

## VIII. Management Options

The following sections outline management options for the LeTort Spring Run and the LeTort watershed. The options were developed from information gathered at meetings with municipal representatives, during the field reconnaissance of the stream and watershed, research in preparation of the plan, input from the LeTort Regional Authority, the Authority's Executive Director, the Steering Committee, the public and from The Landowner Survey.

These options merely represent potential projects and not policy. The LeTort Regional Authority may decide to implement any of these options during future meetings. Many of these options must be examined more completely to determine their feasibility.

The management options are in list format and grouped into Restoration, Maintenance and Enhancement sections. It should be noted the options are not listed in order of priority.

### **A. Restoration**

1. Repair damaged sections of wall from LeTort Park to Carlisle Barracks within the Borough of Carlisle. Wall restoration should attempt, when possible, to increase mean velocities within the channel and to incorporate fish habitat structures.
2. Contract with a consultant for the design of a stream restoration project in the Shady Lane section of the stream. If successful, the restoration techniques developed could be utilized on future projects on other sections of the stream.
3. Implement a public education initiative for identified agricultural operations within the watershed. Promote Best Management Practices including limiting access of livestock to the stream, the establishment, enlarging and / or enhancement of buffer zones and improving erosion controls.
4. Evaluate the feasibility of restoration of previously drained wetlands within the watershed (drained wetlands identified on upper watershed).
5. Promote plantings along the riparian zone, primarily within the borough, to minimize increases in stream temperature.
6. Removal of trash and other debris from stream. Limit access to stream in remote areas where dumping is a problem(See Table A).
7. Remove dams(mostly in the upper watershed) and other obstructions which are detrimental to the stream.(See Table A).

## **B. Maintenance**

1. Updating all municipal stormwater management ordinances to require implementation of Best Management Practices to reduce stormwater peak runoff and to improve water quality of the runoff and to promote the concept of Transfer of Development Rights and Clustering.
2. Contract with a consultant to conduct a study of groundwater additions and subtractions along the stream in order to analyze the impacts that the quarrying operation may have on the stream and to possibly identify sinkholes and springs.
3. Contract with a consultant to conduct an analysis of the on-lot disposal systems / community systems within the mobile home parks along Bonny Brook Road to determine the presence and impact of contamination, biologic and nutrient, on the stream.
4. Contract with a consultant to conduct a feasibility study to determine the options and costs of connecting the mobile home park to the South Middleton Township sewer system.
5. Contract with a consultant to conduct an analysis of local sewer systems to determine availability / existence of emergency backup power and automated notification devices.
6. Update all municipal ordinances to protect natural springs that feed to the LeTort. Protection should include limiting water withdrawal and development near the spring or within its recharge zone.
7. Contract with a consultant for the preparation of a Natural Resource Valuation Report. This report should identify the monetary and aesthetic value of the stream to the local area.
8. Survey the Nature Trail and map all easements, properties and rights-of-ways along trail.
9. Purchase land in full or interest free in order to retain land in open space or developed for recreation. e.g: for the Nature Trail extension projects.
10. Purchase conservation easements, when necessary, for the purpose of acquiring development rights.
11. Petition DEP for High Quality designation for section downstream of the Carlisle Barracks.
12. Review the PADEP permit issued to the composting facility on Post Road to determine if it provides adequate protection of the stream. Recommend necessary site improvements and Best Management Practices.

13. Conduct a study of area bridges to determine potential for exacerbating stream flooding.
14. Continue participating in the USGS stream flow monitoring program.
15. Evaluate storm drains within borough near major outfalls to determine if trash netting and/or water quality inlets are warranted.
16. Post information signs in areas with public access to stream (i.e. Public Parks, Camp Grounds, Residential Areas, etc.) describing sensitive nature of stream and watershed and promoting conservation practice.

### ***C. Enhancement***

1. Installation of Water Quality Inlets on stormwater systems near all pipe discharge locations.
2. Contract with consultant for the design of the remaining restoration plans for the Mully Grub tributary.
3. Contract for the construction of the remaining restoration plans for the Mully Grub tributary.
4. Extension of the Nature Trail south in South Middleton Township to connect with existing trails in South Middleton Township. The LeTort Spring Run Hiker/Biker Trail is consistent with the recently adopted Cumberland County Greenway Plan. The Greenway Plan identified the LeTort Nature Trail as a high priority for expansion.
5. Extension of the Nature Trail north through the Borough of Carlisle, Carlisle Barracks, North Middleton Township and Middlesex Township to potentially connect with the Appalachian Trail.
6. Creation of an access and parking lot on the Dickinson College tract along Post Road in North Middleton Township.
7. Design and construction of rerouting the Nature Trail across the stream in order to avoid Highland Avenue.
8. Contract for design and construction of improvements to parking area along Bonny Brook Road for access to the Nature Trail.
9. Contract with a consultant to promote a conservation easement program and the concept of a conservation corridor for the stream.

10. Promote a greenway corridor as a potential conservation zone through revision to municipal ordinances.
11. Review Erosion and Sedimentation measures at Union Quarry and suggest any needed implementation measures.
12. Continue to promote and participate in public education programs and field trips to the LeTort.
13. Conduct a study of the local municipalities and PennDOT's winter road maintenance procedures. Explore possibility of lessening or eliminating use of harmful de-icing agents.