

<b>PROJECT NAME:</b>		Comprehensive Agricultural Assistance Program				<b>PRIORITY:</b>		1	
<b>TYPE:</b>		Quality, Quantity, Erosion Control, Restoration							
<b>1. ISSUES AND CONCERNS:</b>									
<p>Agriculture operations will continue to be a significant portion of the land use in the Mulhockaway Creek Watershed and serve to maintain the rural character of both communities. However, these operations can contribute to the problems in the watershed, including erosion, bacterial contamination, localized nutrient enrichment and increased stream temperatures. Erosion from agricultural operations results from non-conservation plowing, lack of riparian buffers, animals with direct access to the stream and/or over-grazing of pastures. Bacterial contamination is usually caused by animal feces directly deposited in the stream or poor manure management (storage or use as fertilizer). Nutrient enrichment also occurs from poorly applied manure or over-application of fertilizers. Increased stream temperatures from agricultural areas are typically the result of poor riparian buffers and exposure of the stream to sunlight. Figure 1 shows presents the proximate locations of farm animals throughout the watershed.</p> <p>Farms in the watershed tend to be smaller operations with limited funds to implement current agronomic best management practices protective of water quality such as maintenance of riparian buffers, exclusion of animals from riparian areas and manure storage and use. In addition, smaller farms are typically unaware, unable and/or unwilling to participate in existing Farm Bill programs such as WHIP, EQIP and CREP. Both New Jersey Water Supply Authority (NJWSA) and Hunterdon County Soil Conservation District (HCSCD) have identified locations where animals have direct access to the stream, manure is stored unmanaged near the stream and the riparian buffer is too narrow, in poor condition or non-existent.</p>									
<b>2. EXISTING CONDITION BASED ON FIELD EVALUATION:</b>									
<p>The Mulhockaway Creek has violations of water quality standards for temperature and bacteria. Animals have direct access to the stream in many locations and the riparian buffer is sparse in places. Since June of 2000, the Creek has had no violations of the phosphorus water quality standard for streams tributary to lakes. Phosphorus is a concern for the Spruce Run Reservoir because it has become eutrophic, an indicator of nutrient enrichment. While the turbidity and total suspended solids concentrations are well below water quality standards during low to moderate flow conditions, they exceed water quality standards during wet-weather runoff events. Visual inspection of the stream and its mouth at the Reservoir demonstrate the significant sediment and erosion processes occurring in the stream.</p> <p>Through provision of Integrated Crop Management (ICM) Services, HCSCD has uncovered several prevalent trends in the County. Many continually farmed tracts are over limed with pH levels above optimum while others required lime, indicating that lime is applied without evaluation of its necessity for crop production. Optimizing pH levels maximizes nutrient availability and crop growth, while reducing the amount of nutrients in runoff. Balanced nutrient levels reduce nutrient runoff by maximizing crop growth. Phosphorus is usually found at or above optimal levels, but farmers still apply fertilizers that contain it. Potassium, which aids in nutrient uptake, is seldom found near optimal levels and is either very low or excessive. Manure is often applied without a soil test and without knowledge of the soil's and/or crop's ability to incorporate the nutrients. Use of herbicides and pesticides is typically based on the presence of a pest or weed rather than the economic and biological damage thresholds.</p>									
<b>3. PROPOSED SOLUTIONS:</b>									
<p>A comprehensive targeted agricultural assistance program is recommended to address agricultural issues in the watershed, particularly those related to erosion and manure management. The program would be implemented by the Hunterdon County Soil Conservation District and voluntary for landowners but provide funding to initiate planning and implementation of efforts to minimize the impacts of agricultural practices on water bodies. The Targeted Assistance Program includes: nutrient management plans, integrated crop management (ICM) services, an implementation coordinator and use of a secondary fund source to complement existing farm bill assistance programs. Details for each of the programs components are explained below.</p>									

- **Nutrient Management Plans:** Hunterdon County Soil Conservation District would developed for all agricultural operations with two or more animal equivalent units (AEUs). An AEU is 1,000 pounds of live weight of any animal on an annualized basis, meaning the weight can be normalized by the amount of time the animal is present on the property. Nutrient management plans would also be developed for smaller operations where animals (livestock, poultry, canine) are kept within 300 feet of a water body or wetland and a water quality benefit could be realized by such management. Plans would be developed at no cost to the landowner/agricultural operation. Implementation funding would be sought through EQIP and other Farm Bill assistance programs and supplemented from the secondary funding source.
- **Integrated Crop Management (ICM) Services:** Hunterdon County Soil Conservation District would work with the agricultural operation to develop an ICM approach to agricultural production on that farm which would include the establishment of thresholds for nutrients, pesticides and herbicides based on soil tests, pest infestation and pest threats. ICM benefits the agricultural operation by optimizing production and eliminating the overuse of fertilizers, pesticides and herbicides based on scientific and economic principals and proven agronomic practices.
- **Implementation Coordinator:** Hunterdon County Soil Conservation District would develop an outreach, education and monitoring coordinator position to identify and target high impact operations or locations where water quality benefits can be cooperatively achieved. The coordinator would also publicize the project, elicit participation and document implementation.
- **Secondary Implementation Funding Source:** The funds would be used to complement existing farm bill (EQIP) programs and be dedicated to offset the agricultural operations' cost share, usually 45 to 60 percent. The goal would be to reduce the cost share requirements to cover 90 to 100 % of the costs for installation of practices, which will improve water quality in the watershed. Eligible practices to be funded would include fencing animals from the stream, establishing or improving riparian buffers, manure storage or handling, erosion control and runoff energy dissipation. New Jersey Water Supply Authority and North Jersey Resource Conservation and Development Council (NJ RC&DC) are planning to heavily market agricultural assistance programs in the Spruce Run Reservoir Watershed using a program modeled after pollutant load trading (Source A would fund the cost of Source B's treatment or best management practices, to achieve the required pollutant removal at Source A). Cost-share funding would be provided by NJWSA for the installation of practices that remove or reduce pollutant loads to source waters, in essence, paying for pollutant removal at the source rather than at the drinking water treatment plant.

**4. ANTICIPATED BENEFITS:**

The ICM Services provided by the HCSCD will educate landowners and tenant farmers about the appropriate of amount of manure and/or chemicals to use to maximize their benefit and reduce productions costs associated with over application. Optimizing chemical use will result in better crop uptake and fewer nutrients migrating to the stream. The HCSCD program has already resulted in elimination and reduction of lime, fertilizer and pesticide applications.

**5. MAJOR IMPLEMENTATION ISSUES:**

The success of the Targeted Agricultural Assistance Program will depend largely on the receptiveness of landowners and agricultural operations to participate in the program. In particular, this program will be open to smaller operations, which are not typically the focus of similar programs due to their smaller size. Finding funds to support the program and implementation may also be difficult.

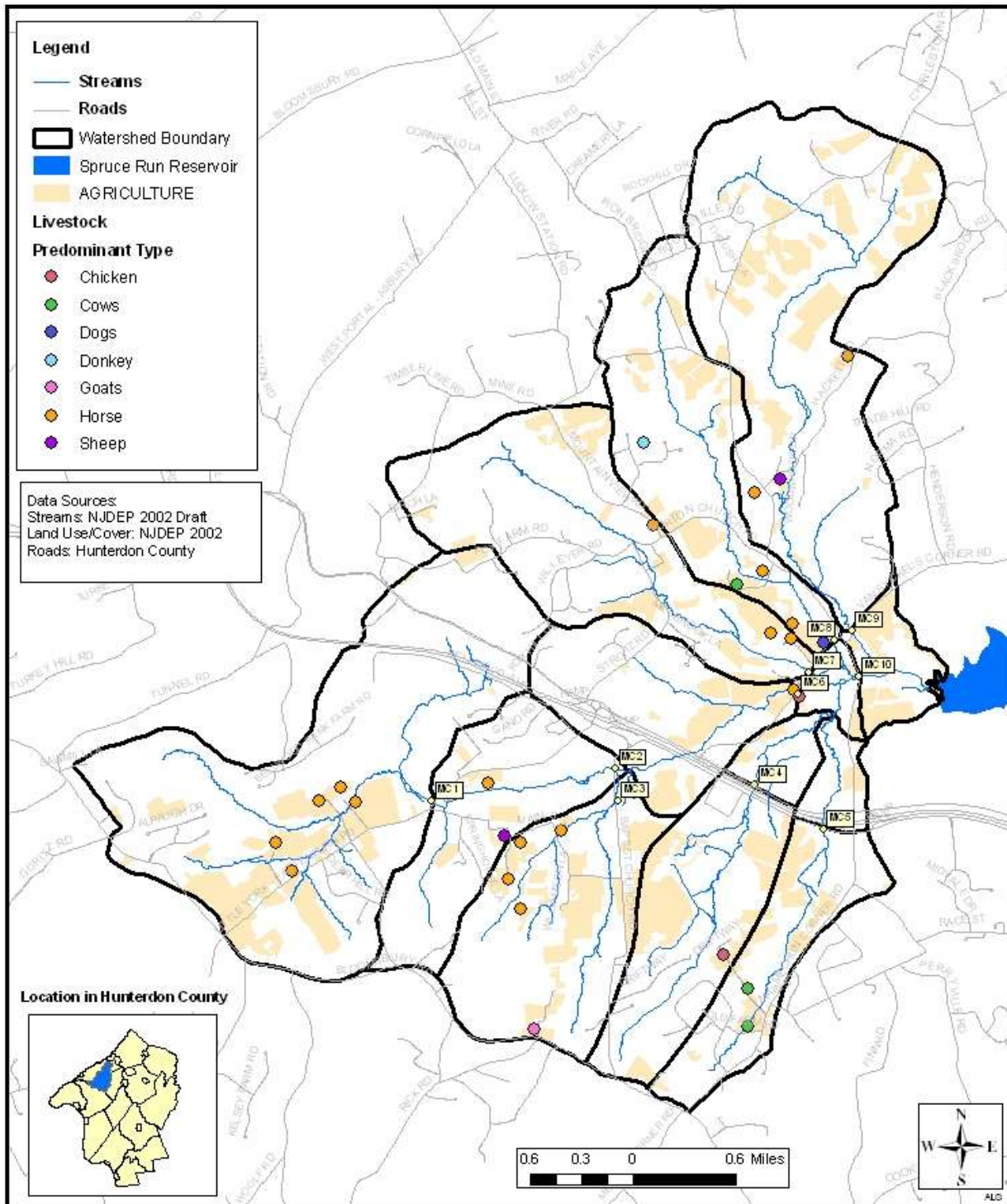
COMPONENT	DESCRIPTION	ESTIMATED COSTS
Nutrient Management Plans	40 farms or 1000 acres (16 hrs/plan x \$70/hr)	\$44,800
Integrated Crop Management Services	1,800 acres (\$15/year x 5 years)	\$135,000
Program Coordinator	4 weeks/year x 5 years x 40 hours x \$60/hr	\$48,000
	<b>TOTAL COST:</b>	<b>\$227,800</b>
	Funding Source for project implementation cost sharing also needed.	



**Farm on Van Syckel's Road without Proper Manure Management (Stream in lower right corner of picture)**



**Old Farm Road Where Livestock Have Direct Access to the Stream**



**Figure 1.**  
**Locations of Livestock Agricultural Operations**

**Mulhockaway Creek Stormwater Management and Watershed Restoration Plan**

NJDEP Grant Identifier RP02-084

**New Jersey Water Supply Authority**      December 2007