



2011

Final Report: Section 1. Introduction

Horsley Witten Group, Inc.

Recommended Citation

Horsley Witten Group, Inc. (2011). Final Report: Section 1. Introduction. *Taunton River Watershed Project Phase II Final Report*. Item 4.

Available at: http://vc.bridgew.edu/taunton_riv_ph2/4

This item is available as part of Virtual Commons, the open-access institutional repository of Bridgewater State University, Bridgewater, Massachusetts.

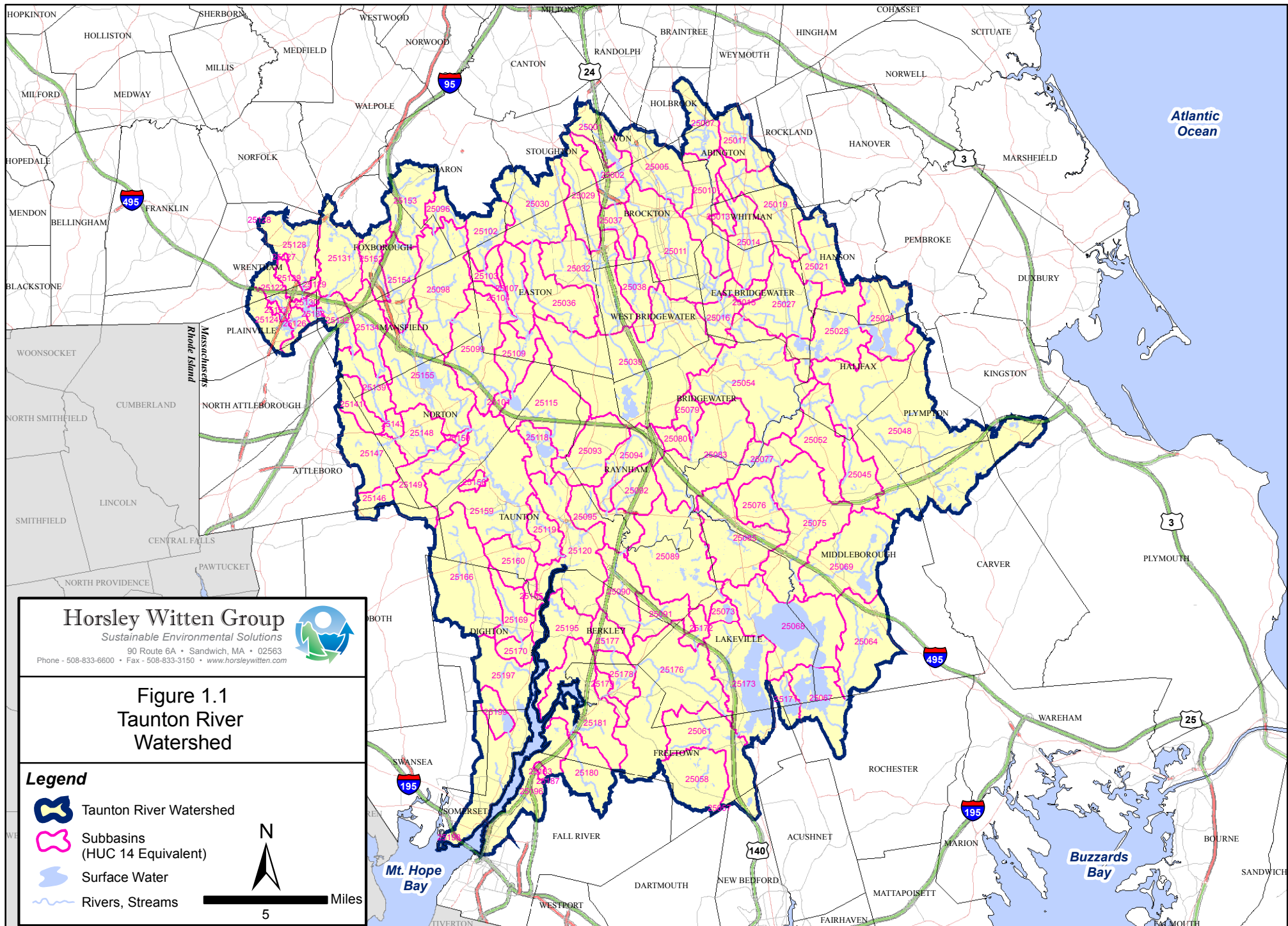
SECTION 1

INTRODUCTION

The Taunton River Watershed is unique among Massachusetts watersheds in its diversity of habitats and ecological communities, diversity of municipalities and economic development, length of uninterrupted stream and river flow, and its surprisingly mildly sloping topography. It is home to portions of 43 Massachusetts municipalities (Figure 1.1), all of which utilize the ground and surface water resources in the watershed as a source for drinking water, and/or a receptor for wastewater and stormwater discharges. A large portion of the watershed population enjoys the recreational opportunities and quality of life provided by the rivers, streams, lakes, ponds and wetlands throughout the watershed. The relatively flat terrain throughout the watershed creates a unique and sensitive interaction between the biota and the subtle variations in the natural stream flow regimes throughout the watershed. A small alteration in the natural flow patterns can have a significant effect on the habitat to which local animals and plants have uniquely adapted. This flat terrain also magnifies the pressing need to manage the water resources and maintain a natural hydrologic balance in the watershed in the face of ongoing development, conversion of open land, and increases in population.

The Horsley Witten Group, Inc. (HW) was contracted by Bridgewater State University (BSU) in 2007 to develop a watershed management plan for the Taunton River Watershed. HW worked under the guidance of a Steering Committee comprised of BSU, The Nature Conservancy, the Massachusetts Department of Conservation and Recreation, the Massachusetts Department of Environmental Protection, the Massachusetts Executive Office of Energy and Environmental Affairs, the Southeastern Planning and Economic Development District and the Old Colony Planning Council. The Taunton River Watershed Management Plan is designed to assist the communities, organizations, and individuals throughout the watershed to evaluate the current conditions in the watershed, understand options and tools for managing the human impacts on the unique and vital water resources in the watershed, and implement appropriate tools at the local level. For the purposes of this project, HW and the Steering Committee conceived of the watershed planning and management process in three phases, the first two as part of the Taunton River Watershed Management Plan Project and the third as a broader and longer-term effort. These phases are further described as follows:

- Phase I – data collection, initial watershed assessment, water balance analysis, long-term visioning and scoping for subsequent phases;
- Phase II – design of six targeted pilot projects to highlight and demonstrate specific management measures, assistance with two code reform projects, continued public outreach and workshops, and development of management recommendations; and
- Phase III – construction and monitoring of demonstration projects, widespread implementation of management measures and plan adaptations as necessary to reflect changing conditions and evolving regulatory policies.



Horsley Witten Group

Sustainable Environmental Solutions





90 Route 6A • Sandwich, MA • 02563

Phone - 508-833-6600 • Fax - 508-833-3150 • www.horsleywitten.com



Figure 1.1
Taunton River
Watershed

Legend

-  Taunton River Watershed
-  Subbasins (HUC 14 Equivalent)
-  Surface Water
-  Rivers, Streams



5 Miles

5

During Phase I, HW developed a number of conclusions and planning goals for the watershed based on preliminary data assessment, including an evaluation of habitat and open space conservation and a water balance analysis for each of 108 subwatersheds in the Taunton watershed. These planning goals can be summarized as:

- Keeping water local;
- Restoring the natural water balance; and
- Demonstrating innovative and effective stormwater and wastewater management technologies, buffer restoration techniques, and local governmental regulatory code reform projects.

In addition to these goals, public feedback during Phase I strongly and clearly indicated a need for public education and training of local decision-makers as a means of fostering responsible watershed management decisions.

This report represents the progress and results from Phase II of this planning effort. Over the past two years, HW worked with communities and organizations throughout the watershed to identify and develop six engineering demonstration projects in six communities to demonstrate innovative techniques to address stormwater management, habitat improvement, and wastewater management. We also worked with two communities to develop innovative revisions to the local regulatory code to strengthen protections of the water resources in the watershed, in terms of water quality, water quantity, and habitat. Throughout this process, we also presented at numerous public meetings to provide an overview of the project, discuss available innovative land use planning, and engineering tools to address the challenges in the watershed, gather feedback and answer questions from interested participants. See Figure 1.2 for a listing of public meetings. As part of each of the demonstration and code reform projects, we also discussed details of the site specific projects with the local project contacts and presented the information to local audiences to educate the local community and/or assist with the public hearing or permitting processes.

Section 2 of this report presents the case for the importance of taking an integrated watershed-based approach to water resources management. The water resources in a watershed, including wetlands, streams, rivers, lakes and ponds and groundwater, are inextricably linked with the economic development potential, environmental health, and sustainability of the communities within the watershed. It is imperative to look at these issues concurrently, to the extent practicable, as communities and regions make significant infrastructure investment decisions as well as very local land-use decisions that cumulatively have a profound effect on the landscape.

The local regulatory code reform projects are presented in Section 3. HW worked with the Town of Norton to help the Conservation Commission develop a Wetlands Protection Bylaw and accompanying Regulations for consideration at the Town Meeting. We include in this report a comparison between Norton's proposed Bylaw and Regulations and the State's Wetlands Protection Regulations. This step-by-step comparison can be used by other communities looking to strengthen protections for unique water resources and habitats, such as vernal pools, shallow groundwater, and buffers to various wetlands. We also worked with the Town of Lakeville to develop recommended revisions to the Zoning Bylaw and Subdivision Rules and Regulations to

improve the water resources protections affected by various typical development patterns in Lakeville.

Details regarding several engineering demonstration projects are presented in Section 4. These projects included the design of low impact development (LID), stormwater management retrofits for existing and partially developed properties, and the design of an innovative onsite wastewater treatment and disposal system. In addition, two of the demonstration projects are directly linked to ongoing educational opportunities for students of environmental sciences. This report presents all of these designs in detail, describes the innovations of each design, provides a planning level construction cost estimate, and describes the benefits of each design to the surrounding watershed. It is the hope and intention of the authors and Steering Committee that these projects will be constructed in the near future so that they may be used as on-the-ground demonstration projects to educate the general public and other decision makers about the benefits of this type of engineering design.

The next steps in the Taunton Watershed management effort, including Phase III and beyond, will require widespread watershed community participation. Recommendations for these steps are presented in Section 5. These recommendations have been developed from data collected and analyzed in Phase I, experiences with the engineering design demonstration projects and code reform projects in Phase II, as well as policy deliberations and concurrent studies by state and local agencies that have been undertaken during the implementation of Phase II and the development of this report.

Figure 1.2. Taunton River Watershed Management Plan – Phase II Educational Outreach

- Massachusetts Association of Conservation Commissions, Annual Meeting, Tabletop Display PowerPoint© Presentation
College of the Holy Cross, Worcester, February 2009
- Upper Taunton Regional Wastewater Stakeholders Meeting
Bridgewater State University, March 2009
- MA Water Resources Conference 2009
UMass Amherst, April 2009
- Taunton River Watershed Management Plan Public Meeting
Lakeville Public Library, May 2009
- Earth Day Exhibit Poster, Ocean Spray Cranberries
Ocean Spray Headquarters, Middleboro/Lakeville, April 2010
- Joint Meeting of Taunton River Watershed Management Plan and MassAudubon, hosted by the MassAudubon and the Town of Lakeville
Lakeville Public Library, May 2010
- Taunton River Watershed Management Plan Public Meeting, hosted by Ocean Spray Cranberries
Middleboro/Lakeville, October 2010
- Taunton River Watershed Management Plan Public Meeting , hosted by Bristol County Agricultural High School
Dighton, November 2010
- Taunton River Watershed Workshop, hosted by the Manomet Center for Conservation Sciences
Middleboro Town Hall, November 2010
- Taunton River Watershed Management Plan tri-fold brochure, for use by Bridgewater State University and Project Team
December 2010