

**Implementing at the Local Level: Cost Effective Best Management Practices that will Reduce Nutrients Loads and Bacteria Levels in the Broadkill Watershed.**

**Sponsor:** Milton Community Foundation

**Project Partners:** Milton Community Foundation, Town of Milton, Broadkill Tributary Action Team, residents and stakeholders of the Broadkill watershed, University of Delaware Sea Grant Program, University of Delaware Citizen Monitoring Program, Delaware Department of Agriculture, Sussex Conservation District, USDA Natural Resources Conservation Service, Delaware Nutrient Management Commission, and DNREC Watershed Assessment Section – Wetlands and Soil Assessment Branch

**Point of Contact:** Emory West, President, Milton Community Foundation

Larry Savage, Treasurer, Milton Community Foundation

Milton Community Foundation  
P.O. Box 12  
Milton, DE 19968

**Technical Liaison:** Joe Farrell  
University of Delaware Sea Grant Program  
(302) 645-4250  
[jfarrell@udel.edu](mailto:jfarrell@udel.edu)

**Time Period:** February 1, 2010 –January 31, 2011

**Total Project Cost: \$113,000**

**Costs Requested:** \$50,000

**Signature Page:**

*Emory West*

**Emory West - President, Milton Community Foundation**

*1/12/10*

**Date**

*Larry Savage*

**Larry Savage - Treasurer, Milton Community Foundation**

*1/12/10*

**Date**

**Milton Community Foundation  
P.O. Box 12  
Milton, DE 19968**

## **Background and Justification:**

As part of the watershed assessment study for the Broadkill River Watershed, a plan was developed that defines a path toward pollution reduction in the watershed to ultimately reach the Total Maximum Daily Loads established by the State of Delaware Department of Natural Resources and Environmental Control (DNREC) and the Environmental Protection Agency (EPA). This watershed plan is comprised of three components. The first component is a baseline assessment which identifies and describes the watershed, sources and types of impairments, and locations of water quality degradation. All of the baseline assessments indicate that impairments could worsen with projected growth pressures if pollution control measures, both proactive and retrofit, are not undertaken. The second component is an inventory of potential pollution control opportunities targeted at the identified impairments. Duffield Associates (a local engineering firm) along with the Center for Watershed Protection produced a detailed implementation strategy based upon these targeted opportunities. The third component is the implementation strategy which combines the data from the first two components and then prioritizes the watershed management methods to ultimately reduce pollution entering the watershed.

In addition, the Broadkill watershed has a Tributary Action Team (TAT). A TAT is a group of interested citizens, government officials, business owners, developers, and farmers meeting to build agreements between all stakeholders for a detailed plan of action to improve water quality within their watershed in the areas of agriculture, stormwater and wastewater. The Broadkill TAT developed a Pollution Control Strategy (PCS) with recommendations for either regulatory or voluntary actions to help reduce pollutant loads to the TMDLs levels. Their recommendations have been submitted to the Department of Natural Resources and Environmental Control in order to promulgate regulations that will meet water quality standards. Thus, the watershed assessment plan and TATs go hand-in-hand to allow citizens and local governments to implement cost effective best management practices that improve water quality.

Another important partner working toward increased water quality in the Broadkill is the Milton Community Foundation. Established in 2006, the Foundation is a charitable/educational tax-exempt 501(c)3 community based organization that works in partnership with other organizations and the Town of Milton to promote public/private partnerships, community based solutions and improvements, as well as good governance, enhanced civic services and economic development. One of its specific goals is to support the improvement of the water quality of the Broadkill River, and protect its shoreline so the Broadkill River becomes fishable and swimmable; and to support other efforts that protect the volume and quality of groundwater in the Broadkill River watershed.

All project partners want to make sure that this watershed plan, including a wealth of information on needed pollution prevention and mitigation projects, will not be just sitting on a shelf somewhere gathering dust. Implementation is necessary in order to reach the 40% reduction in nutrient loads and 75% reduction in bacteria levels established by the Broadkill River TMDLs. That is why all project partners, especially the Town of Milton, are submitting this grant request to address the much needed unpermitted and untreated stormwater discharges found in the Milton area. By working with the Town of Milton, several prioritized projects would be funded

with this grant request that would demonstrate significant pollutant reductions in a cost-effective manner. In addition, this would build some capacity with this small town to learn to manage its stormwater and would serve as model for other small municipalities within the State of Delaware.

The four stormwater retrofit projects have been selected for possible implementation with this grant funding are as follows:

**Table 1. Stormwater Retrofit Projects Selected for Implementation**

Project name	Project Description	Pollutants treated	Anticipated Cost
H. O. Brittingham Elementary School	Retrofit a dry pond into a bioretention facility	TP, TN, ZN, TSS, Bacteria	\$26,637
Milton Downtown Public Parking	Install narrow bioretention on periphery of parking lot	TP, TN, ZN, TSS, Bacteria	\$20,569
Sussex County Library	Create rain gardens near library to treat rooftop runoff	TP, TN, ZN, TSS, Bacteria	\$32,576
Milton Firehouse / Police Auxiliary Parking	Create bioretention area to treat parking lot	TP, TN, ZN, TSS, Bacteria	\$22,168

Only 2 of the 4 stormwater retrofits will be funded by this proposal – The Milton Downtown Public Parking and Milton Firehouse/Police Auxiliary Parking. The remaining retrofits will be funded from 319 Nonpoint Source grants but all projects will be implemented as funds become available.

In summary, this project fits with the grant program criteria as it provides benefits to water quality within an impaired watershed, implements non-regulatory projects in a watershed management plan, installs community stormwater management improvements in a municipality using sustainable and cost effective approaches, restores water quality benefits by reducing nonpoint source loads.

**Scope of Work:**

The main objectives of this project are to implement pollution prevention and mitigation stormwater practices within the Broadkill watershed and to develop competence within the Town of Milton to manage their own stormwater and other nonpoint source pollutants.

The specific project objectives are to:

- Implement structural Best Management Practices (BMPs) in an impaired watershed based upon the Broadkill River Implementation Plan and recommendations from the Town of Milton as described in Table 1;

- Demonstrate significant nonpoint source pollution load reductions in a sustainable and cost-effective manner;
- Carry out projects to support the implementation of TMDLs;
- Determine watershed appropriate pollution control strategies for TMDL implementation through facilitated Tributary Actions Teams;

In order to meet these objectives, several tasks will be done as the project is implemented.

Task 1: The University of Delaware Sea Grant Marine Advisory Service will facilitate discussion among project partners – the Milton Community Foundation, the Town of Milton, the Broadkill Tributary Action Team and other project partners by discussing the watershed implementation plan, its potential impacts and the plan for project implementation from this grant funding.

Task 2: The Milton Community Foundation, in cooperation with project partners, will retain the designated engineering firm to design the two best management practices chosen from Table 1 to be implemented with this funding.

Task 3: The Milton Community Foundation, in cooperation with project partners, will retain the designated contractors to install the two designed best management practices with help from project partners.

Task 4: The University of Delaware Sea Grant Marine Advisory Service will develop technical reports and outreach materials such as educational signs to be placed at each project, brochures, maps and flyers on the completed project(s) as well as tours of the project(s). These outreach activities will serve as a teaching tool to show other municipalities and communities what they can accomplish through cooperative efforts and at relatively low costs.

Task 5: DNREC and UD Citizen Monitoring Program will provide project partners with water quality monitoring data from monitoring stations within the Broadkill watershed to determine potential benefits from project components.

There is a great potential for environmental benefit coming from this project. A study done at a parking lot in St. Paul, Minnesota found that a wetland area built into a parking lot to capture runoff reduced storm water runoff volume by 73% and particulate matter export by 94% (Langer, 2001). Research done by the Center for Watershed Protection found that bioretention facilities installed in parking lots reduced total phosphorous measured in runoff by 65%, total nitrogen by 49% and metals by 95-97% (Quigley and Lawrence 2001). These measurable reductions will have significant impacts on the watershed's water quality.

These four proposed projects, on a yearly basis, would potentially remove 5.8 pounds of total nitrogen, 0.85 pounds of total phosphorus, 0.8 lbs of zinc, and 444 lbs of sediment and reduce bacteria from entering the Broadkill River. Research shows that rain gardens are particularly effective at reducing solids and nutrients in stormwater runoff from residential yards and parking lots.

**Time Schedule and Benchmarks:**

<b>Table 2. Timeline and Benchmarks</b>		
<u>Timeline</u>	<u>Tasks</u>	<u>Project Objectives</u>
February-March 2010	Project Partners Meeting to discuss implementation of project	Determine watershed appropriate pollution control strategies for TMDL implementation through facilitated Tributary Actions Teams;  Carry out projects to support the implementation of TMDLs
March-June 2010	Hire Engineering Firm to design BMPs as prescribed in the Broadkill Watershed Plan to provide water quality benefits to an impaired watershed	Implement structural Best Management Practices (BMPs) in an impaired watershed based upon the Broadkill River Implementation Plan and recommendations from the Town of Milton;  Carry out projects to support the implementation of TMDLs
August-October 2010	Hire Contractor to install BMPs as prescribed in the Broadkill Watershed Plan to provide water quality benefits to an impaired watershed	Implement structural Best Management Practices (BMPs) in an impaired watershed based upon the Broadkill River Implementation Plan and recommendations from the Town of Milton;  Carry out projects to support the implementation of TMDLs
October – December 2010	Create Outreach Materials and Do Outreach Activities	Carry out projects to support the implementation of TMDLs
Ongoing	Collection of Monitoring Data to determine water quality restoration benefits from nonpoint source pollution	Demonstrate significant nonpoint source pollution load reductions in a sustainable and cost-effective manner  Carry out projects to support the implementation of TMDLs

**Project Budget:**

	<b><u>Total Cost</u></b>	<b><u>Grant Requested</u></b>	<b><u>Match</u></b>
<b><u>Project 1 Design and Construction – Fire House</u></b>	\$22,168	\$22,168	
<b><u>Project 2 Design and Construction – Parking Lot</u></b>	\$20,569	\$20,569	
<b><u>Project 3 Design and Construction – Elementary School</u></b>	\$26,637		\$26,637 (EPA/DNREC 319 NPS Program)
<b><u>Project 4 Design and Construction – Library</u></b>	\$32,576		\$32,576 (EPA/DNREC 319 NPS Program)
<b><u>Outreach Design and Materials</u></b>	\$6,050	\$2,263	\$3,787 (UD Sea Grant Program)
<b><u>Overhead Administration Expenses</u></b>	\$5,000	\$5,000	
<b><u>TOTAL</u></b>	<b>\$113,000</b>	<b>\$50,000</b>	<b>\$63,000</b>

Funding requested includes the design and construction implementation cost for two projects as estimated by Duffield and Associates based on conceptual sketches of the proposed projects. Also, funding for outreach signs at the project locations and outreach materials to educate residents are included in this request. Finally, 10% overhead administration expenses for the Milton Community Foundation are included to cover cost associated with the fiscal management of the grant, including keeping accounts, quarterly reporting, bank costs, office supplies, dispersing funds, documentation, and other associated fees and costs.

## **Qualifications:**

### **The Milton Community Foundation**

The Foundation, established in 2006, is a charitable/educational tax-exempt 501(c)3 community based organization that works in partnership with other organizations and the Town of Milton to promote public/private partnerships, community based solutions and improvements, as well as good governance, enhanced civic services and economic development. One of its specific goals is to support the improvement of the water quality of the Broadkill River, and protect its shoreline so the Broadkill River becomes fishable and swimmable; and to support other efforts that protect the volume and quality of groundwater in the Broadkill River watershed.

It has managed funds on behalf of the Delaware Division of the Humanities, and received grants from the Delaware Division of the Arts for community based projects. The Foundation is also eligible to receive funds from other foundations. Since its inception, the Foundation has transacted nearly \$100,000.00.

### **The Town of Milton**

The Town of Milton owns a Kubota All Terrain vehicle which holds a 35 gallon water tank and sprayer. The Town of Milton Maintenance Department will monitor and maintain any bioretention pond(s) that will be placed on Town property.

### **The University of Delaware Sea Grant Marine Advisory Service (MAS)**

The mission of the University of Delaware Sea Grant Marine Advisory Service (MAS) is to foster the wise use, conservation, and development of marine resources by acting as a conduit between university researchers and a variety of citizen users, from coastal resource managers to business owners. The MAS assists these groups in solving problems and addressing new opportunities by providing timely, objective information and techniques. This technology and information transfer may take the form of applied research projects, workshops and training seminars, one-to-one consultations, publications, videos, web sites, and other media.

In the Broadkill watershed the MAS conducts several watershed outreach programs and numerous activities including the Broadkill River Monitoring Program (a program within UD Citizen Monitoring Program), Delaware NEMO (Non Point Education for Municipal Officials), and convened and facilitated the Broadkill Tributary Action Team.