Promoting Conservation in the Borough

Presented by the River Town Team (a project of the Lewisburg Neighborhoods Corporation)

The River Town Team (under the Lewisburg Neighborhoods Corporation) has been investigating the question of how best to protect the Susquehanna River, its tributaries, and the land bordering these waterways in a cost-effective manner and in accord with well-established Best Management Practices (BMPs). One such BMP is the maintenance of vegetated riparian buffers. The following paper presents the rationale for this strategy and recommends some preliminary steps for implementing it in the borough.

Definition of a Riparian Buffer

As defined by the Pennsylvania Department of Environmental Protection (DEP) Bureau of Waterways Engineering and Wetlands (Riparian Buffer or Riparian Forest Buffer Offsetting, Document 310-2135-003), a riparian buffer is a BMP that involves the establishment and maintenance of an area of permanent vegetation along water bodies that is left undisturbed to allow for natural succession of native vegetation. A riparian buffer may consist of grasses and forbs, or a combination of vegetation types to include grasses, forbs, shrubs and trees.

Benefits of Riparian Buffers

DEP's *Pennsylvania Stormwater Best Management Practices Manual* states that "the economic, ecological, recreational, and aesthetic benefits of healthy and robust riparian buffers are well documented in scientific literature and numerous reports." Specific examples include:

- Filtering pollution
- Preventing erosion and harmful sedimentation
- Reducing flooding
- Stabilizing stream banks
- Providing habitat for birds and other animals
- Regulating water temperature and
- Providing nutrients for vegetation (in turn reducing nutrient loads in waterways)

Additional Information

- Plants, shrubs, and trees provide a deeper and more robust network of root systems than grasses. Non-grass plants therefore are better able to prevent bank erosion, reduce flooding, and stabilize stream banks.
- Planting a variety of plants native to the area will provide habitats for a wide variety of birds, butterflies, and other animal life that will make the borough parks more attractive for both residents and visitors.

Discussion

The greater Lewisburg area (roughly the footprint of the Lewisburg Area School District) contains approximately 100 miles of rivers and streams; the borough alone has 19,000 linear feet of stream banks both along and within its borders. The Susquehanna, Buffalo Creek, and Limestone Run/Bull Run waterways, which border and run through the largest parks within the borough, provide both recreational opportunities and aesthetic pleasure to borough residents, visitors, and tourists alike. Developing a plan for preserving and maintaining riparian buffers along these waterways can provide several advantages to the borough administration and borough residents:

- Preventing erosion along the banks
- Keeping the river cleaner
- Saving the borough crew time and effort, and therefore money

- Attracting birds, butterflies, and other wildlife that attract tourists
- Making the parks along these waterways more attractive and easier to maintain

A variety of issues are raised when considering the establishment of buffers along streams and rivers:

- What are the goals and long-term vision for the borough with regard to the parks that line the waterways?
- What mix of plants and/or engineered structures would be most effective along each stream?
- How can a buffer be designed to ease, or at least not increase, the workload of borough maintenance crews?

Other Considerations

- Over the years the directions given to Borough Public Works crews have changed and sometimes been contradictory (e.g., provide visibility to the river in Soldiers' Park vs. let the vegetation grow). To provide some consistency over time, a general philosophy and system of priorities regarding riparian banks needs to be developed that recognizes that the priorities for one stream will be different at different locations along the stream and will vary for other water ways.
- Certain areas (e.g., from Market Street to the rail trail and under the covered bridge) are currently maintained using herbicides that are aquatically safe; this spraying takes place once per year (rather than three to four times that hand maintenance would require). Others are maintained by machine mowers (e.g., Soldiers' Park).
- Riparian buffer planning should recognize the borough's need for places to pile snow during storms.
- Borough crews are probably not sufficiently staffed to be able to maintain buffers that are planted with native species. Some reliable mechanism for volunteer or organizational maintenance of such areas (e.g., along the river in Solders' Park) needs to be developed that can be self-sustaining. Past experience suggests that merely signing up volunteers may not be sufficient over time.
- A path must be maintained along the bottom of the bank in Solders' Park (from the power lines to Market Street) so crews can get to the outfall pipe that emerges near the Market Street bridge.
- If the decision is to replace some of the riprap bank armoring with natural plantings, the riprap should be kept for other uses.
- If the covered bridge is relocated, the pipe that transports fiber-optic cable that runs beneath the bridge and over the stream will need to be buried.

Recommendations

- Review the greenway and river-town planning charrettes for information on community priorities for borough green spaces.
- Establish overarching goals and a vision regarding the green spaces within the borough.
- Establish a Conservation Advisory Group that would include borough staff, borough council members, and representatives of the River Town Team Conservation Committee to develop a plan for designing, implementing, and maintaining buffers along the borough's waterways. The Conservation Advisory Group would also develop a manual that includes standards for implementing and maintaining riparian buffers on borough property, as well as guidelines for homeowners whose property includes waterfront of any kind. This group could operate within the Public Works committee.
- Insofar as buffers will be implemented using plantings (as opposed to engineering), limit plants to those native to the region, in order to minimize maintenance needs while optimizing the aesthetic and environmental impact of the buffers.