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Phase I Final Report

Taunton River Watershed Project

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Final Report: Section 8. Phase II Scope of Services

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SECTION 8

PHASE II SCOPE OF SERVICES

1. GOALS

The principal goal of this management plan is to restore and maintain a hydrologically, and biologically connected and integrated watershed system that will sustain human and ecological health. The results of Phase I indicate that historic land development practices and associated water withdrawals and discharges have resulted in shifts in the hydrologic balances in many of the Taunton sub-watersheds. These hydrologic shifts cause habitat and wetlands losses, magnify the impacts of pollutants and limit water supplies. Phase II is designed to supplement these analyses and to provide a comprehensive management approach to preserve and where necessary restore the Taunton River.

2. OBJECTIVES

The more specific objectives in the development of a comprehensive watershed management plan are to:

- preserve valuable habitats in the Taunton River Watershed;
- manage additional wastewater needs within the watershed;
- develop innovative stormwater management and LID techniques;
- sustain river flow regime and associated natural habitats;
- protect water supplies; and
- develop and implement smart growth initiatives for the watershed communities.

Based upon our data collection, preliminary analyses of water budgets and habitat protection, and our public outreach workshops we recommend the following scope of services.

3. PHASE II SCOPE OF SERVICES

Task 1: Development of Comprehensive Management Plan Introductory Text

A comprehensive management approach is needed to provide the long-term framework for implementation of the watershed plan. This task will develop a clear articulation of why a comprehensive plan for the watershed is useful and necessary, and link it's importance to the interests of town officials, local citizens, and environmental/stewardship groups.

It will build on Phase I results and examples from other watersheds as applicable, and will provide context for the difference between a targeted approach and a comprehensive watershed planning approach. The reality is that Phase II will represent a targeted approach for implementation of specific projects but these will be accomplished within the context of a larger long-term comprehensive management strategy being used here in

Taunton and being espoused by other regulatory agencies (EPA, DEP), planning agencies (OCPC, SRPEDD, MAPC) and leading environmental proponents (Center for Watershed Protection, CRWA, NRDC, TNC) as the most effective long-term water resources planning approach. The text developed under this task will serve as the Introduction to the Taunton River Watershed Management Plan and will be a key tool in drawing support and attention to this issue for public education and outreach efforts.

HW will provide a preliminary draft of the Management Plan Introduction to the Steering Committee for review. Comments will be incorporated into a final draft for submittal to the Steering Committee.

Anticipated Timetable: Month 1

Deliverables:

- *Preliminary Draft Introductory Text for review and comment by the Steering Committee*
- *Final Draft Introductory Text*
- *Discussion at Steering Committee Meeting #1*

Task 2: Detailed Presentation of Phase I Results

Under this task, HW will further analyze data collected in Phase I of this study to help describe the water budget results and will present this at two public workshops. The Phase I water budget results will be presented in context within the comprehensive watershed management approach. We will answer questions about how the sub-watershed scale, water budget and buffer analyses relate to the watershed as a whole. For instance, how do the water budget results relate to known flow problems in the watershed, or to known habitat loss or habitat protection needs in the watershed?

Task 2a: Water Budget Analysis: This task will involve further analysis of the input variables of the water budget model. The water budget model will be amended to produce intermediate results to present a more detailed description of the water budget analysis and the specific quantification of the different sources contributing to the water budget. First we will produce summaries of the relative sources within each delineated subwatershed. The relative sources will show which factors are contributing the water budget. We will “scale up” the water budget analysis to evaluate the water budget at the HUC 10 level and at the full watershed level.

HW will also compare the water budget results with the stream buffer and habitat analysis presented in Phase I to identify subwatersheds threatened by both a severe water imbalance and a loss of stream buffer and important habitat areas. This will help to prioritize areas in need for future expanded habitat protection efforts.

Anticipated Timetable: Month 1

Deliverables:

- *Detailed water budgets showing relative components.*
- *Presentation and discussion at Steering Committee Meeting #2.*

Task 2b. Presentation of Phase I Results and Identification of Priorities: Two stakeholder meetings/workshops are proposed to present the Phase I results, to discuss the implications and to solicit their interest in developing solutions. The workshops will also be used to identify and address related issues such as water balance deficits, identified water quality issues, NPDES permits, Priority Development/Priority Conservation Area Plans, wastewater studies, hydropower proposals and others.

These workshops will be used to develop a short-list of communities that are interested in and committed to working with us during Phase II in developing and implementing town-specific solutions including demonstration projects (Task 3), and/or code reform (Task 4). Identified communities should be willing to appoint committees and to provide in-kind services that might include additional data gathering, public participation, and assistance with the implementation of recommendations developed during this phase of the project.

Two workshops will be scheduled and will be advertised by a letter to each of the 43 Taunton Watershed Communities inviting them to participate. Assistance from the two regional planning agencies (SRPEDD and OCP) will be sought. The letter will offer the consulting services to those communities which show interest by attending the meeting and are willing to form an advisory committee to implement the recommendations.

Anticipated Timetable: Months 2 - 3

Deliverables:

- *Letter to towns*
- *Two public workshops to identify demonstration projects (Task 3) and identify code reform projects (Task 4).*

Task 3: Demonstration Projects

HW will prepare plans for six demonstration projects to illustrate the process of implementing physical watershed management recommendations on the ground. Projects will be selected based upon discussions with the Steering Committee. These will serve as examples for other communities in terms of understanding the required planning and site selection, design, permitting and implementation costs. These projects are a key to the implementation of the targeted approach within the context of a comprehensive watershed management plan in that it is the cumulative benefit of replicating these types of projects throughout the watershed that will be the key to measurable success. Ultimately, improvement of the watershed will depend on both large scale thinking and small scale actions; many of these small-scale projects will need to be implemented

throughout the watershed to achieve the preservation of present healthy conditions and move toward remediation of impaired conditions in the watershed.

The six demonstration projects will include the following three subject areas: 1) Stormwater/LID Retrofits; 2) Wastewater Solutions; and 3) Habitat Restoration. To the extent possible, HW will attempt to identify demonstration projects that address multiple subject areas.

Task 3a – Project Planning: Meet with project stakeholders (including DPW directors, Conservation Commissions and other local/state officials) to review project goals, review alternative methods to measure effectiveness, and agree on project timeline. A discussion of impaired waters as they relate to specific stream reaches will be considered.

Anticipated Timetable: Month 4

Task 3b - Inventory and Assessment of Existing Information: Review existing data, reports, maps, and other relevant information related to study area collected during Phase I of this project. Collect supplementary data of existing infrastructure (stormwater, water sewer, etc.) and utilities within stream corridors.

Anticipated Timetable: Months 5 - 6

Task 3c - Watershed Delineation and Stormwater Retrofit Inventory: Use the above information coupled with a field reconnaissance to develop a watershed characterization matrix and summary. The characterization will include GIS-derived maps of watershed boundaries, land use, water resources, habitat, and any identified site-specific sources of impairment to summarize the character and severity of the stormwater issues. Utilize the basic methodology outlined in the publication “Urban Stormwater Retrofit Practices” (Schueler, et al., 2007) to locate and identify practices. Identify stormwater practices and strategies that have the best reported pollutant removal capability for the pollutants of concern and ability to mitigate for altered hydrology, such as: bioretention, water quality swales, infiltration, permeable pavements, filter strips and constructed wetlands.

For potential wastewater design sites, identify possible wastewater strategies such as shared systems, village scale wastewater treating systems and innovative and alternative technologies. HW will also identify potential stream corridor areas where habitat restoration and/or buffer enhancement is possible. HW will seek projects that offer the opportunity to demonstrate projects that address at least two subject areas.

Anticipated Timetable: Months 6 - 7

Task 3d –Assessment and Ranking: Use the Phase I water budget method to quantify potential recharge benefits of candidate retrofit and/or restoration projects. Rank sites based on recharge potential, other environmental benefits and impacts such as ability

to protect habitat, educational opportunity, and cost. For wastewater sites use DEP-NO3 model to assess water quality benefits.

Anticipated Timetable: Months 8 - 9

Task 3e - Schematic Designs and Cost Estimates: Develop schematic designs for up to six demonstration projects (to the 25% design level), and prepare preliminary construction cost estimates for each project. Provide a draft copy of the schematic designs and cost estimates. Meet with stakeholders to discuss the concepts to incorporate any changes that might be desired prior to commencement of final design.

Anticipated Timetable: Months 10 - 11

Interim Deliverables:

- *Watershed assessment report, containing stormwater, wastewater and habitat restoration project reviews identifying potential schematic designs, environmental benefits, site photos, maps, preliminary construction cost estimates and narrative.*

Task 3f - Field Survey of Existing Conditions: Conduct a field-run topographic survey for the immediate area of each of the six selected project locations. The topographic survey will be developed for a 2-foot contour interval (unless additional detail is needed) and will locate all existing infrastructure (physical structures, paving, etc.); existing utilities; trees greater than 12" DBH (where applicable and within 50 feet of the project limits); test pit locations (see Task 7); and other data as necessary to provide adequate base information for each site. All topographic data will be collected using Total Station field instrumentation and data collectors in digital format.

Anticipated Timetable: Months 11 - 12

Task 3g - Soil Test Pits: Arrange for and conduct up to 6 deep-hole test pits to assess soil characteristics and depth to groundwater at selected locations of proposed facilities. The test pit locations will be coordinated with Town/University staff as necessary. Prepare test pit logs documenting subsurface conditions at the site. To the extent possible, Town DPW will provide back hoe/excavation services on an in-kind basis so that the allocated budget can be re-assigned to other tasks on an as-needed basis.

Anticipated Timetable: Month 12

Task 3h - Resource Area Delineation: Identify and delineate jurisdictional wetlands and other resource areas within the vicinity of the project sites. Flag all resource areas and complete wetland data sheets as necessary.

Anticipated Timetable: Month 12

Task 3i - Base Maps: Compile all existing condition information into a set of base maps depicting existing conditions at the proposed project sites. Base mapping will be presented in digital format and paper format for project stakeholders, upon request.

Anticipated Timetable: Month 13

Task 3j –Design Plans (75% Completion Stage): HW will prepare a set of “permit-ready” or “grant-ready” engineering plans for each of the demonstration projects. These plans will be developed to a sufficient level of detail to be able to submit for applicable permits and to funding organizations for possible grants.

These plans will include:

- Engineering design plans, profiles and details;
- Erosion and sediment control plan and details; and
- A recommended general construction sequence.

Anticipated Timetable: Months 13 - 14

Deliverables:

- *Meetings with six communities to discuss projects.*
- *Engineering design plans (75%) and digital plans (in AutoCAD v. 2006) for up to six demonstration/restoration projects.*

Task 4: Local Code Reform Projects

HW will select and work with two case study communities to assist them with code reform that will encourage smart growth, LID, innovative wastewater solutions and habitat preservation/restoration.

HW will work with two communities to assist them in reforming a portion of their land use codes to better facilitate Smart Growth development that reduces the impact of new development on the watershed’s water resources and habitat areas in comparison to traditional development under the current codes. Communities will be selected by HW with assistance from the Steering Committee based on demonstrated interest in implementing such code reforms.

An implementation project will be designed for each community. Generally, these projects will be oriented at resolving identified water balance issues, preventing/remediating water quality problems and/or preserving/restoring habitats. Each project will be tailored to meet that individual community’s identified priorities and needs. A series of three meetings will be organized with each community as follows:

- a.) Kickoff Meeting – Identification/discussion of issues, needs and priorities.

Anticipated Timetable: Months 4 - 5

- b.) Analysis/Recommendations – Analysis of issues and possible solutions and discussion and presentation and discussion of recommendations and options.

Anticipated Timetable: Months 6 - 8

- c.) Implementation – Public hearing to adopt recommendations. This may include a formal resolution, a regulation, or nomination of a town meeting article.

Anticipated Timetable: Months 9 - 11

Deliverables:

- *6 meetings with selected communities (3 meetings in each community)*
- *Development of two implementation strategies that will include recommendations for code changes*

Task 5: Phase II Education and Outreach

The public workshops conducted during Phase I identified education of local government officials as the number one issue throughout the watershed. During Phase II a training program will be developed and implemented that provides training courses to local officials. Six workshops will be organized (with 3 – 5 communities targeted at each) on smart growth/smart energy techniques invited to each workshop. The communities will be organized based upon proximity to each other and like issues. The workshops will include: 1) a summary of the Phase I results including the water budget analysis, 2) introduction to smart growth /LID techniques and 3) recommendations for improvement (specific to those communities in attendance). This training program will be coordinated with numerous organizations including BSC, SERPED, OCP, MACC, APA, the Taunton River Watershed Alliance and others. They would be conducted at host town halls or other suitable public facilities with the neighboring towns invited. Local regulatory boards will be targeted. Specific code amendment recommendations will be provided to each community in attendance.

Anticipated Timetable: Months 4 – 6 and Months 15 - 16

Deliverables:

- *Six sub-regional workshops*

Task 6: Preparation of Taunton River Watershed Management Plan (Phase II Final Report)

This task involves the compilation of all of the work performed under the previous tasks into a final report. The report will provide recommendations for the synthesis of the results of this targeted project into the larger context of the longer term comprehensive watershed planning approach. This task will include recommendations to monitor success of the six demonstration projects, plan a program for widespread implementation,

and plan for code reform in other communities. HW will prepare a preliminary draft and final draft to the Steering Committee for review and comment, and will then prepare a final report entitled, “Taunton River Watershed Management Plan (*Phase II Final Report*).”

Anticipated Timetable: Months 17 - 18

Deliverables:

- *Preliminary Draft and Final Draft for review and comment by the Steering Committee*
- *Final Report entitled, “Taunton River Watershed Management Plan (*Phase II Final Report*)”*

Task 7: Progress Meetings

HW will attend and participate in four progress meetings to coordinate with the steering committee regarding the progress of the project.

Anticipated Timetable: 1st, 6th, 12th, and 18th month from start date.

Deliverables:

- *Four progress meetings with steering committee*