



CHESAPEAKE BAY STEWARDSHIP FUND 2010 Innovative Nutrient and Sediment Reduction Grants

The Chesapeake Bay Innovative Nutrient and Sediment Reduction grant program provides financial and technical support to projects that expand the collective knowledge on the most innovative, sustainable and cost-effective strategies in the areas of crop management, manure/litter management, urban/suburban stormwater management, and market-based incentives for reducing excess nutrient loads within the Chesapeake Bay watershed. Collectively, these projects help the Chesapeake Bay Program, a partnership between the federal government and the states of Maryland, Pennsylvania, Virginia, and the District of Columbia, meet its goals for restoring the health and resources of the Bay ecosystem. Primary funding for the Chesapeake Bay Innovative Nutrient and Sediment Reduction Grant Program is provided through a cooperative agreement with the United States Environmental Protection Agency. Consistent with that agreement, the program requires 100% partner matching funds.

Project Title: Using RSC to Treat Urban Runoff in Two Mid-Bay Creeks (22610)

Recipient: South River Federation

<u>Foundation Federal Funds:</u>	\$ 900,000
<u>Matching Funds:</u>	\$3,817,500
<u>Total Project Costs:</u>	\$4,717,500

Project Area: Church Creek on the South River and Saltworks Creek on the Severn River near Annapolis, MD.

The South River Federation will demonstrate the use of innovative sand seepage wetland Regenerative Stormwater Conveyance technology in two of the lower western shore's most highly impaired sub-watersheds: Church Creek on the South River, and Saltworks Creek on the Severn River. These watersheds are separated by less than a half of a mile and the proposed RSC's will be less than 3 miles apart. It is intended that through their construction and the subsequent monitoring of resultant water quality that these projects can expand the collective knowledge about the cost effectiveness and sustainability of this promising approach to in-stream restoration.

Project Title: Creating a Culture of Conservation from Farm to Table (22744)

Recipient: Shenandoah Resource Conservation and Development

<u>Foundation Federal Funds:</u>	\$ 700,000
<u>Matching Funds:</u>	\$ 786,220
<u>Total Project Costs:</u>	\$1,486,220

Project Area: Shenandoah Valley region of Virginia.

The Shenandoah Resource Conservation and Development will reduce nutrients and sediments to the Bay by reducing sediment loads and better optimizing nitrogen (N) and phosphorus (P) management in food and fiber production on a regional scale. It is becoming obvious with economic and environmental challenges facing farmers that we need to work together as a community of practice to reduce farmers' and consumers' nutrient footprints and environmental impacts and focus on sustainable food production that improves water quality and promotes agricultural community sustainability. Farmer conservation performance will be assessed and verified; whole farm Continuous Improvement Plans will be developed for farmers engaged in local food system work. Consumers will reduce their nutrient impact at levels equivalent to local food producers. Outcomes include: develop whole farm CIPs to reduce nutrient losses by 55%; market farmers who are making reductions; increase local food product buying by institutions to increase economic impact to farmers; offer workshops on reducing fertilizer and chemical use for lawns and gardens and promote purchasing Bay Friendly products that have a positive water quality impact to consumers; offer incentive payments to farmers for verified N, P and sediment reductions;

Project Title: Lancaster City: Green Planning, Green Living (PA) (22811)

Recipient: City of Lancaster

<u>Foundation Federal Funds:</u>	\$ 400,000
<u>Matching Funds:</u>	\$ 750,000
<u>Total Project Costs:</u>	\$1,150,000

Project Area: City of Lancaster, in Lancaster County PA

Lancaster County is under increasing scrutiny for its role in the degradation of the Chesapeake Bay. Much of the scrutiny – and investment – has targeted agricultural pollutants and point sources (i.e., treatment plants). However, a less-cited source of pollutants is the City of Lancaster, a 300-year-old urban center with significant impervious surface. Given its combined sewer system, Lancaster City must act to reduce the pollution and erosive overflows stemming from storm water. By implementing 6 highly visible green infrastructure demonstration projects, Lancaster City will eliminate 119,500 lbs. of sediment, 1,546 lbs. of nitrogen, and 229 lbs. of phosphorous generated in the Conestoga River watershed. The City will develop additional projects to reduce storm water runoff and combined sewer overflow. These reductions will be greatly extended by porting this green infrastructure implementation model to other urban areas in the Chesapeake Bay watershed through our partners, the PA Departments of Environmental Protection (DEP) and Conservation and Natural Resources (DCNR), and the Lancaster County Planning Commission (LCPC). Through this innovative partnering model, the pollutant reductions can be increased by well over 100 fold over the next 5 years.

Project Title: Restoring Hydrologic Function in the Urban Landscape (22868)

Recipient: Center for Urban Environmental Research and Education

<u>Foundation Federal Funds:</u>	\$450,000
<u>Matching Funds:</u>	\$500,000
<u>Total Project Costs:</u>	\$950,000

Project Area: Implementation in Washington, D.C. and Montgomery, Queen Anne, Baltimore, and Caroline Counties in MD. Education, outreach and technology transfer in PA, VA, MD, & DC

Impervious surfaces and compacted highly disturbed soils are ubiquitous features of Chesapeake Bay’s urban landscapes, dramatically reducing infiltration and increasing urban runoff and non-point pollution from both pervious and impervious landuses. The Center for Urban Environmental Research and Education will implement evaluate and advance institutionalization of pervious concrete and subsoiling & soil amendment practices to restore infiltration in both highly disturbed and compacted urban/suburban soils, and the impervious paved surfaces of the urban landscape. The project targets key information needs for the distinct communities of decision makers and practitioners whose choices preferences and practices collectively shape and transform the urban landscapes of Chesapeake Bay. Recognizing these distinct information needs, they advance these innovative technologies by (1) building a portfolio of showcase projects to demonstrate exemplary design and implementation; (2) conducting consistent monitoring, designed to generate reliable performance and maintenance information resolving key barriers to adoption and approval by practitioners; and (3) sustaining targeted tailored outreach, education, and technology transfer to the regulatory, management and practitioner communities in PA, MD, VA, and DC. Expected outcomes will institutionalize adoption of subsoiling and pervious paving as integral elements in sustainable urban landscapes that minimize stormwater runoff and nutrient and sediment loads to Chesapeake Bay.

Project Title: Enhance Nutrient and Sediment Reduction at Univ. of Maryland (22909)

Recipient: Prince George's County, Maryland

<u>Foundation Federal Funds:</u>	\$325,000
<u>Matching Funds:</u>	\$325,000
<u>Total Project Costs:</u>	\$650,000

Project Area: The University of Maryland campus in the Anacostia River watershed in Prince George’s County, MD.

The Anacostia River is one of the most impaired in the Chesapeake Bay watershed. Prince George's County will demonstrate the capability of three innovative BMPs to reduce stormwater volumes and nutrient loads from the University of Maryland Campus, in the Anacostia watershed. These technologies will be rigorously monitored so that design and performance information can be disseminated throughout the Bay watershed and beyond. Finally, these sites will be showcased for education of students, local professionals, and interested parties throughout the world.

One project will retrofit an existing bioretention cell with an aluminum amendment to enhance phosphorus removal. The second will incorporate anoxic storage beneath a porous parking area to promote nitrogen removal. Finally, a cistern will be installed to collect bioretention effluent to use treated parking lot runoff in a beneficial manner. These projects continue the productive partnership between the Prince George’s County Government, the University of Maryland, and the LID Center.

Project Title: Upper Chester Conservation Initiative (22925)

Recipient: Chester River Association, Inc.

<u>Foundation Federal Funds:</u>	\$200,000
<u>Matching Funds:</u>	\$200,000
<u>Total Project Costs:</u>	\$400,000

Project Area: Kent and Queen Anne's Counties, MD

The Chester River Association, in cooperation with local, state and national partners, will lead development and implementation of a comprehensive strategy to reduce nutrient and sediment loadings to levels needed to meet the Upper Chester's portion of the Chesapeake Bay TMDL. Partners will work directly with farm, forest, residential, commercial and institutional landowners to identify opportunities to implement priority agricultural practices (including enhanced nutrient management and perennial cropping systems) intensively and strategically, reduce nutrient losses from high-visibility developed land areas (through septic upgrades, rain gardens and expansion of urban tree canopy) and restore natural filters (wetlands). Project partners will emphasize and prioritize the education, outreach, planning, and technical assistance needed for successful project implementation and follow up to ensure ongoing benefits. Partners will leverage ongoing partner activities and funding from NRCS' Chesapeake Bay Watershed Initiative to expand beyond and complement activities funded through the grant. Work to be done under the grant will develop and begin implementation of a plan that will achieve Bay TMDL goals by 2025.

Project Title: Creating Blue Neighborhoods and Alleys in Baltimore City (22970)

Recipient: Herring Run Watershed Association

<u>Foundation Federal Funds:</u>	\$ 600,000
<u>Matching Funds:</u>	\$ 790,815
<u>Total Project Costs:</u>	\$1,390,815

Project Area: Baltimore City Neighborhood of Butchers Hill and other urban alleys in Baltimore City.

The Herring Run Watershed Association will intensively retrofit a small neighborhood and alleys in highly urbanized areas of Baltimore City to reduce and treat stormwater runoff through the use of street bumpouts (bioretention), permeable pavement alleyways, rain barrels, downspout disconnection, and other green infrastructure projects. The neighborhood project will focus on a small 1-2 square block neighborhood area and will address stormwater runoff from a small area of dense urban development. The main objective of this project is to have this focused retrofit area serve as a model to be replicated throughout additional neighborhoods and community centers in the City. Up to four bumpout designs and four alleyways (up to 50,000 square feet) will be constructed as part of this project. While the focus of the project will be within the Butchers Hill neighborhood, at least two alley retrofits will be constructed outside the neighborhood in priority watersheds to encourage transferability of these designs to other areas throughout the City. The alleys to be retrofit will be selected from a City list of alleyways are in need of re-paving and are located in priority watersheds. The alley retrofit concept is based on the implementation of a successful and large scale program

in Chicago. As a result of these alley and neighborhood retrofits, this project is anticipated to remove 36 lbs of Nitrogen, 10 lbs of P, and 1.3 tons of sediment.

Project Title: Implementing statewide adaptive cover crop management tools (22988)

Recipient: Maryland Department of Agriculture

Foundation Federal Funds: \$ 600,000

Matching Funds: \$ 650,000

Total Project Costs: \$1,250,000

Project Area: Piedmont region in Maryland, Virginia, and Pennsylvania.

The Maryland Department of Agriculture will provide and implement tools to routinely measure winter cover crop productivity and nutrient uptake at the landscape or statewide scale, providing timely data output that can be used by conservation program managers to more effectively manage winter cover crop programs for water quality protection. This project will foster the use of adaptive management toolkits within two important physiographic regions of the Chesapeake Bay watershed (Coastal Plain and Piedmont). The Coastal Plain work will expand upon five years of work conducted in the Choptank and Chester River Watersheds. Expansion into the Piedmont will be achieved through work in the Monocacy watershed (MD), Smith Creek watershed (VA) and, Conewago Creek watershed (PA), with appropriate coordination through local partners and local soil conservation districts. By the end of the project, routine use of cover crop adaptive management toolkits will occur throughout Maryland, and additional useful tools will be developed to support watershed management efforts in Pennsylvania and Virginia. This will be facilitated by creating a web-based framework to provide geospatial reporting of cover crop performance, along with additional useful geospatial data sets, to Chesapeake Bay partners, thereby increasing the amount of useful, accessible knowledge and supporting the promotion of sustainable agricultural management practices.

Project Title: Promoting Low Impact Development in Vulnerable VA Watershed (22992)

Recipient: Potomac Conservancy

Foundation Federal Funds: \$ 500,000

Matching Funds: \$ 526,374

Total Project Costs: \$1,026,374

Project Area: 37 non-tidal localities in the James River, Rappahannock River and Potomac River basins.

Stormwater is the fastest growing source of pollution to Virginia's rivers and the Chesapeake Bay. Many low impact development (LID) practices, including environmental site design, have been developed to reduce the impact of stormwater on water quality and stream health.

One of the greatest obstacles to adopting and implementing LID practices is conflicting local codes and ordinances. Friends of the Rappahannock, James River Association and Potomac Conservancy will combine

efforts with the Virginia Department of Conservation and Recreation to conduct a comprehensive assessment of how local development policies can be improved to promote Low Impact Development (LID). The effort will assess 37 counties and cities in the non-tidal portion of Virginia's Chesapeake Bay watershed through an innovative partnership between conservation groups, local universities and state agency staff. The results of the analysis will be used to target code revision processes in 9 localities to help achieve needed policy improvements in areas where high growth is expected. The project will sponsor an LID design competition to engage the developer, engineer and design communities and build interest and knowledge of LID concepts and practices. The project will increase awareness and understanding of LID among local decision makers and the public through outreach efforts in targeted localities and the implementation of 30 LID projects.

Project Title: Onancock Watershed Restoration Project (22996)

Recipient: Chesapeake Bay Foundation, Inc.

Foundation Federal Funds: \$ 500,000

Matching Funds: \$ 866,502

Total Project Costs: \$1,366,502

Project Area: The Town of Onancock in Accomack County on the Virginia Eastern Shore.

The Chesapeake Bay Foundation's Onancock Watershed Restoration Project is an innovative, whole-community approach to watershed restoration including urban and agricultural best management practice implementation. The Virginia Eastern Shore's Onancock watershed is identified as being and in the top 25 percent nutrient-yielding areas for nitrogen and phosphorus from both urban and agricultural sources. Through efforts of multiple local government, state government, federal government, research/extension, and non-profit partners, this project will engage farmers and watershed residents in a comprehensive effort to reduce nutrients and sediment loading to the Onancock Creek. The project has four primary focus areas: whole community engagement, urban stormwater runoff control; improving agricultural nitrogen use efficiency, and nutrient trading; and residential and agricultural riparian buffer restoration. The commitment of local partners to engage all sectors of the watershed in efforts to restore water quality in the Onancock Creek demonstrates how whole communities can work together to achieve local water quality and Chesapeake Bay restoration goals. This project is well-timed to educate residents and local town and county staff and leadership about threats to their watershed and identify specific actions they can take to reduce the impact of existing and new development on water quality.

Project Title: Reducing Ammonia Emissions and Runoff from Broiler Litter (22764)

Recipient: Virginia Polytechnic Institute and State University

Foundation Federal Funds: \$ 700,000

Matching Funds: \$1,002,186

Total Project Costs: \$1,702,186

Project Area: Augusta and Rockingham Counties in the Shenandoah Valley, and Accomack and Northampton Counties on the Eastern Shore of Virginia.

Ammonia emissions from animal manure, such as poultry litter, can result in excessive nitrogen (N) loading into aquatic environments via wet and dry deposition. This can lead to water quality problems, particularly in systems where N is the limiting nutrient for eutrophication, such as estuarine systems, like the Chesapeake Bay. This project will demonstrate the efficacy of the following technologies for reducing ammonia emissions; (1) ammonia scrubbers which are attached to exhaust fans on poultry houses, (2) addition of alum to poultry litter inside poultry houses, and (3) using a litter incorporator to make litter applications. We will also demonstrate the efficacy of combining alum treatment with both ammonia scrubbers and litter incorporation for improving air and water quality both in house and following land application of litters. The project team, including personnel from Virginia Tech, Virginia Cooperative Extension, Virginia Department of Conservation and Recreation, USDA/NRCS, Soil and Water Conservation Districts, the University of Maryland – Eastern Shore and USDA/ARS, will work with local growers to demonstrate the effects of these technologies on ammonia losses to the atmosphere, phosphorus runoff and crop growth on two farms in the Shenandoah Valley and two farms on the Eastern Shore of Virginia.