Countywide Action Plans
Pennsylvania’s Phase 3 Chesapeake Bay Watershed Implementation Plan

Cumberland County

Healthy Waters, Healthy Communities
Chesapeake Bay Total Maximum Daily Load (TMDL)

• Established in 2010
  o Reductions of nutrient pollution (nitrogen and phosphorus) and sediment for all states in the Chesapeake Bay watershed
  o Goal: All practices on the ground and all permitting activities completed by 2025

• PA instructed to develop Watershed Implementation Plan (WIP)
  o Outline strategies, methods and timeframe for meeting our clean water goals and restoring local water quality
A portion of the nutrients and sediment in PA's local waterways actually make it to the Chesapeake Bay.

- What's entering PA Local Waterways from PA Land:
  - 51.06 M lbs of N
  - 2.02 M lbs of P

- What's making it to Chesapeake Bay from PA Land:
  - 34.13 M lbs of N
  - 0.756 M lbs of P
Nitrogen Reduction Goals

Nitrogen Reaching the Bay

- 1985: 130.00 million pounds
- Current: 110.00 million pounds
- Target: 70.00 million pounds

34.13 million pounds to go
Phosphorus Reduction Goals

Phosphorous Reaching the Bay

1985: 6.00 million pounds
Current: 4.00 million pounds
Target: 2.00 million pounds

0.757 million pounds to go
• Approximately one-third of Pennsylvania’s local waterways do not meet water quality standards

• A majority of impairments are due to excess nutrients (nitrogen and phosphorus) and sediment

• Pennsylvania’s local waterways need our help
The Cumberland County Toolbox

- A starting point for Cumberland County to use to understand local water quality and identify planning opportunities
- Contains data relevant to Cumberland County to assist with reaching local water quality goals
  - Local water quality trends
  - Local sources and drivers of water quality
  - Opportunities for restoration efforts
- State recommendations for Cumberland County
- Further information on resources are available in links and with technical support staff from DEP and SRBC
## Cumberland County’s Clean Water Goal

### Loading to Local Cumberland County Waterways

<table>
<thead>
<tr>
<th>Year</th>
<th>Nitrogen (pounds/year)</th>
<th>Phosphorus (pounds/year)</th>
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<tbody>
<tr>
<td>1985</td>
<td>6,591,000</td>
<td>387,000</td>
</tr>
<tr>
<td>2019</td>
<td>7,022,000</td>
<td>318,000</td>
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<tr>
<td>2025 (Final TMDL Planning Target)</td>
<td>4,136,000</td>
<td>223,000</td>
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<tr>
<td>Remaining Load to be Achieved Through Local Planning Goals</td>
<td>2,886,000</td>
<td>95,000</td>
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Chesapeake Bay Program Phase 6 Watershed Model.  
[http://cast.chesapeakebay.net](http://cast.chesapeakebay.net)

- Great progress has been made to reduce Phosphorus in Cumberland County. Additional progress still needs to be made to achieve the goal.
- Significant progress needs to be made to reduce Nitrogen in Cumberland County.
The map on the right is from the 2018 Integrated Water Quality Report and represents the impaired waterways in Cumberland County.

Approximately 30% of streams in Cumberland County are impaired and do not meet water quality standards.
Water Quality is Strongly Affected by Land Use

- Agriculture and developed areas produce more nutrients and sediment than forested land.

Cumberland County Land Use

- Agriculture: 34%
- Developed: 23%
- Natural: 43%

Water Quality is Strongly Affected by Land Use

[Map showing land use distribution]

Chesapeake Bay Program Phase 6 Watershed Model. 2018 Progress. [http://cast.chesapeakebay.net](http://cast.chesapeakebay.net)

Land-use map from USGS. Falcone, 2015.
In Cumberland County, nitrogen entering local streams is estimated to come primarily from agricultural sources, followed by developed/urban areas, and then wastewater.

It will be important to target these sources with restoration practices.

The picture is similar for phosphorus.

A majority of the sediment comes from natural sources such as stream bed erosion. Agriculture and Developed areas also contribute a significant amount of sediment.
Focusing efforts geographically in the highest loading areas can reap the most water quality benefits.

The map on the right shows estimated Nitrogen load coming from Cumberland County land.
- Focusing efforts geographically in the highest loading areas can reap the most water quality benefits
- The map on the right shows estimated Phosphorus load coming from Cumberland County land
The Pennsylvania Phase 3 WIP process utilized 7 workgroups to develop specific recommendations for Pennsylvania’s Chesapeake Bay Watershed.

These recommendations are intended to provide a starting point for your county during the Countywide Action Plan development.

These recommendations are not specific to any one county and may need to be tailored to best fit your county’s priorities.

The following slides provide a high-level overview of the recommendations from the 4 state level sectors of Agriculture, Forestry, Stormwater and Wastewater.
Agricultural Priority Initiatives

1. **Agricultural Compliance**: Ensure farmers are implementing their state required Agricultural Erosion and Sediment Control, Manure Management/Nutrient Management Plan, and implementing required barnyard runoff controls, where needed.

2. **Soil Health**: Use soil management practices that improve long-term soil health and stability.

3. **Expanded Nutrient Management**: Non-manured and manured farms use nutrient management plans and precision nutrient management practices.

4. **Manure Storage Facilities**: Install and use manure storage systems that meet federal standards.

5. **Precision Feeding**: Use precision feed management to reduce nitrogen and phosphorus in manure.

6. **Integrated Systems for Elimination of Excess Manure**: Create integrated (county/regional) programs for removal of or beneficial use of excess manure.

7. **Forested and Grassed Riparian Buffers**: Plant forest buffers and grassy vegetation along streams.
1. **Forested Riparian Buffers**: Plant trees and shrubs along streams.

2. **Tree Canopy**: Plant trees in developed areas.

3. **Woods and Pollinator Habitat**: Convert lawn and turf areas to woods and meadows.

4. **Forest, Farm, and Natural Areas Conservation**: Provide credits for land conservation and revise zoning and ordinances to conserve existing natural areas.

5. **Stream and Wetland Restoration**: Support efforts to restore local streams and wetlands.
1. **Implement PRPs for MS4 Communities:** As one component of the 2018 permit, MS4 Permittees must implement management practices to achieve the reductions identified in their respective PRPs by 2023.

2. **New Riparian Forest Buffers:** Plant trees and shrubs alongside streams.

3. **Control Measures for Illicit Discharges:** DEP facilitates municipal ordinance amendments to control illicit discharges to storm sewer systems.

4. **Industrial Stormwater:** DEP develops technical guidance, intended to supplement existing requirements, to inform industrial stormwater discharge permittees engaged in these activities.

5. **Post-Construction Stormwater Management Program:** Continue permitting, inspecting and ensuring compliance with Chapter 102, post-construction stormwater permit requirements.
6. **Fertilizer Legislation**: Pass the fertilizer legislation bill.

7. **Continue to Implement Erosion and Sediment (E&S) Control and Post Construction Stormwater Management (PCSM) Program**: Continue permitting, inspecting and ensuring compliance with Pennsylvania’s erosion and sediment control and post construction stormwater permit requirements, found in 25 Pa. Code Chapter 102 for all activities including construction, timber harvest, oil and gas exploration, mining and waste management.

8. **Dirt and Gravel Roads**: Continue to implement the Dirt and Gravel Roads Program through the Center for Dirt and Gravel Roads.
1. **Continue Current Treatment Course:** Given the ongoing reduction success, one priority initiative is to continue the treatment course as described in the WIP. The ongoing tracking of 190 publicly-owned treatment works and their wasteload allocations will continue to be updated on a regular basis.

2. **Plant Optimization Program:** DEP's treatment plant optimization program helps troubled facilities get into compliance with permitting requirements. DEP will further investigate the feasibility of how this program could be expanded to help facilities optimize their process for nutrient removal by establishing a facility nutrient removal optimization program.

3. **On-lot Septic Systems:** Sewage management programs that incorporate onsite septic system inspection and pumping are recommended. On-lot system oversight is the responsibility of municipalities per the Pennsylvania Sewage Facilities Act. To facilitate implementing this recommendation, DEP proposes to develop GIS-based online monitoring and reporting program that municipalities can use to report on-lot systems operation and maintenance and permitting information for Chesapeake Bay Reporting.
• The Pennsylvania state-level recommendations found in the Phase 3 WIP can be broken down into individual county goals for your county.

• The rates are a suggested starting point for your county.

• During your Countywide Planning Process, these goals can be changed to meet the priority initiatives identified by your county.

• Your county is not limited to only the BMPs identified above. These BMPs are to serve as a starting place for your county.

• The highlighted BMPs in Cumberland County already exceed the state level recommended implementation rates. The number in parenthesis is the current reported implementation rate in Cumberland County.

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<thead>
<tr>
<th>Agriculture Best Management Practice Implementation Amounts for Cumberland County Based on Recommended State Implementation Rate</th>
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<tr>
<td><strong>Best Management Practice</strong></td>
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<tr>
<td>Agriculture Compliance</td>
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<td>Conservation Plans</td>
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<td>Nutrient Management (Core N) Manured Acres</td>
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<td>Barnyard Runoff Controls</td>
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Questions?
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DEP Chesapeake Bay Program Website:
www.dep.pa.gov/ChesapeakeBay

Phase 3 WIP Website:
www.dep.pa.gov/chesapeakebay/phase3