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Final Report: Section 1. Introduction

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SECTION 1

INTRODUCTION

The goal of this project was to gather information and data to begin the development of a long-term vision and strategy for the sustainable management of the Taunton River Watershed and its ecological resources in support of the hydrologic, environmental, and economic sustainability of the region.

At the July 20, 2006 Massachusetts Water Resources Commission meeting, Massachusetts Executive Office of Environmental Affairs (now Energy and Environmental Affairs, EEA) Secretary Pritchard introduced the concept of a Sustainable Water Policy for the Commonwealth, one which would truly balance all of the diverse uses of water resources in a manner to maintain healthy ecosystems. At first glance, this might appear unattainable when one considers land development and population growth rates that demand seemingly unending increases in water supply and resource depletion. This is particularly timely in the Taunton River Watershed when considering the area's relatively affordable housing and access to major job centers.

Integrated water management and smart growth provide two important frameworks upon which a sustainable water policy can be built. Integrated water management is a planning process that jointly considers water supply, wastewater and stormwater as one resource: water. Smart growth principles provide effective tools that protect critical areas, guide growth to areas that can sustainably support it, and design development projects in a manner that have either lower impact than traditional recent development or, in some cases, can result in a positive impact (i.e. restoration).

Water resources and how we affect them are at the very core of community needs and community development in the Taunton Watershed communities. The ability of a community to manage its growth is heavily impacted by the ability of the community to provide drinking water for future development, to manage wastewater produced by future development and to maintain the community and environmental character that draws new development to the area. As the population in southeastern Massachusetts continues to grow, and the rate at which land is developed continues to grow, it is more and more economically prudent for communities to manage their water resources as a single finite renewable system. This system includes groundwater, surface water, stormwater, and wetlands, and is dependent on forest and other natural areas that capture water and allow water it to infiltrate into the ground. Without a sustainable source of clean water, the cost of local services increases. As water becomes more scarce from growth and over-consumption, and sources of water become threatened by pollution from development, the municipal costs to provide water increase significantly. Likewise, as development strains municipal wastewater systems and uses up land with prime soils for wastewater disposal locations, the municipal costs of wastewater management increase significantly. However, with a comprehensive approach to water resource management, and an understanding that water is a finite resource, the communities in the Taunton Watershed

can help limit their exposure to these increasing public service costs. Watershed-based management can increase the ability of communities in the Taunton Watershed to realize their potential for positive economic development. Making decisions about land use management, planning for future development and protecting key ecological resources are integral components in maintaining the health of Taunton Watershed communities.

1.0 BACKGROUND

The Taunton River is the longest coastal river in New England unimpacted by dams, and has a significant watershed encompassing approximately 562 square miles (see Figure 1). The basin contains 108 sub-watersheds¹ (based on Mass GIS “drainage sub basins” data layer). It is also one of the flattest watersheds with only a twenty-foot elevation drop along its forty-mile length along the main stem. This unique topography makes the river system vulnerable to dewatering as a consequence from unbalanced consumptive uses of water throughout its watershed. Saltwater intrusion in some wells already occurs as far as twelve miles upstream with tidal influences as far as eighteen miles upstream, from its source. The effects of global warming and sea level rise may also have a significant impact on this riverine ecosystem.

The watershed is generally characterized by low-permeability (glacial till) soils with more limited sand and gravel (outwash) soils, shallow depths to groundwater and numerous wetlands (see Figure 2). While these features represent significant constraints to (conventional) wastewater disposal and exacerbate stormwater runoff issues, they also afford unique habitats for both aquatic and terrestrial wildlife.

The watershed supports 45 species of fish (including the very rare, native sturgeon) and many species of shellfish, including seven types of freshwater mussels. The watershed provides a habitat for 154 species of birds, including 12 considered rare or threatened/endangered. A small sample of the ecological resources is provided in Figure 3. The watershed is also home to the river otter, mink, and gray fox. It is home to deer and often more common wildlife. The 16,950-acre Hockomock Swamp is one of the largest wetlands in New England and a habitat for numerous, common uncommon and rare species (see Figure 4). Additionally, the watershed’s archaeological treasures date back 10,000 years.

While much of the watershed and streams are relatively healthy, a number of water quality impairments were identified in the Massachusetts Department of Environmental Protection (DEP) Taunton River Watershed 2001 Water Quality Assessment Report. These included algal blooms, dissolved oxygen, sediments/siltation and pathogens (fecal coliform). The most common pollutant pathway noted in the report is stormwater runoff from roadways. A Total Maximum Daily Load (TMDL) report has also been prepared for the Taunton River that addresses pathogenic pollutants in the river. The report identifies 15 pathogen-impaired segments of the Taunton River and cites a wide variety

¹ Sub-watersheds: Typically considered the drainage area upstream from the confluence of 2 second-order streams, ranging in size from 5 to 10 square miles.

of pollutant sources, although it states, “most of the bacteria sources are believed to be stormwater related.”

The Taunton River Watershed includes 43 municipalities, many of which can be considered rural towns located among three urban centers: Fall River/New Bedford, Taunton, and Brockton. Over the last 20 to 30 years, many of these rural communities have become more concentrated, as residential and commercial development expanded dramatically along the I-495 and commuter rail corridors. The amount of developed land within the watershed has gone from 56,800 acres in 1971 to 92,340 acres in 1999, a 62% increase in a span of 28 years. With increased development came increased concerns regarding water quality, water supply, wastewater, and stormwater management. In an effort to address development-related impacts, many municipalities have undertaken comprehensive municipal water or wastewater resource planning projects, focusing on problems and solutions within the boundaries of individual towns. The focus of this project is to expand the analyses of these issues beyond municipal boundaries to the watershed scale to consider an array of possible regional solutions and to provide a comprehensive evaluation of problems and solutions to balance the ecological health of the watershed with the development needs of the watershed communities.

This project is considered Phase I of a longer-term effort. This Phase I has focused on the collection of data, establishment of public participation process, habitat and hydrology data collection and assessment, and preliminary analysis. Future phases of the project will be to complete the data gathering and analysis, develop comprehensive watershed management strategies, and then implement and update those strategies over the long term.

2.0 A PHILOSOPHY OF WATERSHED PLANNING AND MANAGEMENT

Watershed planning provides a framework to protect, preserve, and restore the water resources and related ecosystems that communities depend on for so many reasons. Healthy water resources benefit local communities by providing drinking water, active and passive recreation, habitat for fish and shellfish, attractive landscapes, transportation, tourism destinations, and flood mitigation, among many others. Management of these resources on a watershed scale provides a comprehensive and integrated approach.

With an increasing appreciation of the basic ecosystem functions provided by healthy watersheds, communities are increasingly undertaking initiatives to restore impaired waters or protect remaining water resources from land use impacts. They are also discovering that a watershed-based approach can be an effective method of protecting local water resources. Watershed planning also provides local governments with a framework to prioritize valuable and sometimes scarce resources by integrating natural resource protection with other community planning initiatives. Watershed planning is a cooperative effort and is performed in conjunction with other ongoing programs and initiatives throughout the watershed and/or region.

Watershed plans must recognize the relationships between social and natural processes and provide a roadmap for integrating water resources protection and restoration with growth management at the local level. Effective watershed plans provide specific recommendations and implementation schedules that identify who, what, when, and how actions will be undertaken. While the process for generating a local watershed plan may vary, the plan itself should include these key elements:

- Rationale for why watershed plan is required;
- Process for involving key partners (stakeholders);
- Evaluation of historic (natural), current and future watershed conditions;
- On-the-ground investigation of key areas within water resource corridors and uplands;
- Procedure for setting watershed goals and identifying actions to protect existing resources and/or restoring previously degraded resources;
- Implementation measures to achieve measurable outcomes; and
- Strategies for long-term monitoring, progress tracking, and plan revision.

This document, which captures Phase I of the Taunton River watershed planning effort, lays the groundwork for the plan through data collection and assessment, and preliminary data analysis and general recommendations. The subsequent Phases of this planning effort will flesh out the comprehensive watershed plan with more detailed analysis and implementation measures.

Several key organizations are involved in watershed planning efforts in the Taunton watershed. In addition to the federal, state, regional, and local government organizations, a number of private non-profit organizations are key contributors, and are identified as follows:

The Taunton River Watershed Alliance

The Taunton River Watershed Alliance (TRWA) is a non-profit alliance of individual businesses and organizations united to restore and properly manage water related natural resources within the Taunton River Watershed. The TRWA is focused on protecting and restoring the Taunton River Watershed, its tributaries, wetland floodplains, river corridors and wildlife. More information on the TRWA can be found on their website at: <http://savethetaunton.org>.

Taunton River Watershed Campaign

The Taunton River Watershed Campaign (TRWC) is a partnership of ten organizations working to protect natural communities, the landscape, and the quality of life in the Taunton River Watershed. The TRWC's goals include: protecting critical land and water resources; linking environmental groups and municipalities working to protect natural resources; and identifying environmental priorities to help ensure growth happens in a manner that supports biodiversity and water quality while preserving community character. More information on the TRWC can be found at: <http://savethetaunton.org>

Taunton River Stewardship Council

The Taunton River Stewardship Council (TRSC) serves as the coordinating/facilitating body for the implementation of the Taunton River Stewardship Plan, developed as part of the Taunton Wild & Scenic River Study. The purpose of the TRSC is to promote long term protection of the river by bringing together and coordinating between various groups working on river management and by discussing and making recommendations regarding issues of concern and implementing the Stewardship Plan. The council is currently seeking official designation of the Taunton River as a Wild & Scenic River. More information can be found at www.tauntonriver.org. Members of the Taunton River Watershed Campaign include:

- The Environmental League of Massachusetts
- Manomet Center for Conservation Sciences
- Mass Audubon
- The Nature Conservancy
- Save the Bay-Narragansett Bay
- Southeastern Regional Planning & Economic Development District
- Taunton River Watershed Alliance
- The Trust for Public Land
- The Trustees of Reservations
- Wildlands Trust of Southeastern MA

There are several other projects related to this one. First, a Five Year Plan was recently completed for the Taunton River basin by Geosyntec Consultants, and provides a comprehensive overview of issues and management options. A Water Assets study recently completed by MA EEA provides an analysis of water supply sources and water use figures in the basin. Another project being considered by the University of Massachusetts and The Nature Conservancy is examining fish population data along the Taunton River. A TMDL study is being undertaken by MA DEP examining water quality conditions and probable sources of pathogen pollution in the river. It suggests that stormwater is the primary source of pathogens. More recently MA DEP and the Old Colony Planning Commission, with support from several watershed communities, have commissioned CDM to begin the Upper Taunton Wastewater Study to examine possible regional wastewater solutions among the more northern municipalities in the basin. During Phase I of the Taunton River Watershed Management Plan project, HW worked with CDM by presenting relevant materials at three public participation workshops.