4.9 Joint PRP Projects
• Action 4.10 Focused Stormwater BMP Implementation
  ○ Rate Reduction SW Performance Standards – 3,000 new acres treated
  ○ Treatment SW Performance Standards – 89 new acres treated
  ○ Wet Ponds and Wetlands – 50 new acres treated
  ○ Infiltration Practices – 64 new acres treated
  ○ Bioretention – 58 new acres treated
  ○ Bioswale – 25 new acres treated
  ○ Vegetated Open Channels – 30 new acres treated
  ○ Filtering Practices – 25 new acres treated
  ○ Impervious Surface Reduction – 4 acres
• Action 4.11 Urban Landscape
  ○ Conservation Landscaping – 100 total acres
  ○ Urban Forest Planting – 20 new acres
  ○ MS4 Tree Canopy – 10 new acres
  ○ Urban Nutrient Management – 2,000 acres
• Action 4.12 Septic Systems
  ○ Conv. Septic Denitrification – 3,000 systems
  ○ Septic System Pumping – 6,000 systems

Priority Initiative 5: Data Management
• Action 5.1 Centralized GIS-based database/platform and targeting tool
• Action 5.2 Reporting QA/QC
• Action 5.3 Catchment Targeting Initiative and BMP Reconciliation data
**Programmatic/Policy Recommendations**

Chester County stakeholders identified a set of initial actions necessary to reduce policy and programmatic hurdles for implementation of certain BMPs or supporting activities identified in the CAP:

- **Action 1.1 Expand definition and specific approaches for cover crops**
  - Create a cover crops classification that allows the application of fall nutrients and is harvested in the spring
- **Action 1.2 Cover crop incentive program**
  - Dedicated fund that counties (or farmers) can apply to or tap into when adopting cover crops
- **Action 1.3 Separate and dedicated funding assistance program for ag community engagements**
  - Dedicated funding mechanism for engagement activities (personnel, equipment, etc.)
- **Action 1.4 Transfer of NRCS generated Soil Conservation Plans into local Practice Keeper platform**
- **Action 1.5 Definition for Mushroom composting**
  - Create a separate definition (or a sub-category of existing manure composting definitions) specific to mushroom composting.
- **Action 1.6 BMP Reconciliation parameters**
  - Establish a list of the minimum parameters and attributes that should be noted when underreported Ch. 102/land development BMPs are captured.
  - Establish a reporting mechanism(s) for captured Ch. 102/land development BMPs.
- **Action 1.7 Horse pasture nutrient reductions**
- **Action 1.8 Accelerated permitting for plan identified projects of regional importance**
- **Action 1.9 Buffers sub-categories**
  - Creation or establishment of additional set of codes for buffers outside the riparian corridor that can be incorporated into Soil Conservation plans
- **Action 1.10 Fertilizer Legislation**

**Priority Initiatives Detail**

The C3AP Priority Initiatives are centered around a set of considerations, focus areas, and actions intended to directly and indirectly support the implementation of BMPs across the Chesapeake Bay drainage areas of the county. The C3AP includes a Catchment Management Database (CMD). The CMD provides the baseline prioritization information and data capture warehouse tied to catchment targeting efforts.

Development of the C3AP was guided by a Steering Committee with administrative support from the Management Team. An organizational chart was developed reflecting relationships between the Steering Committee, Management Team, stakeholders, proposed Action Teams, and others.
PRIORITY INITIATIVE 1: Catchment Targeting Initiative

- **Description**
  - A technically driven effort was identified to balance BMP reconciliation activities and the identification of conservation needs and BMP implementation opportunities. This team will guide the step-by-step activities and findings for prioritization of BMP implementation efforts. This effort forms the lynchpin and driving data for all other actions in assessed and prioritized areas.
    - The process will include three primary steps: 1) desktop analysis that also involves cross-referencing existing plans to establish a preliminary understanding of an individual catchment (including identification of potential uncaptured BMPs and opportunities for exploration); 2) “Boots-on-the-ground” field verifications and initial outreach activities to establish a game plan for catchment; and 3) one-on-one engagements and organizational activities to capture under-reported BMPs and prioritize new BMPs for implementation.
  - The Catchment Management Database (CMD) includes and outlines the preliminary rankings of catchment groups based on the USGS SPARROW mass loading and incremental loading data. A three-tiered hierarchy was established to grade groups and is a red-yellow-green light system (red is poor, yellow is fair/vulnerable, green is optimal).
  - See Planning Template for Priority Initiative 1 in the Reporting and Support Documents section for more information and details

- **Focus Areas**
  - All 59 catchment groups with the Catchment Targeting Initiative prioritizing areas of engagement and focus.
    - Additional funding provides ability to assess all catchments prior to 2025. No additional funding will require processes through 2030.

- **Actions and Proposed BMPs**
  - **Action 1.1 Catchment Assessments and Prioritization**
    - Desktop analyses followed by “boots-on-the-ground” verifications and engagements with local stakeholders by abled individuals. This approach directly supports capturing unreported BMPs as part of the BMP reconciliation process.
  - **Action 1.2 Conservation Opportunities**
    - Farmland Conservation – 4,000 total acres
      - *Land use change that simulates rate of farmland conservation based on participation in state programs and land trust activities.*
    - Forest Conservation – 300 total acres
      - *Land use change that simulates rate of forest conservation based on participation in state programs and land trust activities.*
    - Wetland Conservation – 20 total acres
      - *Conserves wetlands based on participation in state programs and land trust activities.*
  - **Action 1.3 Low Volume/Dirt & Gravel Road Opportunities**
▪ Dirt & Gravel Road Program (Driving Surf. + Roadbed) – 2,000 new linear feet
  ● Reduce the amount of sediment runoff from dirt and gravel roads through the use of driving surface aggregates (DSA) such as durable and erosion resistant road surface and raising road elevation to restore natural drainage patterns.

▪ Implementation Considerations
  o Challenges
    ▪ Capacity and conflicting requirements for data management, data entry, and related considerations;
    ▪ Tight timeline for significant BMP implementation; and
    ▪ Resources/funding for timely and successful Catchment Targeting Initiative efforts.
      ● Current resources and funding would require a timeframe from 2022-2030 to complete the analyses of all catchments.
      ● Additional funding of $147,500 would result in completion of all catchment analyses prior to 2025.
  o Opportunities for Success
    ▪ Ensuring initial prioritization efforts align with goals and objectives of previous and existing plans (e.g. Comp Plan);
    ▪ Capturing underreported BMPs while simultaneously realizing implementation of new BMPs;
    ▪ Partnering with neighboring counties to align and complement efforts via regional grant applications;
    ▪ Strong local ag preservation board and entities;
    ▪ Long-term funding for “boots-on-the-ground” engagements/assessments and BMP implementation; and
    ▪ Cross team coordination.

PRIORITY INITIATIVE 2: Agriculture

▪ Description
  o Agriculture is a significant land use in Chester County in the Chesapeake Bay drainage areas. Amongst all land uses, agriculture covers approximately 43% of these land uses. Agriculture is an important component to the economic engine of the region. A primary objective of the actions of this initiative is to separate compliance from stewardship; and to focus on promoting stewardship within the farming community.
  o See Planning Template for Priority Initiative 2 in the Reporting and Support Documents section for additional information and details.

▪ Focus Areas and Key Considerations
  o All watersheds/catchments that include agricultural land uses
  o Focused BMP Implementation
    ▪ Broad identified BMP targets across the entire Chesapeake Bay watershed in Chester County.
BMP implementation goals were developed by identifying reasonable targets through cross-referencing maximum acres (or area) BMPs can be applied to, current BMP implementation trends, and a high-level reconciliation of approximated BMPs implemented against reported BMPs.

Approximately 2,700 acres identified as dedicated towards “general pasture” where prescribed grazing practices have/can be implemented through extrapolation of data from multiple sources (see Horse Farms Conservation for more information). This initiative contemplates 50% implementation rate of prescribed grazing BMPs.

- There is a significant plain sect community presence in the Chesapeake Bay Watershed (CBWS) areas of the county.
- Mushroom Farms Conservation
  - The mushroom industry represents a significant sub-sector of the agricultural community in Chester County.
- Horse Farms Conservation
  - A significant portion of pasture-related land uses in Chester County are dedicated to the equestrian sub-sector of the agricultural community.
  - Extrapolation of data and information cross-referencing CAST data, the most recent USDA farm census, and the Delaware Valley University *Economic Impact of Equine on Southeastern Pennsylvania* report (October 2017) revealed an approximate 2,900 acres dedicated to horse pasture in the CBWS of Chester County. This initiative contemplates a 50% implementation rate of horse pasture management BMPs.

- **Actions and Proposed BMPs**
  - **Action 2.1 Plain sect farmers outreach and engagement**
    - Set of specific tasks directly tied to the plain sect community including engagements, “Bay fisherman to Amish Country”, and water resources training.
  - **Action 2.2 General ag-focused education and outreach**
    - Engagements and supporting materials driven by promoting conservation in lieu of compliance.
  - **Action 2.3 Catchment Targeting Initiative for ag-specific actions**
  - **Action 2.4 Focused Ag BMP implementation**
    - Soil Conservation and WQ Plans – 26,210 total acres
      - *Plans are a combination of agronomic, management and engineered practices that protect and improve soil productivity and water quality, and to prevent deterioration of natural resources on all or part of a farm. Plans must meet technical standards.*
    - Nutrient Management Core Nitrogen – 12,000 total acres
      - *Applications of nitrogen are made in accordance with certain elements as applicable (e.g. land-grant university*
recommendations, spreader calibration, manure analysis, etc.) and technical standards

- Nutrient Management Core Phosphorus – 8,000 total acres
  - Applications of phosphorus are made in accordance with certain elements as applicable (e.g. land-grant university recommendations, spreader calibration, manure analysis, etc.) and technical standards

- Barnyard Runoff Controls/Loafing Lot Management – 20 new acres
  - This includes practices such as roof runoff control, stabilization of heavy use areas, diversion of clean water from entering the barnyard and control of runoff from barnyard areas.

- Prescribed Grazing – 1,350 total acres
  - A range of pasture management and grazing techniques to improve the quality and quantity of the forages grown on pastures and reduce the impact of animal travel lanes, animal concentration areas or other degraded areas. PG can be applied to pastures intersected by streams or upland pastures outside of the degraded stream corridor (35 feet width from top of bank). Pastures under the PG systems need to have a vegetative cover of 60% or greater.

- Animal Waste Management Systems – 11,925 new animal units
  - Any structure designed for collection, transfer and storage of manures and associated wastes generated from the confined portion of animal operations and complies with NRCS 313 (Waste Storage Facility) or NRCS 359 (Waste Treatment Lagoon) practice standards.

- Dairy Precision Feeding – 4,000 animal units
  - Dairy Precision Feeding reduces the quantity of phosphorus and nitrogen fed to livestock by formulating diets within 110% of Nutritional Research Council recommended level in order to minimize the excretion of nutrients without negatively affecting milk production.

- Action 2.5 Mushroom Farms Conservation
  - Continued CCD staff person providing support to mushroom farms

- Action 2.6 BMP Reporting Reconciliation (ag)

- Action 2.7 Horse Farms Conservation
  - Horse Pasture Management – 1,450 total acres
    - Maintaining a 50% pasture cover with managed species and managing high traffic areas.

- Action 2.8 Road run-off to farms
  - Foster cooperative arena between local/state agencies and local farmers that have experienced damage to farms.

- Action 2.9 Farmers only roundtable

- Action 2.10 Soil Health BMP implementation
▪ High Residue Tillage – 11,000 total acres/year
  ● A conservation tillage routine that involves the planting, growing and harvesting of crops with minimal disturbance to the soil in an effort to maintain at least 60 percent crop residue coverage immediately after planting each crop.

▪ Conservation Tillage – 8,000 total acres/year
  ● A conservation tillage routine that involves the planting, growing and harvesting of crops with minimal disturbance to the soil in an effort to maintain 30 to 59 percent crop residue coverage immediately after planting each crop.

▪ Traditional Cover Crops – 6,000 total acres/year
  ● A short-term crop grown after the main cropping season to reduce nutrient losses to ground and surface water by sequestering nutrients. This type of cover crop may not receive nutrients in the fall and may not be harvested in the spring.

▪ Cover Crops with Fall Nutrients – 12,500 total acres/year
  ● A short-term crop grown after the main cropping season to reduce nutrient losses to ground and surface water by sequestering nutrients. This type of cover crop is planted upon cropland where manure is applied following the harvest of a summer crop and prior to cover crop planting. The crop may not be harvested in the spring.

▪ Commodity Cover Crops – 300 total acres/year
  ● A winter cereal crop planted for harvest in the spring which does not receive nutrient applications in the fall. Any winter cereal crop which did receive applications in the fall is not eligible for nutrient reductions.

 o Action 2.11 Expanded Nutrient Management
   ▪ Nutrient Management Placement Nitrogen – 4,000 acres
     ● Applications of nitrogen are made in accordance to all elements of the Nitrogen Core practice and an additional element from a list of options (e.g. Applications of inorganic nitrogen are injected into the subsurface or incorporated into the soil).

   ▪ Nutrient Management Timing Nitrogen – 4,000 acres
     ● Applications of nitrogen are made in accordance to all elements of the Nitrogen Core practice, and are split across the growing season into multiple applications

   ▪ Nutrient Management Rate Nitrogen – 5,000 acres
     ● Applications of nitrogen are made in accordance to all elements of the Nitrogen Core practice and an additional element from a list of options (e.g. Nitrogen applications are made using variable rate goals)

   ▪ Nutrient Management Placement Phosphorus – 4,000 acres
• Applications of phosphorus are made in accordance to all elements of the Phosphorus Core practice and an additional element from a list of options (e.g. Applications of inorganic phosphorus are injected into the subsurface or incorporated into the soil)

  ▪ Nutrient Management Timing Phosphorus – 4,000 acres
    • Applications of phosphorus are made in accordance to all elements of the Phosphorus Core practice, and are split across the growing season into multiple applications
  ▪ Nutrient Management Rate Phosphorus – 5,000 acres
    • Applications of phosphorus are made in accordance to all elements of the Phosphorus Core practice and an additional element from a list of options (e.g. Phosphorus applications are made using variable rate goals).

○ Action 2.12 Manure Transport
  ▪ Manure Transport out of Chester County – 1,000 dry tons/year
    • Transport of excess manure in or out of a county. Manure may be of any type—poultry, dairy, or any of the animal categories. Transport should only be reported for county-to-county transport.

• Implementation Considerations
  ○ Challenges
    • Funding for BMP implementation, “boots-on-the-ground” engagements and assessments, and limited resources in general (experienced technical staff);
    • Long-term verification processes;
    • Capacity for data management, data entry, and related considerations;
    • Tight timeline for significant BMP implementation;
    • Resources for timely and successful Catchment Targeting Initiative efforts;
    • Programmatic hurdles, timelines, or conflicting requirements; and
    • Farmer resistance/buy-in and commitments.
  ○ Opportunities for Success
    • Engagement/education to be achieved via one-on-one engagements by balancing farmers’ needs and wants with fitting into a recognized BMP for nutrient and sediment reductions;
    • Capturing underreported BMPs while simultaneously realizing implementation of new BMPs;
    • Partnering with neighboring counties (e.g. Lancaster County for the Octoraro) to align and complement efforts;
    • Expansion of ag-related workforce and increased presence of TSPs to accelerate implementation efforts;
    • Balancing increased human resources with increased financial resources; and
Finding a lead person that can appropriately engage individual farmers and simultaneously has extensive farming experience.

**PRIORITY INITIATIVE 3: Buffers and Streams**

- **Description**
  - Forested, stream corridors and natural areas represent roughly 32% of the land uses within Chester County. Protection, restoration, and improvements of streams and riparian areas were identified early on in the C3AP development process as a primary focus. This team will focus on BMP implementation in these areas.
  - See Planning Template for Priority Initiative 3 in the Reporting and Support Documents section for additional information and details.

- **Focus Areas and Key Considerations**
  - All watersheds/catchments with prioritized areas driven by the Catchment Targeting Initiative.
  - Focused BMP Implementation
    - Broad identified BMP targets across the entire Chesapeake Bay watershed in Chester County.
    - BMP implementation goals were developed by identifying reasonable targets through cross-referencing maximum acres (or area) BMPs can be applied to, current BMP implementation trends, and a high-level reconciliation of approximated BMPs implemented against reported BMPs.
    - Approximately 73,000 linear feet (18.85 miles) of streams have been identified in the CBWS areas of the county. Targets tied to riparian buffers are based on successful implementation in 50% of these available areas (assumed 50% forested areas in riparian corridors at this time).

- **Actions and Proposed BMPs**
  - Action 3.1 Buffer Opportunities and Targeting Tool(s)
    -Potentially extend tools developed in Lancaster County by the Chesapeake Conservancy in Chester County (Octorora watershed already in existing tool).
  - Action 3.2 Ag Zones (including non-riparian and riparian areas)
    - Forest Buffers – 300 new acres
      - Linear wooded areas on or adjacent to crop and hay land uses that help filter nutrients, sediments and other pollutants from runoff as well as remove nutrients from groundwater. The recommended buffer width is 100 feet, with a 35 feet minimum width required.
    - Forest buffers with exclusion fencing – 300 new acres
      - Linear wooded areas on or adjacent to pasture land uses with fencing installed to prevent livestock from grazing and trampling the buffer or entering the stream and that helps filter nutrients, sediments and other pollutants from runoff as well as remove...
nutrients from groundwater. The recommended buffer width is 100 feet, with a 35 feet minimum width required.

- Narrow forest buffers with exclusion fencing – 200 new acres
  - Linear wooded areas on or adjacent to pasture land uses with fencing installed to prevent livestock from grazing and trampling the buffer or entering the stream and that helps filter nutrients, sediments and other pollutants from runoff as well as remove nutrients from groundwater. The recommended buffer width is at least 10 feet wide and a maximum width of 35 feet.

- Grass Buffers – 200 new acres
  - Linear strips of grass or other non-woody vegetation on or adjacent to crop and hay land uses maintained to help filter nutrients, sediment, and other pollutants from runoff. The recommended buffer width for buffers is 100 feet, with a 35 feet minimum width required.

- Grass Buffers with exclusion fencing – 110 new acres
  - Linear strips of grass or other non-woody vegetation on or adjacent to pasture land uses with fencing installed to prevent livestock from grazing and trampling the buffer or entering the stream and is maintained to help filter nutrients, sediment and other pollutants from runoff. The recommended buffer width for buffers is 100 feet, with a 35 feet minimum width required.

- Narrow grass buffers with exclusion fencing – 80 new acres
  - Linear strips of grass or other non-woody vegetation on or adjacent to pasture land uses with fencing installed to prevent livestock from grazing and trampling the buffer or entering the stream and is maintained to help filter nutrients, sediment and other pollutants from runoff. The recommended buffer width is at least 10 feet wide and a maximum 35 feet width required.

- Action 3.3 Urban/Developed Riparian Areas
  - Urban forest buffers – 50 new acres (20 acres in MS4 areas)
    - Linear wooded areas within MS4 turf areas and non-MS4 urban turf areas that help filter nutrients, sediments, and other pollutants from runoff to streams as well as remove nutrients from groundwater. The recommended buffer width is 100 feet, with a 35 feet minimum width required.

- Action 3.4 “Buffer Bonus” Program
  - Expand or mimic similar programs that incentivize implementation of buffers in conjunction with other programs.

- Action 3.5 Focused Stream Corridor BMP Implementation
  - Urban stream restoration – 12,000 new linear feet
    - Refers to any Natural Channel Design (NCD), Regenerative Stream Channel (RSC), Legacy Sediment Removal (LSR), or other restoration project in an urban/suburban environment that meets.
the qualifying conditions for credits, including environmental limitations and stream functional improvements.

- Non-urban stream restoration – 22,430 new linear feet
  - Refers to any Natural Channel Design (NCD), Regenerative Stream Channel (RSC), Legacy Sediment Removal (LSR), or other restoration project in non-urban/suburban environments that meets the qualifying conditions for credits, including environmental limitations and stream functional improvements.

- Wetland restoration – 30 new acres
  - The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former wetland.

- Wetland creation – 15 new acres
  - Establish or create wetlands in a floodplain or other areas by manipulation of the physical, chemical, or biological characteristics to develop a wetland where one did not previously exist.

- Implementation Considerations
  - Challenges
    - Funding for BMP implementation, “boots-on-the-ground” engagements and assessments, and limited resources in general;
    - Long-term verification processes;
    - Tight timeline for significant BMP implementation;
    - Programmatic hurdles, timelines, or conflicting requirements; and
    - Landowner/farmer resistance, buy-in, and commitments.
  - Opportunities for Success
    - Engaging and partnering with existing groups and entities established in the county (e.g. OWA, Stroud, etc.);
    - Capturing underreported BMPs while simultaneously realizing implementation of new BMPs;
    - Partnering with neighboring counties (e.g. Lancaster County for the Octorara) to align and complement efforts;
    - Building upon previously successful stream corridor restoration efforts; and
    - Identifying and fostering regional opportunities that provide additional benefits (e.g. MS4 PRP reductions, flood mitigation, open space, etc.).

**PRIORITY INITIATIVE 4: Municipal**

- Description
  - While forested/natural and agriculture land uses comprise the majority of the land uses within the Chesapeake Bay drainage areas of Chester County; there are pockets of developed areas (commercial, residential, etc.) equating to approximately 25% of overall land uses, including regulated MS4 areas.
Additionally, this team will serve as point for engagements with local municipalities during implementation and Catchment Targeting efforts.

- The proposed MS4 Circuit Rider is a critical element for the BMP reconciliation (capture of under-reported BMPs) and long-term verification processes.
- See Planning Template for Priority Initiative 4 in the Reporting and Support Documents section for more information and details.

- **Focus Areas and Key Considerations**
  - All watersheds/catchments with prioritized areas driven by the Catchment Targeting Initiative.
  - Focused BMP Implementation
    - Broad identified BMP targets across the entire Chesapeake Bay watershed in Chester County.
    - BMP implementation goals were developed by identifying reasonable targets through cross-referencing maximum acres (or area) BMPs can be applied to, current BMP implementation trends, and a high-level reconciliation of approximated BMPs implemented against reported BMPs.
    - The current perception is there is a significant number of under-reported urban/developed stormwater BMPs. In turn, BMP reconciliation will be an important activity under this initiative.
  - Collaboration and assistance for MS4 municipalities is necessary for long-term success and PRP obligations in the next permit cycle.

- **Actions and Proposed BMPs**
  - **Action 4.1 Basin Retrofits Pilot Project**
    - Build basin retrofits program that can be mimicked across the county.
  - **Action 4.2 MS4 Compliance Assistance**
    - Provide assistance based on needs for compliance activities.
  - **Action 4.3 MS4 Circuit Rider**
    - Primarily focused on PCSM BMPs inventory generation and management.
    - Critical personnel for BMP reconciliation and long-term verification processes.
  - **Action 4.4 Existing BMP Needs**
    - Assumed long-term practices (e.g. maintenance) will require attention after building complete PCSM BMP inventory
  - **Action 4.5 Catchment Targeting Initiative (for developed areas)**
  - **Action 4.6 BMP Reporting Reconciliation**
  - **Action 4.7 Existing Plans alignment**
    - Ensure efforts and actions do not conflict with other plans and efforts (e.g. Act 167 plan).
  - **Action 4.8 PennDOT PRP reductions**
    - Foster collaborative arena for MS4 municipalities and PennDOT with the intent to identify and assist with BMP implementation providing reductions for multiple entities including PennDOT.
  - **Action 4.9 Joint PRP projects**
Communicate regional opportunities to MS4 municipalities that may provide reductions to multiple entities.

- Action 4.10 Stormwater BMP implementation
  - Runoff Reduction Performance Standards – 3,000 new acres treated
    - The total post-development runoff volume that is reduced through canopy interception, soil amendments, evaporation, rainfall harvesting, engineered infiltration, extended filtration or evapotranspiration.
  - Stormwater Treatment Performance Standards – 89 new acres treated
    - Total post-development runoff volume that is reduced through a permanent pool, constructed wetlands or sand filters have less runoff reduction capability, and their removal rate is lower than runoff reduction.
  - Wet Ponds and Wetlands – 50 new acres treated
    - A stormwater facility constructed through filling and/or excavation that provides both permanent and temporary storage of stormwater runoff. It has an outlet structure that creates a permanent pool and detains and attenuates runoff inflows and promotes the settlement of pollutants.
  - Infiltration Practices – 64 new acres treated
    - A depression to form an infiltration basin where sediment is trapped and water infiltrates the soil.
  - Bioretention – 58 new acres treated
    - An excavated pit backfilled with engineered media, topsoil, mulch, and vegetation. These are planting areas installed in shallow basins in which the storm water runoff is temporarily ponded and then treated by filtering through the bed components, and through biological and biochemical reactions within the soil matrix and around the root zones of the plants.
  - Bioswale – 25 new acres treated
    - Bioswales are channels designed to concentrate and convey stormwater runoff while removing debris and pollution. Bioswales can also be beneficial in recharging groundwater. Bioswales are typically vegetated, mulched, or xeriscaped.
  - Vegetated Open Channels – 30 new acres treated
    - Open channels are practices that convey stormwater runoff and provide treatment as the water is conveyed. Runoff passes through either vegetation in the channel, subsoil matrix, and/or is infiltrated into the underlying soils.
  - Filtering Practices – 25 new acres treated
    - Practices that capture and temporarily store runoff and pass it through a filter bed of either sand or an organic media. There are various sand filter designs, such as above ground, below ground, perimeter, etc. An organic media filter uses another medium
Besides sand to enhance pollutant removal for many compounds due to the increased cation exchange capacity achieved by increasing the organic matter.

- Impervious Disconnection – 4 acres
  - Reducing the run-off from impervious surfaces to promote infiltration and percolation of storm water runoff.

  o Action 4.11 Urban Landscape
    - Conservation Landscaping – 100 total acres
      - The conversion of managed turf into actively maintained perennial meadows, using species that are native to the Chesapeake Bay region.
    - Urban Tree Canopy – 10 new acres
      - Includes trees over roads and non-road impervious surfaces such as buildings and parking lots; and includes trees within 30’-80’ of non-road impervious surfaces where the understory is assumed to be turf grass or otherwise altered through compaction, removal of surface organic material and/or fertilization.
    - Urban Forest Planting – 20 new acres
      - Urban forest planting includes any tree planting except those used to establish riparian forest buffers. Trees are planted on pervious areas, and farther than 30’-80’ from non-road impervious surfaces and forming contiguous patches greater than one-acre in extent.
    - Urban Nutrient Management – 2,000 acres
      - The proper management of major nutrients for turf and landscape plants on a property to best protect water quality.

  o Action 4.12 Septic Systems
    - Septic Denitrification – 3,000 systems
      - The septic system should employ a 50% denitrification unit for pretreatment of waste with no enhanced in situ treatment system within the soil treatment unit. This BMP should be used only for systems that employ recirculating media filters (RMF) or integrated fixed-film activated sludge (IFAS) pretreatment technologies, but do not employ enhanced in situ treatment systems.
    - Septic System Pumping – 6,000 systems
      - Septic systems achieve nutrient reductions through several types of management practices, including frequent maintenance and pumping. On average, septic tanks need to be pumped once every three to five years to maintain effectiveness.

- Implementation Considerations
  o Challenges
    - Funding for BMP implementation, “boots-on-the-ground” engagements and assessments, circuit rider, and limited resources in general (experienced technical personnel);
▪ Long-term verification processes;
▪ Tight timeline for significant BMP implementation;
▪ Programmatic hurdles, timelines, or conflicting requirements;
▪ Landowner resistance, buy-in and commitments; and
▪ Capturing underreported BMP previously implemented.

Opportunities for Success
▪ Engaging and partnering with existing groups and entities established in the county (e.g. EACs);
▪ Capturing underreported BMPs while simultaneously realizing implementation of new BMPs;
▪ Ensuring prioritization and identification actions align with goals and objectives of other plans;
▪ Partnering with neighboring counties (e.g. Lancaster County for the Octorara) to align and complement efforts; and
▪ Identifying and fostering regional opportunities that provide additional benefits (e.g. MS4 PRP reductions, flood mitigation, open space, etc.).

PRIORITY INITIATIVE 5: Data Management
● Description
  o Tracking and capture of relevant information and data is critical to ensure long-term verification processes are conducted in a timely manner and BMP reductions across sectors are appropriately credited to the county.
  o See Planning Template for Priority Initiative 5 in the Reporting and Support Documents section for more information and details.
● Focus Areas and Key Considerations
  o Primary focus is warehousing, management, and interfaces of collected data and information for future decision points and reporting.
● Actions
  ○ Action 5.1 Centralized data platform/warehouse
    ▪ The master Catchment Management Database (CMD) and information/data captured as a result of the Catchment Targeting Initiative to be housed in a central platform.
    ▪ Central platform to be based on existing tools developed by the Chesapeake Conservancy.
    ▪ Long-term monitoring game plan to measure progress and success should be developed in conjunction with platform development.
  ○ Action 5.2 Reporting QA/QC
    ▪ Established flowchart for BMP capture and reporting
  ○ Action 5.3 Catchment Targeting Initiative and BMP Reconciliation
    ▪ Ensure captured data and information from Catchment Targeting efforts are displayed appropriately.
● Implementation Considerations
  ○ Challenges
▪ Funding for GIS related hardware and software that will result in more efficient data capture and entry; and
▪ Conflicting requirements for data management, data entry, and related considerations.
  ○ Opportunities for Success
  ▪ Leveraging existing County GIS resources, knowledge, and capabilities to appropriately capture and display data and information; and
  ▪ Building upon the water quality model under development in the Octorara watershed.

REPORTING AND SUPPORT DOCUMENTS

Reporting and support documents included in the C3AP are:
  ● Proposed BMPs for Implementation (“BMP Implementation Scenario”)
    ○ Outlines specific BMPs and total quantities proposed for implementation and delineated between the agricultural and non-agricultural (developed/other) sectors.
  ● Initiatives Tracking Document(s) (PADEP Planning and Progress Template)
    ○ Summarizes Priority Initiatives in a tracking spreadsheet
    ○ Tracking documents include:
      ▪ Catchment Targeting
      ▪ Agriculture
      ▪ Buffers and Streams
      ▪ Municipal
      ▪ Data Management
  ● Programmatic Recommendations Document (PADEP Programmatic Template)
    ○ Summarizes programmatic and/or policy change recommendations that would reduce challenges for successful CAP implementation
This page is intentionally left blank.
<table>
<thead>
<tr>
<th>Best Management Practice</th>
<th>Amount</th>
<th>Units of Measure</th>
<th>Percent of Total Available Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Agriculture Compliance</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Soil Conservation and Water Quality Plans</td>
<td>26,210</td>
<td>Total Acres</td>
<td>~75%</td>
</tr>
<tr>
<td>Nutrient Management Core N</td>
<td>12,000</td>
<td>Total Acres</td>
<td>~30%</td>
</tr>
<tr>
<td>Nutrient Management Core P</td>
<td>8,000</td>
<td>Total Acres</td>
<td>~30%</td>
</tr>
<tr>
<td>Barnyard Runoff Control</td>
<td>20</td>
<td>New Acres</td>
<td>~75%</td>
</tr>
<tr>
<td><strong>Soil Health</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tillage Management-High Residue</td>
<td>11,000</td>
<td>Acres/Year</td>
<td>46%</td>
</tr>
<tr>
<td>Tillage Management-Conservation</td>
<td>8,000</td>
<td>Acres/Year</td>
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</tr>
<tr>
<td>Cover Crop Traditional</td>
<td>6,000</td>
<td>Acres/Year</td>
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</tr>
<tr>
<td>Cover Crop Traditional with Fall Nutrients</td>
<td>12,500</td>
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<tr>
<td>Commodity Cover Crops</td>
<td>300</td>
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<tr>
<td>Prescribed Grazing</td>
<td>1,350</td>
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<tr>
<td>Horse Pasture Management</td>
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<td>Total Acres</td>
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<td><strong>Expanded Nutrient Management</strong></td>
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</tr>
<tr>
<td>Nutrient Management N Rate</td>
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<td>Acres</td>
<td>~12%</td>
</tr>
<tr>
<td>Nutrient Management P Rate</td>
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<td>~12%</td>
</tr>
<tr>
<td>Nutrient Management N Placement</td>
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<td>Acres</td>
<td>~10%</td>
</tr>
<tr>
<td>Nutrient Management P Placement</td>
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<td>Acres</td>
<td>~10%</td>
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<tr>
<td>Nutrient Management N Timing</td>
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<td>Acres</td>
<td>~10%</td>
</tr>
<tr>
<td>Nutrient Management P Timing</td>
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<td>Acres</td>
<td>~10%</td>
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<tr>
<td><strong>Manure Storage Facilities</strong></td>
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<tr>
<td>Manure Storage Facilities</td>
<td>11,925</td>
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<tr>
<td><strong>Dairy Precision Feeding</strong></td>
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<td>Dairy Cow AU’s</td>
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<td><strong>Integrated System for Elimination of Excess</strong></td>
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<td>Manure Transport out of Chester County</td>
<td>1,000</td>
<td>Dry Tons/Year</td>
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<td><strong>Agriculture Riparian Zone</strong></td>
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<tr>
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<td>300</td>
<td>New Acres</td>
<td>N/A</td>
</tr>
<tr>
<td>Forest Buffer-Streamside with Exclusion Fencing</td>
<td>300</td>
<td>New Acres</td>
<td>~21%</td>
</tr>
<tr>
<td>Forest Buffer-Narrow with Exclusion Fencing</td>
<td>200</td>
<td>New Acres</td>
<td>~15%</td>
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<tr>
<td>Grass Buffer</td>
<td>200</td>
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</tr>
<tr>
<td>Grass Buffer-Streamside with Exclusion Fencing</td>
<td>110</td>
<td>New Acres</td>
<td>~8%</td>
</tr>
<tr>
<td>Grass Buffer-Narrow with Exclusion Fencing</td>
<td>80</td>
<td>New Acres</td>
<td>~6%</td>
</tr>
</tbody>
</table>

The agriculture BMP implementation rates provided above are based on a combination of the state recommendations identified in the Chesapeake Bay Phase 3 Watershed Implementation Plan (WIP), engagements with local TSPs and agencies, and the Chester County Steering Committee.
# Chester County Stormwater Best Management Practices (BMPs)
## Proposed Implementation Rates

<table>
<thead>
<tr>
<th>Best Management Practice</th>
<th>Amount</th>
<th>Units of Measure</th>
<th>Percent of Total Available Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Urban/Developed Areas Riparian Zone</strong></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>MS4 Riparian Forest Buffers</td>
<td>20</td>
<td>New Acres</td>
<td>~2%</td>
</tr>
<tr>
<td>Non-MS4 Forest Buffers</td>
<td>30</td>
<td>New Acres</td>
<td>~2%</td>
</tr>
<tr>
<td><strong>Woods and Pollinator Habitat</strong></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Conservation Landscaping</td>
<td>100</td>
<td>New Acres</td>
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<td>Urban Forest Planting</td>
<td>20</td>
<td>New Acres</td>
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<tr>
<td><strong>Urban Tree Canopy</strong></td>
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<tr>
<td>MS4 Urban Tree Canopy</td>
<td>10</td>
<td>New Acres</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Forest, Farm, and Natural Areas Conservation</strong></td>
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<td></td>
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</tr>
<tr>
<td>Farmland Conservation</td>
<td>4,000</td>
<td>Total Acres</td>
<td>N/A</td>
</tr>
<tr>
<td>Forest Conservation</td>
<td>300</td>
<td>Total Acres</td>
<td>N/A</td>
</tr>
<tr>
<td>Wetland Conservation</td>
<td>20</td>
<td>Total Acres</td>
<td>N/A</td>
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<tr>
<td><strong>Stream and Wetland Restoration</strong></td>
<td></td>
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<tr>
<td>Urban Stream Restoration</td>
<td>12,000</td>
<td>New Linear Feet</td>
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</tr>
<tr>
<td>Non-urban Stream Restoration</td>
<td>22,430</td>
<td>New Linear Feet</td>
<td>N/A</td>
</tr>
<tr>
<td>Wetland Creation</td>
<td>15</td>
<td>New Acres</td>
<td>N/A</td>
</tr>
<tr>
<td>Wetland Restoration</td>
<td>30</td>
<td>New Acres</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Control Measures for Illicit Discharges</strong></td>
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<td></td>
</tr>
<tr>
<td>Advanced Grey Infrastructure IDD&amp;E Control</td>
<td>3,000</td>
<td>Acres Treated</td>
<td>1%</td>
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<tr>
<td><strong>Stormwater Control Measures</strong></td>
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</tr>
<tr>
<td>Stormwater Performance Stds - RR</td>
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<td>New Acres Treated</td>
<td>N/A</td>
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<tr>
<td>Stormwater Performance Stds - ST</td>
<td>89</td>
<td>New Acres Treated</td>
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<td>Wet Ponds and Wetlands</td>
<td>50</td>
<td>New Acres Treated</td>
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<td>Infiltration Practices</td>
<td>64</td>
<td>New Acres Treated</td>
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<td>Bioretention/raingardens</td>
<td>58</td>
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<td>Bioswales</td>
<td>25</td>
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<td>N/A</td>
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<td>Vegetated Open Channels</td>
<td>30</td>
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<td>N/A</td>
</tr>
<tr>
<td>Filtering Practices</td>
<td>25</td>
<td>New Acres Treated</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Industrial Stormwater</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Impervious Surface Reduction</td>
<td>4.00</td>
<td>Acres</td>
<td>N/A</td>
</tr>
<tr>
<td><strong>Fertilizer Legislation</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Urban Nutrient Management</td>
<td>2,000</td>
<td>Acres</td>
<td>8%</td>
</tr>
<tr>
<td><strong>Septic Systems</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conventional Septic Denitrification</td>
<td>3,000</td>
<td>Systems</td>
<td>~18%</td>
</tr>
<tr>
<td>Septic System Pumping</td>
<td>6,000</td>
<td>Systems</td>
<td>~35%</td>
</tr>
<tr>
<td><strong>Dirt &amp; Gravel Road Program</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driving Surface + Raising the Roadbed</td>
<td>2,000</td>
<td>Linear Feet</td>
<td>N/A</td>
</tr>
</tbody>
</table>

The stormwater BMP implementation rates provided above are based on a combination of the state recommendations identified in the Chesapeake Bay Phase 3 Watershed Implementation Plan (WIP), engagements with local agencies, and the Chester County Steering Committee.
### Priority Initiative 1: Catchment Targeting Initiative

<table>
<thead>
<tr>
<th>Action #</th>
<th>Description</th>
<th>Performance Target(s)</th>
<th>Responsible Party(ies) and Partnerships</th>
<th>Geographic Location</th>
<th>Expected Timeline</th>
<th>Potential Implementation Challenges or Recommendations</th>
<th>Resources Available</th>
<th>Resources Needed</th>
<th>Review Checklist Comments</th>
</tr>
</thead>
</table>
| 1.1      | Catchment Assessments and Prioritization | All 59 catchments assessed prior to 2025  
Game plan outlining “step-by-step” analysis process by end of 2021 | Chester County Conservation District (CCCD), Chester County Water Resources Authority (CCWRA), Technical Service Providers (TSPs), watershed groups, local municipalities, Environ. Advisory Committees (EACs), Ag Action Team (AT), Riparian Buffer (RB) Action Team (AT), Municipal Action Team (AT), Data Management (DM) Action Team (AT) | All areas (all catchments to be assessed) | 59 total catchments: 2021: 4, 2022: 20, 2023: 20, 2024: remaining (dependent on acquired funding)  
Timeline with no additional funding for 59 total catchments: 2021: 2-3, 2022-2030 at 6/year | Use the Catchment Management Database (CMD) as preliminary prioritization to assess individual catchments and outline conditions, needs, opportunities, etc.  
"Political" overlay with initial steps including local municipality outreach to determine willingness or receptiveness is critical  
"Boots-on-the-ground" funding and capacity for engagements, assessments, etc.  
Coordinate with other action teams for agricultural, buffer, and urban conservation opportunities and needs  
Lack of funding would result in a timeline through 2029/2030 to cover all catchments with existing resources (~6/yr)  
Efforts should result in regional projects that provide multiple benefits where | Technical Source | Financial Source | Technical Suggested Source | Financial Suggested Source | TBD |
|          |             |                        | CCCD, Octoraro Watershed Association (OWA), Stroud: Alliance for the Ches. Bay (ACB), Ches. Bay Foundation (CBF), Chesapeake Conservancy, Brandywine Conservancy, Ag Preserve. Board, local engineers/consultants, County DCIS (Dept. of Computer and Info. Services), TSPs, CCWRA | NWF, Chesapeake Bay Trust (CBT) | Centralized database platform | $2,500/ catchment (~$50,000/yr) for on-the-ground efforts, engagements etc. (TOTAL: $147,500)  
Assume assessments personnel and funding will convert to long-term verifications personnel and funding; and potentially maintenance | | | | |
### Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template

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

<table>
<thead>
<tr>
<th>Action #</th>
<th>Description</th>
<th>Performance Target(s)</th>
<th>Responsible Party(ies) and Partnerships</th>
<th>Geographic Location</th>
<th>Expected Timeline</th>
<th>Potential Implementation Challenges or Recommendations</th>
<th>Resources Available</th>
<th>Resources Needed</th>
<th>Review Checklist</th>
<th>Comments</th>
</tr>
</thead>
</table>
| 1.2      | Conservation Opportunities | Farmland Conservation – 4,000 total acres  
Forest Conservation – 300 total acres  
Wetland Conservation – 20 total acres | CCCD, Ag Preserve Board, County, local watershed groups | All areas with emphasis on prioritized catchments | On-going with inherent tie to Action 5.1 | Potentially extend Eco Invest. Partners (EIP) P3 in Cecil County (Elk and North East watersheds) into Chester County.  
Transfer of Development Rights (TDR) Programs  
Carbon credits program for private forests (provides incentives for forest conservation that also provides nutrient and sediment reductions) | Ag Preserve. Board, Cecil Land Trust, Brandywine Conservancy, local TSPs | Ag Preserve. Board | | |  
| 1.1      | | | | | | | | | |  

*accelerated permitting processes would be ideal.*

- Action is inherently tied to all other priority initiatives.
- Catchment targeting will involve a desktop analysis step followed by game plan for outreach and field verifications outlining the who, when, where, etc.
## Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template

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<thead>
<tr>
<th>Action #</th>
<th>Description</th>
<th>Performance Target(s)</th>
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<tr>
<td>1.3</td>
<td>Low Volume (LV) / Dirt &amp; Gravel Road Opportunities</td>
<td>Driving Surface + Raising the Roadbed – 2,000 new linear feet</td>
<td>CCCD, local municipalities</td>
<td>All areas</td>
<td>On-going with inherent tie to Action 5.1</td>
<td>Continue popular local program</td>
<td>CCCD</td>
<td></td>
<td></td>
<td></td>
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### 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 though 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 towards addressing the Priority Initiative.

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**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).
### Priority Initiative 2: Agriculture

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<tr>
<td>2.1</td>
<td>Plain sect farmers outreach and engagement</td>
<td>No specific target, success will be measured by implementation rates of BMPs on plain sect farms</td>
<td>Chester County Conservation District (CCCD)</td>
<td>All areas with inherent tie to prioritized catchments</td>
<td>On-going with inherent tie to Action 2.3</td>
<td>Game plan development in late 2021 to early 2022 that includes details for an Environmental Education (EE) grant application (game plan intended to detail who, what, where, etc. that forms the basis of an EE application)</td>
<td>Specific individual solely focused on plain sect community engagement and assistance (boots-on-the-ground) Organize teams (similar to PSU teams) to target 1 or 2 communities (reference BC efforts in Honeybrook area) “Bay Fisherman to Amish Country” endeavor (bring fisherman up from the Bay for Field day) Macros training via Amish schools (Octoraro Watershed Association effort) and kits Funding for outreach individual is necessary to improve probability of finding the right individual*</td>
<td>CCCD</td>
<td>EE Grant Envirothon (being used for kits)</td>
</tr>
<tr>
<td>Action #</td>
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</tr>
<tr>
<td>2.2</td>
<td>General ag-focused education and outreach</td>
<td>No specific target, success will be measured by implementation rates of BMPs across the ag sector</td>
<td>CCCD, Chester County Water Resources Authority (CCWRA), Technical Service Providers (TSPs), Penn State Extension, NRCS, watershed groups</td>
<td>All areas with emphasis provided towards prioritized catchments</td>
<td>On-going, with inherent toe to Action 2.3 Game plan in late 2021 to early 2022</td>
<td>Digital and paper support materials (comparing compliance vs. stewardship) Series of publications outlining individual BMPs (build off CCCD initial efforts) One-on-one engagements with individual farmers. Funding for outreach individual is necessary to improve probability of finding the right individual*</td>
<td>CCCD, CCWRA, Penn State Extension, TSPs, NRCS, Ag Preserve Board</td>
<td>EE Grant</td>
<td>DEP Individual with a blend of technical knowledge, experience, and ability to successfully engage the ag. community</td>
</tr>
<tr>
<td>2.3</td>
<td>Catchment Targeting Initiative</td>
<td>Metrics inherently tied to other action items (needs will be established on a catchment-to-catchment basis)</td>
<td>Ag Action Team (AT), Data Management (DM) Action Team (AT), Catchment Targeting (CT) Action Team (AT), Municipal Action Team (AT), watershed groups, local municipalities, Brandywine Conservancy, CCCD, CCWRA, Environ. Advisory Committees (EACs)</td>
<td>Prioritized catchments (TBD)</td>
<td>Late 2021 launch with inherent tie to Priority Initiative (P.I.) 1- Catchment Targeting Initiative [with funding: 4 catchments in 2021, 20 in 2022]</td>
<td>Partner with Catchment Targeting (CT) AT during catchment prioritization efforts to identify individual catchment needs, BMP probabilities, etc. specifically for the ag sector</td>
<td>Practice Keeper (PK)</td>
<td></td>
<td>See P.I. 1 for overall catchment targeting financial needs</td>
</tr>
<tr>
<td>Action</td>
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<tr>
<td>2.4</td>
<td>Focused Ag BMP implementation</td>
<td>Soil Conservation and WQ Plans – 26,210 total acres</td>
<td>CCCD, NRCS, TSPs</td>
<td>All areas with emphasis provided towards prioritized catchments</td>
<td>On-going with inherent tie to Action 2.3</td>
<td>Promote broad slate of BMP types across ag industry and based on individual farm conservation needs based on initial implementation scenario</td>
<td>REAP, CEG, EQIP, RCPP, Most Effective Basin Funding (MEBF), State Reimb. Program, PennVEST, PL566</td>
<td>Various</td>
<td>Practice Keeper (PK) entry/_mgmt at CCCD Long-term verification processes</td>
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**Green** - action has been completed or is moving forward as planned  
**Yellow** - action has encountered minor obstacles  
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<td>2.5</td>
<td>Mushroom Farms Conservation</td>
<td>Metrics inherently tied to other action items</td>
<td>CCCD, TSPs</td>
<td>All mushroom farms</td>
<td>2022-2025 (4 year cycle, via Growing Greener funding)</td>
<td>Continued specific individual at CCCD focused on mushroom industry (plans, assistance, and inspections)</td>
<td>Mushroom farm resource conserve. on staff (via GG funding), TSPs</td>
<td>Growing Greener (GG) funding for current staff</td>
<td>Resource Conserv. Focused on mushroom industry</td>
</tr>
<tr>
<td>2.6</td>
<td>BMP Reporting Reconciliation</td>
<td>Ag AT, Data Mgmt AT, Catchment Targeting AT</td>
<td>All areas with focused actions in prioritized catchments</td>
<td>Aligned with Action 2.3 activities</td>
<td>Partner with Data Management AT for reconciliation of BMP reporting numbers (primarily through catchment targeting)</td>
<td>Current perception/organization of BMP targets is a mix of uncaptured/underreported BMPs and additional BMP implementation. Reconciliation in conjunction with catchment targeting will provide a pathway to delineate (and capture) unreported BMPs and needs for additional BMPs.</td>
<td>CCCD, TSPs, NRCS, Ag. Preserv. Board, County DCS (Dept. of Computer and Info. Services) PK</td>
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<tr>
<td>2.7</td>
<td>Horse Farms Conservation</td>
<td>Horse Pasture Management – 1,450 total acres</td>
<td>CCCD, TSPs, NRCS</td>
<td>All horse farms with outreach driven by prioritized catchments</td>
<td>Coincides with Catchment Targeting Initiative and Action 2.3 (where horse farms are encountered)</td>
<td>A number of pastures may meet requirements but are not captured at this time. Individual farms may present other opportunities based on conservation needs. <strong>Current definition of horse pasture management does not provide nutrient reductions</strong>*</td>
<td>CCCD, TSPs, NRCS, PA Horse Breeders Assoc. (PHBA)</td>
<td>Breeders Fund EQIP, etc.</td>
<td>$521,739 (capital cost only - assuming full implement. required)</td>
</tr>
<tr>
<td>2.8</td>
<td>Road run-off to farms</td>
<td>Game plan early 2022</td>
<td>CCCD, local municipalities, PennDOT, TSPs, EACs</td>
<td>All areas with emphasis on prioritized catchments</td>
<td>Game plan late 2022 that determines method to capture farms and identifies and spells out partners that need to be involved and arena(s) for coordination</td>
<td>Delineate between PennDOT and local roads as distinct approaches required for each type of agency Infrastructure improvements may be required to mitigate impacts from runoff</td>
<td>Local engineers, TSPs, PennDOT, County Planning</td>
<td>Metropol. Planning Org. TIP, American Rescue Plan Act (ARCA) Local Relief Fund, PennVEST</td>
<td>DEP</td>
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<td>2.9</td>
<td>Farmer’s only Roundtable</td>
<td>Ideally minimum of five (5) local farmers</td>
<td>Active farmers located in the Chesapeake Bay Watershed (CBWS)</td>
<td></td>
<td>2022</td>
<td>Extension of previous focus activities providing an arena for farmers ONLY (no others) that report back thoughts, recommendations, etc. Provide topics/talking subjects (e.g. how to create “win-win” scenarios)</td>
<td>Local farmers</td>
<td></td>
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</tr>
<tr>
<td>2.10</td>
<td>Soil Health BMP Implementation</td>
<td>Tillage Mgmt</td>
<td>CCCD, TSPs, NRCS</td>
<td>All areas with emphasis provided towards prioritized catchments</td>
<td>Coincides with Catchment Targeting Initiative and Action 2.3</td>
<td>Future scenario adjustments based on rates of implementation realized and progress under BMP reconciliation efforts Assume increase on implementation through catchment targeting Limited definition of cover crops and what counts as a reduction* Potential gap between FSA reporting and CAST reported data Lock down and potentially expand transect survey process Funding to launch incentives for</td>
<td>CCCD, Penn State Extension, NRCS, TSPs, transect survey, Penn State AEC/farm survey</td>
<td>REAP, CEG, EQIP, RCPP, MEBF, PennVEST, PL566</td>
<td>Various</td>
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### Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template

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

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<td>2.11</td>
<td>Expanded Nutrient Management</td>
<td>NM N Rate – 5,000 acres NM N Placement – 4,000 acres NM N Timing – 4,000 acres NM P Rate – 5,000 acres NM P Placement – 4,000 acres NM P Timing – 4,000 acres</td>
<td>All areas with emphasis provided towards prioritized catchments</td>
<td>Coincides with Catchment Targeting Initiative and Action 2.3</td>
<td>Aim to increase level of organization and understanding of developed, implemented, and back-logged Soil Conservation Plans prior to tackling expanded nutrient management planning and approaches</td>
<td>CCCD, Penn State Extension, NRCS, TSPs, Penn State AEC/farm survey</td>
<td>REAP, CEG, EQIP, RCPP, MEBF, PennVEST</td>
<td>Capital Cost: ~$230,000</td>
<td>adoptions cover crops would remove barriers for certain farmers*</td>
</tr>
<tr>
<td>2.12</td>
<td>Manure Transport</td>
<td>Manure Transport out of Chester County – 1,000 D7/yr</td>
<td>Farmers, haulers, CCCD, TSPs</td>
<td>All areas</td>
<td>On-going</td>
<td>Act 38 reporting</td>
<td>TSPs, NRCS, CCCD</td>
<td>Capital Cost: ~$20,000</td>
<td></td>
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**Technical Source**

**Financial Source**

**Technical Suggested Source**

**Financial Suggested Source**

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

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**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.

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**Potential Implementation Challenges/Issues** = This field will note challenges and issues that may delay program implementation (Description).
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<tr>
<td>Priority Initiative 3: Riparian Buffers and Streams</td>
<td>See P.I. 5 (Data management) for targeting tool metrics</td>
<td>See P.I. 5 (Data management) for targeting tool metrics</td>
<td>Riparian Buffer (RB) Action Team (AT), Data Management (DM) Action Team (AT), Catchment Targeting (CT) Action Team (AT), County Planning (CCPC), Chester County Water Resources Authority (CCWRA)</td>
<td>All areas with emphasis provided towards prioritized catchments</td>
<td>On-going</td>
<td>Potentially extend Lancaster County tools (developed by Chesapeake Conservancy) into Chester County (Octoraro already included in LC tool) Assume BMP reconciliation can be achieved through targeting tool Field verification required through Catchment Targeting Initiative as efforts progress through individual catchments</td>
<td>Chesapeake Conservancy, County, CCPC, Brandywine Conservancy, Stroud, Alliance for the Chesapeake Bay (ACB), Chesapeake Bay Foundation (CBF), Technical Service Providers (TSPs), Chester County Conservation District (CCCD), Lancaster County Conservation District (LCCD), CCWRA, County DCIS (Dept. of Computer and Info. Services)</td>
<td>NFWF, Growing Greener (GG)</td>
<td>See DM AT (P.I. 5) targeting tool action item for more information</td>
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| 3.2      | Ag Riparian Zone | Forest Buffer – 300 new acres  
Forest Buffer with exclusion fencing – 300 new acres  
Forest Buffer Narrow with exclusion fencing – 200 new acres  
Grass Buffer – 200 new acres  
Grass Buffer with exclusion fencing – 110 new acres  
Grass Buffer Narrow with exclusion fencing – 80 new acres | CCCD, TSPs, NRCS, watershed groups, Brandywine Conservancy, Stroud, ACB, CBF, Environ, Advisory Committees (EACs), Oxford Reg. Planning Comm., municipalities, MWS, CCP, farmers | All areas with emphasis provided towards prioritized catchments (as catchments analyzed) | On-going with inherent tie to P.I. 1 (catchment targeting) | Farmer resistance or buy-in  
Proposed implementation numbers need reconciled as general perception is proposed BMP rates are more than available or capable  
Buffers with exclusion fencing are exclusive to riparian corridors (and applied to pasture land uses); Buffers (no exclusion fencing) are not exclusive to riparian corridors and applied to crop, hay, turfgrass, and similar land uses (can be applied to field borders and similar upland scenarios). Separate coding or definitions reflecting these conditions would be ideal.* | CCCD, NRCS, TSPs, Stroud, ACB, CBF, watershed groups, Brandywine Conservancy | NFWF, GG, DCNR, CREP, Keystone, TreeVitalize, PACD, RCPP, EQIP, Most Effective Basin Funding (MEBF), Chesapeake Bay Trust (CBT) | Capital Cost: ~$7.5 million |
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<td>3.3</td>
<td>Urban/Developed Areas Riparian Zone</td>
<td>Urban/Developed Areas Riparian Forest Buffers – 20 new acres Non-MS4 Forest Buffers – 30 new acres</td>
<td>Local municipalities, watershed groups, Brandywine Conservancy, Stroud, ACB, EACs, Oxford Reg. Planning Comm., CCCD, Octoraro Watershed Association (OWA)</td>
<td>All areas with emphasis provided towards prioritized catchments (as catchments analyzed)</td>
<td>On-going with inherent tie to P.I. 1 (catchment targeting)</td>
<td>Landowner resistance or buy-in Watershed organizations or other non-profits to assist with Keystone implementation for small projects</td>
<td>CCCD, local municipalities, Stroud, ACB, CBF, watershed groups, Brandywine Conservancy, local engineers/consultants, CCPC</td>
<td>NFWF, GG, DCNR, Keystone, TreeVitalize, CBT</td>
<td>Capital Cost: ~$200,000</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>“Buffer Bonus” Program</td>
<td>Game plan by late 2021</td>
<td>ACB, CBF, Stroud</td>
<td>All areas</td>
<td>Game plan for program development by late 2021</td>
<td>Expand or mimic existing initiatives into Chester County Complement other funding streams for implementation coinciding with other BMPs</td>
<td>ACB, CBF, Stroud, CCCD, TSPs, NRCS</td>
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### Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template

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

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<tr>
<td>3.5</td>
<td>Focused Stream Corridor BMP implementation</td>
<td>Urban Stream Restoration – 12,000 new LF Non-urban Stream Restoration – 22,430 new LF Wetland Creation – 15 new acres Wetland Restoration – 30 new acres</td>
<td>Local municipalities, TSPs, watershed groups, EACs, CCCD, developers</td>
<td>All areas with emphasis provided towards prioritized catchments (as catchments analyzed)</td>
<td>On-going with inherent tie to P.I. 1</td>
<td>Potential regional projects for PRP reductions distributed amongst multiple municipalities</td>
<td>CCCD, Trout Unlimited (TU), watershed groups, Brandywine Conservancy, local engineers/consultants, Cecil Land Trust/EIP, NFWF, GG, CBT, PennVEST, MEBF, private</td>
<td>Capital Cost: ~$13.9 million</td>
<td></td>
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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 | Review Checklist Comments
--- | --- | --- | --- | --- | --- | --- | --- | --- | ---

### Priority Initiative 4: Municipal

#### 4.1 Basin Retrofits Pilot Project
- **Description:** Chester County Conservation District (CCCD), Chester County Water Resources Authority (CCWRA)
- **Performance Target(s):** Where basin and landowner receptiveness coincide
- **Geographic Location:** Chester County
- **Expected Timeline:** Late 2021 launch
- **Potential Implementation Challenges or Recommendations:** Establish retrofits program that can be mimicked across the watershed
- **Resources Available:**
  - Local engineers/consultants
  - CCWRA
  - Chester County Parks and Preserv.
  - HDO Open Space GIS layer
- **Resources Needed:**
  - NFWF, Growing Greener (GG)
  - EPA

#### 4.2 Minimum Control Measure (MCM) 3 (IDD&E) Compliance Assistance
- **Description:** Advanced IDD&E Control – 3,000 acres treated
- **Performance Target(s):** CCWRA, local municipalities, Environmental Advisory Committees (EACs)
- **Geographic Location:** MS4 regulated areas
- **Expected Timeline:** Ongoing
- **Potential Implementation Challenges or Recommendations:** Identify needs and assistance channels for compliant MS4 programs
- **Resources Available:**
  - DEP, local engineers/consultants
  - EPA
- **Resources Needed:**
  - IDD&E public works training, mock inspections

#### 4.3 MS4 Circuit Rider
- **Description:** Circuit Rider hired/secured (one full time staff equivalent)
- **Performance Target(s):** CCWRA, Environ. Advisory Committees (EACs), local municipalities, Oxford Reg. Planning Comm.
- **Geographic Location:** MS4 muni.
- **Expected Timeline:** Ongoing once funding secured (ideally launch spring 2022)
- **Potential Implementation Challenges or Recommendations:** PSCM BMPs inventory and verification processes
- **Resources Available:**
  - Local engineers/consultants, County DGIS (Dept. of Computer and Info. Services)
  - Env. Finance Center (EFC)
- **Resources Needed:**
  - NFWF
  - Centralized database platform
  - Qualified individual that is familiar with MS4 program and Chester County
  - $75,000/yr: capture BMPs, build inventory and/or verify USGS inventory and conduct long-term verification processes
### Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template

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<tr>
<td>4.4</td>
<td>Existing BMP Needs</td>
<td>Database of implemented stormwater BMPs by 2025</td>
<td>CCCD, CCWRA, local municipalities, EACs, County DCIS, County Planning (CCPC)</td>
<td>All areas</td>
<td>Ongoing, but follows initial circuit rider and BMP reporting reconciliation efforts</td>
<td>County, CCPC, local engineers/consultants, local maintenance contractors</td>
<td>NFWF, GG</td>
<td>Inventory of individual BMP needs (maint. needed, etc.)</td>
<td>Potential HOA assistance entity</td>
<td>TBD (result of inventory and reconciliation processes)</td>
</tr>
</tbody>
</table>

<p>| 4.5 | Catchment Targeting Initiative | See Priority Initiative 1 for targets | Ag Action Team (AT), Data Management (DM) Action Team (AT), Catchment Targeting (CT) Action Team (AT), Muni Action Team (AT), watershed groups, local municipalities, Brandywine Conservancy, CCCD, CCWRA, EACs, CCPC | Prioritized Catchments (TBD) | Mid 2021 Launch with inherent tie to P.I. 1 (catchment targeting) | Partner with Catchment Targeting AT during catchment prioritization efforts to identify individual catchment needs, BMP probabilities, etc. | Centralized database platform (see P.I. 5) | See P.I. 1 for more information | | |</p>
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<td>4.6</td>
<td>BMP Reporting Reconciliation</td>
<td>Muni AT, Data Mgmt AT, Catchment Targeting AT</td>
<td>All areas (Catchment targeting analyses will result in 2 data tables: 1) conservation needs/opps., and 2) existing BMPs for reconciliation</td>
<td>All areas</td>
<td>Launch late 2021 with inherent tie to Action 4.5 (limited activities until reporting platform is known or the parameters at a minimum)</td>
<td>Partner with Data Management AT for reconciliation of BMP reporting numbers (primarily through catchment targeting)</td>
<td>Practice Keeper (PK)</td>
<td>Centralized database platform</td>
<td>See Action 4.3 for more information</td>
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<td>4.7</td>
<td>Existing Plans Alignment</td>
<td>Game plan by late 2021</td>
<td>Local municipalities, EACs, CCWRA, CCPC, CCCD</td>
<td>All areas</td>
<td>Ongoing with inherent tie to Action 4.5</td>
<td>Ensure efforts do not conflict and/or align with other efforts (e.g. county Act 167 plan) Game plan and coordination with Catchment Targeting AT (P.I. 1) for complete list of existing plans that need to be encompassed by the process</td>
<td>CCWRA, Brandywine Conservancy Oxford regional plans inventory completed with NFWF funding</td>
<td></td>
<td>Potentially new GIS layers for certain plans or information</td>
</tr>
<tr>
<td>4.8</td>
<td>PennDOT PRP Reductions</td>
<td></td>
<td>EACs, CCWRA, CCCD, local municipalities, Environ. Finance Center (EFC)</td>
<td>PennDOT MS4 areas</td>
<td>Ongoing with inherent tie to Action 4.5</td>
<td>Collaborative and joint project opportunities</td>
<td>Local engineers/consultants, PennDOT</td>
<td></td>
<td></td>
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<td>4.9</td>
<td>Joint PRP Projects</td>
<td></td>
<td>Local municipalities, EACs, EFC, local watershed groups, Oxford Reg. Planning Comm.</td>
<td>MS4 regulated areas</td>
<td>Ongoing (differing PRP cycles amongst MS4s)</td>
<td>Foster collaborative arena for multi-municipal projects providing regional benefits through cost-effective BMP implementation. Currently assuming this may be more applicable during the 2023-2027 permit cycle.</td>
<td>Local engineers/consultants, Brandywine Conservancy MS4 PRPs EFC</td>
<td>NFWF, GG, CBT, PennVEST, American Rescue Plan Act (ARPA) Local Relief Fund, local municipal.</td>
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<tr>
<td>4.10</td>
<td>Stormwater BMP Implementation</td>
<td>Rate Reduction SWP Standards – 3,000 new acres treated</td>
<td>Local municipalities, developers, CCCD, CCWRA, SACs, Oxford Reg. Comm., CCPC</td>
<td>All areas with emphasis provided towards prioritized catchments</td>
<td>Ongoing (timing tied to catchment analyses, funding and Actions 4.5 and 4.6)</td>
<td>M5A PRP projects to be reported via annual reports Significant uncaptured and/or underreported BMPs are assumed in this category and difficult to project. Assume significant progress achieved through BMP reporting reconciliation occurs for revisions to BMP implementation scenario in 2023 to better reflect rates. BMP implementation values include projects outlined in PRPs (where available) Landowner resistance or buy-in</td>
<td>Local engineers/designers, DEP, Stroud, CCWRA, Brandywine Conservancy, Penn State, EFC County DCIS data</td>
<td>Developers, local municipal., GIG, NFWF, PennVEST, CBT</td>
<td>Capital Cost: ~$TBD (after reconciliation and BMP rates revisions) Current assumptions are roughly 50%-70% of BMP values are already in place and uncaptured for reporting.</td>
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| 4.11     | Urban Landscape | Conservation:  
Landscaping – 100 total acres  
Urban Forest Planting – 20 new acres  
MS4 Tree Canopy – 10 new acres  
Urban Nutrient Management – 2,000 acres | CCCD, CCWRA, EACs, local municipalities, Brandywine Conservancy | All areas with emphasis provided towards prioritized catchments | Ongoing with inherent tie to Action 4.5 | Urban nutrient management is tied to fertilizer legislation at the state level.*  
Landowner resistance or buy-in | Technical: ACB, CBF, DCNR, CCPC, CCWRA, Stroud Brandywine Conservancy  
Financial: County DCIS | Capital Cost: ~$45,000 |
| 4.12     | Septic Systems | Conventional  
Septic Denitrification – 3,000 systems  
Septic System Pumping – 6,000 systems | Local municipalities, CCWRA | All areas outside public sewage areas | On-going, with primary info capture and analysis in 2022 with developed game plan | Use County GIS/Health Dept. information for septic systems tracking and convert to reportable data (capture of existing systems)  
Initial analysis reveals approximately 17,700 septic systems (currently assuming 50% compliant systems until further analysis in completed) | Technical: DCNR, County Health Dept., local municipalities, CCPC  
Financial: GIS support |

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<td>5.1</td>
<td>Centralized GIS-based database/platform and targeting tool</td>
<td>Game plan 4th qtr. 2021</td>
<td>Chester County Conservation District (CCCD), Octoraro Watershed Association (OWA), County, Chester County Water Resources Authority (CCWRA)</td>
<td>All areas (catchments)</td>
<td>Ongoing; game plan by late 2021</td>
<td>Engage Chesapeake Conservancy to potentially expand Lancaster County’s platform (CWMT) into Chester County (Octoraro watershed already included in platform) to provide centralized data management platform for Catchment Management Database (CMD) inventory, opportunities targeting, and BMP reconciliation</td>
<td>County DCIS (Dept. of Computer and Info. Services), OWA, Chesapeake Conservancy, Brandywine Conservancy, watershed groups, local engineers/consultants, CCWRA</td>
<td>$25,000 - $40,000 (depends on extent existing platform requires modifications and/or needs to expand into Chester County)</td>
<td>$TBD for long-term platform management</td>
</tr>
<tr>
<td>5.2</td>
<td>Reporting QA/QC</td>
<td>CCCD, NRCS, County, local municipalities, OWA, local watershed groups</td>
<td>All areas</td>
<td>Ongoing</td>
<td>Develop and monitor flowchart representing different BMP/data reporting processes to help ensure all new BMPs, captured BMPs, etc. are reported through the right mechanisms</td>
<td>Practice Keeper (PK), FieldDoc, County DCIS</td>
<td></td>
<td>Inherent ties to PK manager (Action 2.4) and Circuit Rider (Action 4.3)</td>
<td></td>
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<td>5.3</td>
<td>Catchment Targeting Initiative and BMP reconciliation</td>
<td>Tied to P.I. 1 metrics</td>
<td>CCCD, OWA, County, local municipalities, local watershed groups, Environ. Advisory Committees (EACs), Oxford Reg. Planning Comm., DEP,</td>
<td>All areas (catchments)</td>
<td>Ongoing; tied to platform development and Priority Initiative 1 (Catchment Targeting)</td>
<td>Ensure centralized platform appropriately captures and displays individual catchment needs, captured unreported BMPs, etc. and aligns with reporting processes</td>
<td>County DCIS, County Planning (CCPC)</td>
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<td>1.1</td>
<td>Expand cover crops (CC) definition (Action 2.10)</td>
<td>Added scenario for cover crops (Yes fall nutrients and yes spring harvest)</td>
<td>2022</td>
<td>Traditional CC: No fall nutrients and not harvested in the spring; Traditional CC w/fall nutrients: Yes fall nutrients but not harvested in spring; Commodity CC: No fall nutrients and is harvested in the spring; Missing classification: Yes fall nutrients and harvested in the spring.</td>
<td>Create a cover crops classification that allows the application of fall nutrients and is harvested in the spring.</td>
<td>Added definition in BMP Quick Reference Guide (or similar)</td>
</tr>
<tr>
<td>1.2</td>
<td>Cover crop incentive program (Action 2.10)</td>
<td>Dedicated and separate funding mechanism</td>
<td>Prior to fall 2022</td>
<td>Create a dedicated fund to assist farmers with initial costs for implementing cover crops</td>
<td></td>
<td>$20,000 for Chester County (pilot)</td>
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<tr>
<td>1.3</td>
<td>Separate funding program for farmer engagements (Action 2.1 and Action 2.2)</td>
<td>CCD Stewards Funding Program</td>
<td>Prior to 2024</td>
<td>Most ag-related funding and efforts are compliance driven. A dedicated program to allow more thorough engagements as it relates to conservation needs and stewardship should be established to separate the two considerations. An ability to provide payment/fees to an individual (even if part-time) in lieu of pro-bono will significantly increase applicant pool</td>
<td>Expand funding and resources solely focused on ag-related engagements driven by stewardship and conservation needs.</td>
<td>Retired and/or experienced farmer that can appropriately engage with multiple other farmers</td>
</tr>
<tr>
<td>1.4</td>
<td>Transfer of NRCS generated Soil Conservation Plans into local PracticeKeeper (PK) platform (Action 2.6)</td>
<td>Ag BMPs transferred into local PK platform</td>
<td>ASAP would be ideal</td>
<td>Significant resources will be required for capture and entry of Soil Conservation Plans (and corresponding BMPs) into PK that were generated by entities other than CCD (e.g. NRCS)</td>
<td></td>
<td>NRCS-DEP</td>
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<tr>
<td>1.5</td>
<td>Mushroom composting definition (Action 2.5)</td>
<td>Added (or more clear) definition for mushroom composting</td>
<td></td>
<td></td>
<td>Create a separate definition (or a sub-category of existing manure composting definitions) specific to mushroom composting, including how to track.</td>
<td></td>
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<td>1.6</td>
<td>BMP reconciliation parameters for urban/developed BMPs (Action 4.6)</td>
<td>Early 2022 for list of minimum parameters Prior to 2025 for reporting mechanism</td>
<td></td>
<td>Through catchment-to-catchment analyses, it is anticipated that uncaptured or underreported BMPs will be captured. This is primarily associated with Ch. 102/land development BMPs. Intent is to capture these BMPs in an inventory. Understanding the parameters, attributes, etc. that need to be part of the data and information captured up-front will provide consistent processes.</td>
<td>1) Establish a list of the minimum parameters and attributes that should be noted when underreported Ch. 102/land development BMPs are captured. 2) Establish a reporting mechanism(s) for captured Ch. 102/land development BMPs.</td>
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### Phase 3 Watershed Implementation Plan (WIP) Programmatic Recommendations Template

<table>
<thead>
<tr>
<th>Action #</th>
<th>Description</th>
<th>Performance Target(s)</th>
<th>Expected Timeline</th>
<th>Potential Implementation Challenges</th>
<th>Potential Recommendations on Improvement</th>
<th>Resources Needed</th>
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<tr>
<td>1.7</td>
<td>Horse pasture nutrient reductions (Action 2.7)</td>
<td>Nutrient reductions tied to horse pasture management</td>
<td>Current definition of horse pasture does not include nitrogen reductions. A significant amount of pasture in Chester County is dedicated to horses.</td>
<td>Clarification to why no nutrient reductions are awarded or update the horse pasture management definition to include nitrogen reductions.</td>
<td></td>
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<td>1.8</td>
<td>Accelerated permitting for CAP identified projects of regional importance (Action 1.1)</td>
<td>Several &quot;large-scale&quot; projects and opportunities exist that provide benefits above and beyond significant nutrient and sediment reductions (e.g. localized flood reduction). Permit approval timeframes can be inhibiting factors between design and implementation.</td>
<td>Provide arena and processes for accelerating permitting requirements for priority projects.</td>
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<td>1.9</td>
<td>Buffers sub-categories (Action 3.2)</td>
<td>NRCS codes for buffers not exclusive to the riparian corridor</td>
<td>Forest and grass buffers are not exclusive to the riparian corridor (applied to crop land/hay land uses). Forest and grass buffers can be applied in areas other than the riparian corridor (e.g. field borders)</td>
<td>Creation or establishment of a recognized set of codes (sub-codes) or definitions for forest and grass buffer locations that can be incorporated into Soil Conservation Plans.</td>
<td></td>
<td>DEP, NRCS</td>
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<td>1.10</td>
<td>Fertilizer Legislation (Action 4.11)</td>
<td>Prior to 2023</td>
<td>Urban nutrient management reductions are highly dependent on passing state legislation.</td>
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### Phase 3 Watershed Implementation Plan (WIP) Planning and Progress Template

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

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

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

**Performance Target** = How. This is an extension of the Description above. The performance target details the programmatic change that will enable you to complete the action items identified in the Planning and Progress Template. This can be a further description of the challenge to implementation from the Planning and Progress Template.
<table>
<thead>
<tr>
<th>Action #</th>
<th>Description</th>
<th>Performance Target(s)</th>
<th>Expected Timeline</th>
<th>Potential Implementation Challenges</th>
<th>Potential Recommendations on Improvement</th>
<th>Resources Needed</th>
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</thead>
</table>

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

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

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

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

Organizational Chart
Watersheds Map
Catchment Management Database (CMD)
Chesco Chesapeake Communities Action Plan (C3AP)
Organizational Chart

Management Team
- Chester CCCWAP Lead Agency (CCCD)
- Chester County/Chester County Water Resources Authority
- Chester CCCWAP Coordinator (LandStudies, Inc.)

Stakeholders

Steering Committee

Action Teams Leads

Partners and Champions

Catchment Targeting Action Team
- Prioritization

Agriculture Action Team
- Ag BMPs
- Education

Buffers Action Team
- Buffers
- Stream Corridors

Municipal Action Team
- Urban BMPs
- Existing Plans Alignment

Data Management Action Team
- BMP reconciliation

Catchment Targeting Action Team
- Agriculture Action Team
- Buffers Action Team
- Municipal Action Team
- Data Management Action Team

Stakeholders

Steering Committee

Action Teams Leads

Partners and Champions

Catchment Targeting Action Team
- Prioritization

Agriculture Action Team
- Ag BMPs
- Education

Buffers Action Team
- Buffers
- Stream Corridors

Municipal Action Team
- Urban BMPs
- Existing Plans Alignment

Data Management Action Team
- BMP reconciliation

Stakeholders

Steering Committee

Action Teams Leads

Partners and Champions

Catchment Targeting Action Team
- Prioritization

Agriculture Action Team
- Ag BMPs
- Education

Buffers Action Team
- Buffers
- Stream Corridors

Municipal Action Team
- Urban BMPs
- Existing Plans Alignment

Data Management Action Team
- BMP reconciliation

Stakeholders

Steering Committee

Action Teams Leads

Partners and Champions
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Chester County Chesapeake Bay Watersheds Map

Chester County’s Local Watersheds

- Conestoga River
- Pequea Creek
- Octoraro Creek
- Elk River
- Northeast Creek
- Delaware River Basin
- Chesapeake Bay Boundary

[Map showing the local watersheds in Chester County with the Chesapeake Bay Watershed boundary]
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