9. **Information and Education**

Although agricultural and stormwater BMPs discussed above have the potential to improve water quality, there are substantial implementation barriers facing farmers, homeowners and businesses. Those barriers range from lack of knowledge to high implementation costs. The North Jersey RC&D interviewed 16 farmers in the Raritan River Basin during 2009-2010 for the purpose of evaluating potential barriers to the adoption of conservation buffers, one of the agricultural BMPs discussed in Chapter 7. Farmers were presented with a list of potential barriers and were asked to rank each barrier from 1 to 5, one being the least concern and 5 being a major concern. Table 9.1 tallies the average scores for potential barriers to implementation. Overall, maintaining farmland tax assessment was a major concern for producers in the Raritan River Basin. The fear is that any land converted from agricultural production to a buffer will result in loss of farmland tax assessment on the converted area. The next major concern was the cost of implementation. Damage to crops from deer is a major deterrent towards implementing riparian buffers especially forest riparian buffers, as the deer are attracted to the riparian buffer plantings and hence to the farmers crops. Few producers have experience with cost sharing and rental rates. For that reason, they were unable to answer the question on cost sharing and rental rates. Interviewed producers were least concerned about the decrease in land value which may be associated with riparian buffer implementation.

Table 9.1: Potential barriers to BMP implementation

Barriers	Average Score	Rank
Maintaining Farmland Tax Assessment	3.63	1
Cost of Implementation	3.31	2
Damage From Deer	3.25	3
Loss of Productive Land	3.25	4
Maintenance Requirements	3.13	5
Inadequate Incentives	3.00	6
Inconvenience	2.63	7
Cost Sharing Rate Too Low	2.57	8
Rental Rate Too Low	2.57	9
Aesthetics	2.56	10
Control of the Land	2.44	11
Not Interested	2.44	12
Doesn't Work in this Area	2.19	13
Not Familiar With What is Involved	2.19	14
Decrease in Land Value	2.06	15

Similar barriers may exist for agricultural and stormwater BMPs. Practical barriers, such as cost of implementation and inadequate incentive, should be addressed by the governmental programs for implementing those BMPs. There are also perceived barriers associated with the lack of information and understanding or the fear of working with governmental agencies. One

way to overcome such perceived barriers is to initiate effective outreach and educational efforts to help relevant stakeholders to overcome those barriers.

There are several educational and outreach programs that would be appropriate to implement in the Neshanic River Watershed. Such programs would educate people about water quality problems in the watershed and actions needed to resolve those problems with the long-term goal of promoting behavioral changes that ultimately result in improvements in water quality. Below is a description of several programs that should immediately be implemented throughout the Neshanic River Watershed.

9.1. River-Friendly Programs: Golf Courses, Businesses, Residences and Farms

The NJWSA offers River-Friendly programs to golf courses, residents, businesses, farms and schools. The goals of these programs are to improve water quality by implementing actions in four categories:

- Water Quality Management and NPS Management;
- Water Conservation;
- Native Habitat and Wildlife Enhancement; and
- Education and Outreach.

The certification process provides opportunities for landowners to become local stewards, showcasing positive environmental actions they have already taken and new practices that they can begin implementing as part of the program. The NJWSA provides technical information, support and guidance for implementing environmental practices tailored to particular locations.

For more information, go to www.njriverfriendly.org.

9.2. Rain Garden Program: Residences, Schools and Landscapers

The RCE Water Resources Program offers several outreach programs whose goal is to help local groups build capacity to install rain gardens throughout their community to improve water quality. One such program, called *Stormwater Management in Your Backyard*, has the general public as its target audience. The program focuses on educating the public about stormwater management and provides alternatives for improving stormwater management at home. As part of this program, participants are taught how to design and build a rain garden.

Stormwater Management in Your Backyard has been adapted for use with school children, under the program *Stormwater Management in Your School Yard.* This program focuses on educating K-12 students on stormwater management and includes instruction on how to design and build a rain garden. Often this program is accompanied by the construction of a demonstration rain garden designed by the students on the school grounds.

Two rain garden certificate programs are available from the RCE Water Resources Program. One is a certification program for individuals providing intensive instruction on how to design, build and maintain rain gardens. The second program is for landscapers and is very similar to the other program except that it includes much more detail on how landscapers could offer rain garden construction as a service. Once landscapers complete the course, their names

are posted on the RCE Water Resources Program web site. People looking for help with rain gardens are referred to these landscapers.

For more information on these programs, go to www.water.rutgers.edu.

9.3. **Sustainable Jersey™**

Sustainable Jersey™ is a certification program for municipalities in New Jersey that want to go green, save money and take steps to sustain their quality of life over the long term. Sustainable Jersey™ identifies actions communities can take to become "certified" as leaders on the path toward sustainability and provides the tools, guidance and incentives to enable communities to make progress toward sustainability. The certification is a prestigious designation for municipal governments in New Jersey. Municipalities that achieve the certification are considered by their peers, state government, experts and civic organizations in New Jersey to be among the leading municipalities.

All four towns within the Neshanic River Watershed are registered with Sustainable Jersey™. Several of the actions that are required under the certification process help improve water quality of the Neshanic River and achieve the goals of the plan. Three Sustainable Jersey actions fall into this category: (1) Community Education and Outreach; (2) Water Conservation Education Program; and (3) Innovative Demonstration Projects - Rain Gardens. As towns strive to achieve their Sustainable Jersey™ certification, they should focus on tailoring the three actions to help improve water quality within the Neshanic River Watershed.

For more information, go to www.sustainablejersey.com.

9.4. **Soil Testing Program**

Understanding soil nutrients will help farmers, residents and businesses better manage their fertilizer applications. An educational program that includes a comprehensive soil testing program should be put in place in the Neshanic River Watershed. The program should provide free soil testing to farmers, residents and businesses. A soil test is less than $20 and typically needs to be done once every three years. The test provides fertilizer recommendations to the property owner based upon the crop they are growing or the type of turf grass they wish to establish and maintain. Blanketing the watershed with soil testing results will help municipalities and watershed groups target areas that are more susceptible to high phosphorus loads in stormwater runoff. A partnership among North Jersey RC&D, HCSCD and RCE should be created to implement this program. This partnership would not only administer the soil test program, educate property owners on how to interpret soil testing results, and provide recommendations on actions that should be taken and technical assistance in implementing those recommendations. Recently, New Jersey Water Savers developed the *Turf Management for a Healthier Lawn* program. This program could be implemented in the Neshanic River Watershed, serving as the educational component for homeowners described above.

For more information on *Turf Management for a Healthier Lawn* program, go to www.njwatersavers.rutgers.edu.

9.5. **Ordinance Review and Development**

The ordinances for the four municipalities in this watershed should be reviewed to identify opportunities for incorporating a wider range of environmental practices. For example, many ordinances require new developments to use specific design standards many of which do not allow for deviations. These ordinances could be expanded to allow green infrastructure to be used in place of traditional infrastructure, which would improve water quality within the Neshanic River Watershed. Additionally, new ordinances could be developed and adopted for the towns that would help achieve the goals of the Plan, such as for stream corridor protection, water conservation, and/or low-phosphorus fertilizer. In the past, various watershed groups or other watershed oriented organizations have provided this service for municipalities. The NJWSA (2008) reviewed ordinances for municipalities in the Lockatong and Wickecheoke Creek watersheds and recommended improvements in conservation planning and ordinances in those municipalities. The review covered Raritan and Delaware townships. The recommendations to both municipalities are presented in Section 7.1.4.3. One of the recommendations specifically calls for information sharing and education: conducting on-going outreach and education programs through the environmental commissions to inform local residents of the value of water resource protection and engage local schools to participate in activities that are protective of water resources (NJWSA, 2008). The NJWSA could provide similar services for other municipalities in the watershed.

9.6. **Roadside Rain Gardens**

The RCE Water Resources Program has been working with municipalities to help them address the water quality impacts of roadside drainage swales or ditches. This program focuses on retrofitting existing ditches with rain gardens or other natural systems that improve water quality and reduce maintenance costs to the municipality. The RCE Water Resources Program designs the systems and work with the local DPWs to implement the design. The ultimate goal is to teach the DPW how to implement a series of standard green retrofit designs that they could implement in suitable ditches throughout the watershed, reducing maintenance costs and improving water quality.

9.7. **Detention Basin Retrofits**

Over the last twenty years, it has been standard practice for developers to build detention basins to manage stormwater runoff. These detention basins originally were designed to control the increases in peak runoff flows that result from new developments, thereby minimizing downstream flooding. Over the years, these stormwater facilities evolved to also address water quality by installing a three-inch diameter orifice in the detention basin outlet structure to increase detention time and allow more pollutants to settle out. The detention basin designs began to incorporate concrete low flow channels for the purpose of preventing small flows from remaining in the basins for extended periods of time and thereby reduce habitat for mosquito breeding.

Most of the detention basins that have been built are vegetated with turf grass. The maintenance for these basins is typically weekly mowing during the growing season and regular sediment removal from the concrete low flow channels. Additionally, many of the basins have

outlet structures that can easily be clogged with debris, which has to be removed on a regular basis.

As local operating budgets become more limited, municipalities are looking for ways to reduce maintenance costs for their detention basins. Additionally, as more waterways become identified as impaired (i.e., not meeting water quality standards), municipalities also are examining methods to improve the pollutant removal capabilities of their existing stormwater facilities that discharge to these waterways. With these two goals in mind, municipalities are beginning to retrofit their existing stormwater facilities to be more water quality friendly and to reduce maintenance demands. The most popular method of retrofitting stormwater facilities is to "naturalize" the basin to mimic natural systems found in nature. This typically results in converting the detention basin into one of two natural systems: a stormwater wetland or a bioretention system.

This program works with municipalities and homeowner associations to retrofit basins with native vegetation to enhance their pollutant removal efficiency, promote groundwater recharge and reduce maintenance costs.

9.8. **Nonpoint Education for Municipal Officials (NEMO)**

This program would provide educational programs for municipal officials, engineers and Department of Public Works employees. The goal of the program is to educate these groups on water quality issues associated with NPS, possible solutions to mitigate NPS and how land use decisions can impact the pollutant loading to streams. The NEMO program includes low impact development training. Although there currently is not an official NEMO program in New Jersey, the RCE Water Resources Program is currently working to develop such a program for New Jersey.

For more information, visit the http://nemo.uconn.edu/.

9.9. **Greening of Department of Public Works (DPW)**

A greening program is currently being developed by Pat Rector, RCE Environmental and Resource Management Agent, and the NJWSA. The goal of the program is to work with DPWs to green their facilities. Many of the DPW yards have a high potential to be a pollutant source and often can easily be retrofitted with management strategies to minimize water quality impacts. From implementing natural stormwater management systems to installing pervious pavement, these facilities typically have the land to incorporate various BMPs into their yards. Furthermore, the DPW has the ability and expertise to install many of these systems.

9.10. **Agriculture Mini-Grant Program**

The goal of this on-going program is to increase implementation of agricultural conservation practices in four priority watersheds of the Raritan Basin: Spruce Run; Mulhockaway Creek; Neshanic River; and South Branch/Long Valley. The NJWSA developed this program to provide cost-share funding to agricultural producers in order to increase conservation practice implementation. The program is intended to expand the ability of farmers

to implement conservation practices by providing a funding source to either serve as a complement to USDA Farm Bill programs, or be a sole source of funding. There is considerable benefit to continuing to support this program in the Neshanic River Watershed. Although farmers may be willing to install BMPs that could improve water quality of the Neshanic River, many of these farmers have limited financial resources and often cannot afford the cost-share associated with receiving US Farm Bill funding for BMP implementation. This program helps pay for the cost share, thereby allowing many more farmers to implement BMPs.