Pennsylvania Phase 3 Watershed Implementation Plan
Forestry Workgroup
DRAFT Recommendations
November 13, 2018

The Forestry Workgroup and its partners are prepared to support the implementation of Pennsylvania's Phase 3 WIP. Conservation practices such as riparian forest buffers and upland tree plantings are both cost-effective for improving water quality while also providing significant environmental and social benefits in both agricultural and developed areas. Trees along streams improve habitat, reduce flooding impacts, and provide shade to cool waterways. Trees in backyards and communities increase property values, improve human health, and restoration activities help connect citizens to their local watersheds.

Support and momentum for trees is building across the watershed. Thanks to the efforts of many partners, a strong foundation will support a long-term, successful forest restoration and conservation program for Pennsylvania.

As plans are being finalized, the Forestry Workgroup offers the following considerations for Counties and local partners:

Riparian Forest Buffers

Riparian forest buffers (RFBs) are trees planted along streams, designed to capture nutrients and sediment as precipitation runoff flows from uplands into the stream. RFBs are cost-effective for reducing pollution, they help to reduce flooding impacts, and they provide habitat for both terrestrial and aquatic wildlife. Many programs and partners exist to help landowners plant and maintain buffers, both in agricultural and developed areas. Buffers can be planted on a variety of landscapes including cropland, pasture, backyards, community parks, corporate and institutional campuses, and more. Buffers can be designed to incorporate landowner values and interests, such as aesthetics, access to the waterway, and opportunities for revenue generation or products for personal use such as nuts, berries, woody florals, or biomass. While challenges exist, such as maintenance and tree survival, the science and practices have evolved to overcome many myths and misconceptions sometimes associated with RFBs. The draft Phase 3 WIP goal for RFBs includes 80,500 acres on agricultural lands and 3,100 acres in developed areas. The Forestry Workgroup's implementation plan for buffers includes a comprehensive set of actions needed to meet these ambitious goals:

1. Comprehensive Communications Strategy
2. Leadership and Commitment to RFBs
3. Technical Assistance
4. Comprehensive Funding Options
5. Reporting Accomplishments
6. Investing in Site Preparation and Maintenance
7. Wider RFBs are Better
8. Conserve Existing Buffers

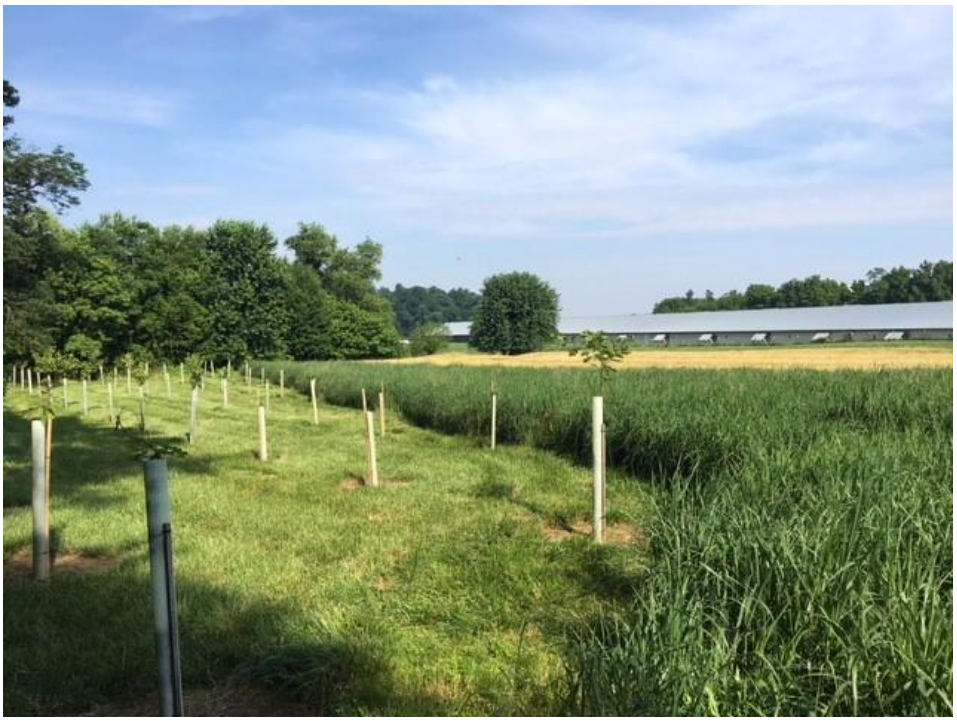


Photo Courtesy Roger Rohrer.

Photo courtesy Bobby Whitescarver

Tree Canopy (planting individual trees in developed areas)

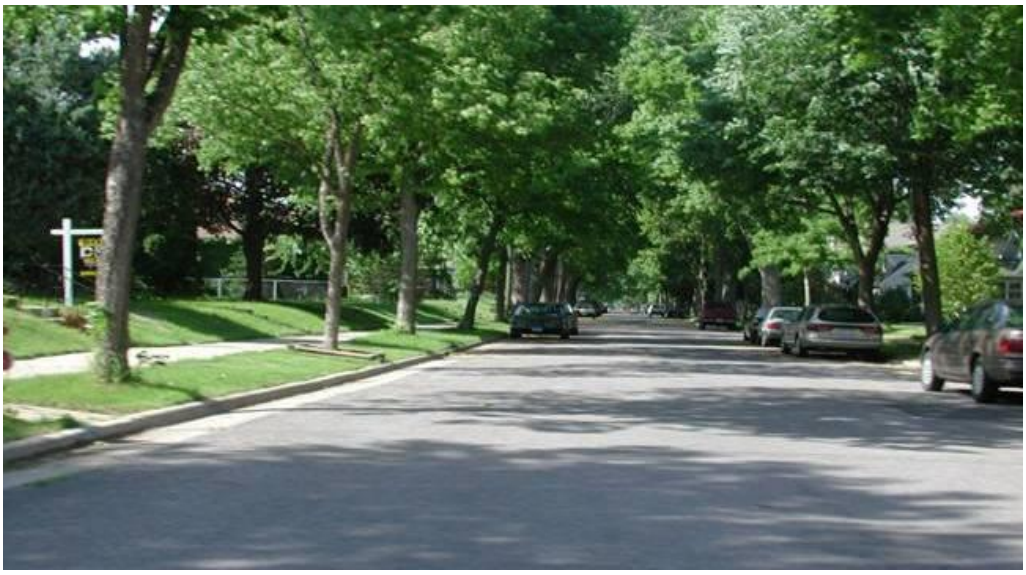
Planting trees along streets and in other developed areas provide many benefits to communities. Trees intercept rainfall, reduce storm water impacts, and reduce the amount of pollutants reaching waterways. Trees also improve air quality through the uptake of noxious gases, create wildlife habitat, reduce erosion, mitigate urban heat island effects, increase property values, and positively affect human physical and mental health. The draft Phase 3 WIP includes a goal of 50 acres of urban tree canopy expansion, which equates to 15,000 new individual trees planted in backyards and community spaces across the PA portion of the Bay watershed.

Tree canopy expansion itself may not result in load reductions, however, when coupled with other stormwater BMPs, adding trees to the landscape provides significant co-benefits while also contributing to pollutant load reductions. Additionally, DEP recently added tree planting as an approved practice to the MS4 program.

In Pennsylvania, the Urban Tree Canopy (UTC) expansion is accomplished primarily though the TreeVitalize Partnership, which includes DCNR, TreePennsylvania, Penn State Extension, USFS, and other partners. DCNR provides grant funding for tree planting, the Council administers the grants, and Penn State and DCNR Service Foresters provide technical assistance to communities. The partnership promotes tree inventories, maintenance, and volunteer stewardship of municipal trees. Volunteer training is provided though the Tree Tenders Program, developed by the Pennsylvania Horticultural Society.

Key components of the Phase 3 WIP for tree canopy include:

1. Increased technical assistance
2. Funding for tree planting and care grants to communities
3. Citizen engagement and education
4. Conservation, maintenance, and management of existing community trees



Woods and Pollinator Habitat (converting lawn and turf areas to woods and meadows)

The Chesapeake Bay Watershed in Pennsylvania contains over one million acres of turf grass. While aesthetically pleasing and a mainstay in our manicured landscapes, turf grass provides very little habitat value and contributes significant pollution to our local waterways. Converting some of this lawn to woods and native meadows presents significant opportunities to not only reduce pollution, but also create critical habitat for pollinator species, sequester carbon, and provide opportunities for residents to interact with nature. Pollinators (bees, butterflies, birds, and other insects) are critical to our food production systems. Restoring lawn to woods or meadows can be accomplished by both homeowners and landscape contractors, resulting in reduced fertilizer, fuel, maintenance costs, and reduced time inputs for property owners.

The draft Phase 3 WIP includes goals for 5,000 acres of lawn to woods and 5,000 acres of lawn to meadows. Key components of the plan include:

1. Communications and outreach
2. Training for contractors, maintenance staff, and homeowners
3. Leadership and technical assistance from agencies and non-profit partners
4. Funding opportunities for communities and property owners

Photo courtesy Ryan Davis.

Forest and Natural Area Conservation

Conserving working lands provides significant values well beyond protecting and improving water quality. Working lands such as farms and forests are deeply rooted in Pennsylvania's cultural heritage, contribute significantly to the Commonwealths' rural economy, and provide valuable products to society. Forests provide clean water, wood products, tourism and recreation opportunities, habitat, and provide the backdrop to our aesthetic landscape. After several years of debate and dialogue, the Phase 3 WIP includes a basic framework for "crediting" land conservation actions, programs, and policies.

Opportunities to receive "credit" for land conservation include land acquisition by agencies and municipalities, conservation easements, and planning and zoning to limit conversion of forests to commercial and residential development.

Pollution reduction credits will be calculated based on the change in magnitude and patterns of future land use and development resulting from implementing the various conservation elements. For example, if future growth is managed in a way to conserve forests in a county, the pollutant loading will be less than if the forest had been developed. The Forestry Workgroup recommends state and local leaders consider actions to:

1. Conserve/protect wetlands
2. Conserve/protect riparian areas within 100 feet of streams
3. Modernize local planning and zoning to conserve critical forests and wetlands

A recent publication titled "Sustaining and Improving Forest Land through Comprehensive Plans" by Jeanne Riley and Paul Solomon, provides advice to local governments in fully considering forests in comprehensive planning.

Stream and Wetland Restoration

Many streams and wetlands have been altered across Pennsylvania's landscape. Agriculture and urban development have changed how streams flow and function, draining or significantly changing wetlands, and reducing the overall ecological function of many waterways. Restoring the natural hydrology of both streams and wetlands presents a significant opportunity to both reduce pollution and restore natural ecosystems, provide habitat, recreation opportunities, and flood prevention and mitigation.

Many communities and NGOs across PA invest in restoring streams to improve local water quality. Stream restoration practices include streambank stabilization, floodplain restoration & reconnection, legacy sediment removal, and culvert removal. These practices help to reduce streambank erosion and sedimentation of waterways and restore the natural ecological function of streams and rivers, leading to reduced pollution.

Pennsylvania's Phase 2 WIP goal was to restore 55,000 linear feet of Urban Streams. As of the 2014 Progress Run, PA has restored 6,630 linear feet of Urban Streams. Because numerous MS4

municipalities are expected to use Urban Stream Restoration as a primary BMP, Urban Stream Restoration is expected to increase significantly.

Pennsylvania also reported 621,373 linear feet of Non-Urban Stream Restoration projects as of the 2014 Progress Run, exceeding its 2025 Phase 2 WIP goal of 529,435 liner feet.

To receive load reduction credits in the Chesapeake Bay Model, stream restoration projects must meet qualifying conditions and can use either 1) default values to estimate pollutant reductions or 2) use at least one of three additive protocols to design Urban or Non-Urban Stream Restoration projects. The Forestry Workgroup recommends that all Stream Restoration projects in both agricultural and developed areas utilize the additive protocols to ensure that pollution reduction achieved by these projects is maximized for both the benefit of local waterways and the Chesapeake Bay.

Wetland Restoration is a change to the land that re-establishes wetlands by manipulating the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former wetland. Two categories of wetland restoration, defined by landscape position, are recognized; one for floodplain wetlands, the other for headwaters wetlands. Floodplain wetlands are wetlands that coincide with the floodplain of a watercourse; whereas, headwaters wetlands occur in proximity to low-order streams and tend to have wetland hydrology that corresponds to depressional features, hillslope seeps, and springs.

As a BMP, wetland restoration implies the re-establishment of wetland functions that no longer exist; however, the WSM also recognizes pollutant reduction credits for wetland-related projects that: (i) create; (ii) enhance; and, (iii) rehabilitate wetland functions. Wetland Creation means a conversion of land that establishes wetlands, in headwaters or floodplain, by manipulation of physical, chemical, or biological traits, where wetlands formerly did not exist. Wetland Enhancement means to intensify/improve the functions of an existing wetland through manipulation of physical, chemical, or biological traits. Wetland Rehabilitation means to return natural, historic functions to a degraded wetland through manipulation of physical, chemical, or biological traits.

Pennsylvania's 2025 Phase 2 WIP goal was to restore 487,725 acres of wetlands. As of the 2015 Progress Run, PA has restored 166,406 acres of wetlands.