

# **Woonasquatucket River Riparian Buffer Restoration Project**



Prepared for  
**Rhode Island Department of Environmental Management  
Sustainable Watersheds Office**

and  
**Woonasquatucket River Watershed Council**

October 2001

Prepared By  
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## **WOONASQUATUCKET RIVER RIPARIAN BUFFER RESTORATION PROJECT**

### ***PREFACE***

Information presented herein was developed for the Rhode Island Department of Environmental Management (DEM), Sustainable Watersheds Office, and the Woonasquatucket River Watershed Council (WRWC) using funds provided by the USDA Forest Service (USFS). This information is intended to work in conjunction with other ongoing and proposed efforts to restore the Woonasquatucket River as a natural asset, contributing to the environmental, cultural, and recreational and economic health of the watershed and its communities. Peter Hanlon and Gregg Cassidy of the DEM developed the proposal that was successful in obtaining the federal funds necessary to complete this work. Numerous individuals and organizations contributed to the development of the information presented herein, including the WRWC and each of its Board members; Nick Miller and Dr. Francis Golet, University of Rhode Island (URI); Carol Murphy, DEM; Johanna Hunter, Blackstone/Woonasquatucket American Heritage River Navigator, U.S. Environmental Protection Agency (EPA); Elizabeth Clarke and Sally Butler, Natural Resource Conservation Service (NRCS); The Providence Plan; U.S. Army Corps of Engineers (ACOE); the City of Providence Department of Planning and Development; the Northern Conservation District; and Managers and Town Planners from each of the municipalities in the watershed. Special recognition goes to the following individuals for providing valuable administrative and technical input throughout the project:

- Fred Presley                      Northern Region Watershed Coordinator, DEM;
- Jenny Pereira                     Director, WRWC; and,
- Jane Sherman                    Chair WRWC and Director, Woonasquatucket River  
Greenway Project, The Providence Plan.

The EPA provided support for a watershed wetlands study (completed by URI and DEM individuals noted above) that proved useful for this study. The USFS not only funded this particular project, but research on forested buffers over the years and review of this report by David Welsch proved important as well. We would also like to acknowledge a Five-Star Restoration grant that was received from the National Fish and Wildlife Foundation that was

used to purchase native riparian buffer plant material for the implementation phase of this project.

Finally, President Clinton's designation of the Woonasquatucket River (along with the nearby Blackstone River) as one of fourteen American Heritage Rivers in the nation has been a catalyst for this project and other restoration efforts in the watershed. Watershed residents who joined in the successful designation process, along with representatives of non profit organizations and local government, are now organized as the WRWC, and continue their efforts to revitalize the river and the six communities in the watershed - North Smithfield, Smithfield, Glocester, Johnston, North Providence, and Providence. The WRWC works closely with local partners, businesses, nonprofit organizations, and state and federal agencies to advance local goals, and currently operates with support from the Rhode Island Foundation and River Network.

## ***EXECUTIVE SUMMARY***

Much of the natural riparian forestland along the Woonasquatucket River has been significantly altered by human activity. Currently only 19 percent of the river corridor exhibits an existing riparian forest buffer. Most of this existing buffer is located in the upper portions of the watershed with only small fragments of forested riparian areas found in the middle and lower portions of the watershed. Commonly observed riparian buffer impacts include removal of forest vegetation and ongoing mowing, impervious surfaces directly adjacent to the river (including roads, roofs, and parking lots), invasive exotic species, channelization and floodwalls that hydrologically segregate the river from historic riparian buffers and floodplains, and storm drains that bypass vegetated buffer areas.

A comprehensive inventory of potential riparian buffer restoration sites was conducted along the Woonasquatucket River to examine opportunities for improving water quality and enhancing other important ecological and social values within the watershed through improved forest management and stewardship. Potential restoration sites were identified through a site nomination process and field reconnaissance. A total of 36 candidate riparian buffer restoration sites were evaluated. More than 36 sites were identified, but several of these were determined not to offer promising opportunities and therefore were not evaluated in detail. Data were collected on the potential restorability of each site by evaluating ecological, social and practical factors. Specific restoration options were evaluated for each site and preliminary costs associated with each option were developed. Based on field data, candidate sites were prioritized and evaluated relative to various benefits and costs. Using this information, five potential demonstration sites were identified and discussed with the Woonasquatucket River Watershed Council. The Riverside Mills site in Providence was ultimately identified as the preferred site for a demonstration project. Practical considerations (including leveraging and partnering potential and public ownership) weighed heavily in this decision due to the desire to implement the project right away.

Inventory data, including site photographs, has been compiled into a database, which allows for future examination and identification of suitable restoration sites depending on selection criteria and funding. Detailed site descriptions have also been developed for each of

the identified restoration opportunities, which provide a quick reference for future planning and implementation efforts.