



# 1 Introduction

## 1.1 Report Background and Purpose

This Comprehensive Wastewater Management Plan and Final Environmental Impact Report and Targeted Watershed Management Plan (CWMP/FEIR/TWMP) Document is the fifth of five reports to be produced for the Town of Falmouth (Town) Comprehensive Wastewater Management Planning (CWMP) Project and submitted for regulatory review. The first of these reports was the Needs Assessment Report (NAR) dated October 2007, which documented the wastewater and nitrogen-management needs for the Planning Area and related areas of Falmouth. The second report was the Alternatives Screening Analysis Report (ASAR) dated November 2007, which identified possible solutions to address the wastewater and nitrogen-management needs and then “screened” these alternative solutions to retain the most feasible ones for cost development and detailed evaluation. The third was the Environmental Notification Form (ENF) document dated December 17, 2007 that summarized the findings of the Needs Assessment Report to initiate environmental review of the project (as part of the Massachusetts Environmental Protection Act or MEPA review process). The fourth was the Draft Comprehensive Wastewater Management Plan and Draft Environmental Impact Report and Draft Notice of Project Change (Draft Report) dated July 30, 2012 which presented the draft plan, and further advanced MEPA review of the project.

The purpose of this CWMP/FEIR/TWMP is to summarize the detailed evaluations and the changes made since the review of the Draft Report, and to present the Recommended Plan to address the wastewater and nitrogen management needs. It also presents the estimated environmental impact (and benefits) of the Recommended Plan as compared to the consequences of not acting on the wastewater needs (also called the No-Action Alternative).

There are components of this Plan which need further coordination and agreement. The CWMP proposes an Adaptive Management Plan to implement several demonstration projects and other initiatives to determine the feasibility of several non-traditional wastewater and nitrogen management technologies and approaches.

These demonstration projects and other initiatives have been funded by Town Meeting (Article 17 Town Meeting Vote is attached as Appendix 1-1) and are underway. Their progress to date is summarized in this document. They will become evaluations independent of this CWMP/FEIR/TWMP and will enter the MEPA review process at a later time as Notices of Project Change if they trigger MEPA review thresholds, or as general project updates. If these evaluations and subsequent MEPA reviews demonstrate feasibility, the Town plans to add them to this Plan through the Adaptive Management Plan component of this CWMP/FEIR/TWMP.

The Targeted Watershed Management Plan (TWMP) terminology has recently emerged to describe watersheds that are located completely within one town. The TWMP is a required component to meet new regional (Cape Cod Commission) planning guidance. The TWMP component (and added title) of this document refers specifically to the planned sewer extension within the lower watershed to Little Pond that has been targeted for nitrogen mitigation.

After MEPA review of this document, the project will be reviewed as a Development of Regional Impact (DRI) as part of the Cape Cod Commission regulatory process, and will proceed to permitting and implementation.



## 1.2 Project Background and Planning Area

The CWMP Project is being completed to provide an environmentally and economically sound approach for wastewater and nitrogen management in the Planning Area and with recommendations for West Falmouth Harbor for the next 20 years and with a perspective on the buildout conditions. The Project evaluates the Town's existing wastewater treatment facilities; assesses the wastewater and nitrogen-related needs in the Planning Area; evaluates appropriate mitigation measures for those needs; and develops a Recommended Plan for improved wastewater and nitrogen management systems. The primary focus of the project is to identify and evaluate cost-effective and appropriate technologies and approaches for the Planning Area and West Falmouth Harbor, and initiate a plan to meet the nitrogen Total Maximum Daily Load (TMDL) limits for the marine waters in these areas.

The Town of Falmouth is located in the southwestern portion of Cape Cod as shown in Figure 1-1. This figure also identifies the Planning Area as the watersheds to Little, Great, Green, Bournes, and Eel Ponds, and Waquoit Bay as well as the West Falmouth Harbor Watershed. All of the estuarine waters in the Planning Area are impacted by excessive nitrogen loadings in the watersheds to these waters.

The Town of Falmouth is committed to improving the water quality of its estuaries, and in November 2006, prepared its "Wastewater and Nutrient Management Vision and Strategies," as contained in Appendix 1-2. The Town's vision statement from this document is:

"Vision - By comprehensively and effectively managing its wastewater and other nutrient sources, Falmouth will improve water quality, protect public health and enhance the Town's economic vitality. Falmouth will offer its residents, visitors and future generations healthy waters in order to sustain the Town's property values and vibrant economy."

The Town of Falmouth is faced with several wastewater-related problems in this Planning Area and Town-wide as it plans to protect its coastal environment and plans for growth. Nitrogen loadings from the Town's coastal watersheds are causing an overproduction of algae in several coastal estuaries, and these loadings are impacting the water-quality and marine resources in the estuaries. The Massachusetts Estuaries Project has recently completed several studies that indicate most of the nitrogen originates from wastewater sources. These reports have recommended extensive wastewater and non-wastewater nitrogen management. These wastewater and nitrogen management systems are identified in this document and their implementation is recommended through an Adaptive Management approach.

## 1.3 Wastewater Planning Project Scope

The project has been divided into five phases. A brief listing of the tasks associated with each phase of this project follows, and a more detailed Plan of Study for the project as submitted for MassDEP review is included in Appendix 1-3.

### 1.3.1 Phase I – Needs Assessment

1. Review and summarize Town issues and project background.
2. Initiate identification and evaluation of potential treated water recharge sites.
3. Review and summarize regulatory issues affecting wastewater management planning.
4. Evaluate, summarize, and describe existing conditions in Town, including nitrogen limits.



5. Identify the goals and objectives of the Town related to wastewater management.
6. Evaluate, summarize, and describe future conditions in Town.
7. Identify wastewater areas of concern and prepare CWMP Needs Assessment Report.

#### **1.3.2 Phase II - Identification and Screening of Alternative Solutions and Sites**

1. Identify, review, and summarize alternative solutions to meet the Town's wastewater management needs.
2. Screen the alternative solutions to identify the most feasible for detailed evaluation.
3. Further identify and screen potential sites for wastewater management facilities.
4. Group feasible solutions and sites into alternative wastewater management scenarios.
5. Prepare the wastewater Alternatives Screening Analysis Report by summarizing the tasks of this phase.
6. Prepare the Environmental Notification Form (ENF) to initiate the MEPA and CCC Development of Regional Impact (DRI) Joint Environmental Review Process.

#### **1.3.3 Phase III – Detailed Evaluation and Development of the CWMP**

1. Continue with subsurface and/or environmental investigations for potential wastewater management sites.
2. Prepare a methodology of the planned detailed evaluations for project and regulatory review.
3. Perform present-worth evaluations of the alternative scenarios.
4. Perform non-monetary evaluations of the alternative scenarios.
5. Perform an environmental impact analysis.
6. Evaluate the present-worth, non-monetary factors, and the potential environmental impacts (and benefits) of the alternative management scenarios.
7. Develop and present the recommended Wastewater Management Plan, and prepare the Draft CWMP and Draft Environmental Impact Report (DCWMP/DEIR).
8. Submit the DCWMP/DEIR for regulatory and public reviews.

#### **1.3.4 Phase IV - Resolution of Remaining Issues and Project Completion**

1. Resolve remaining issues. (This will involve addressing questions and comments raised during the DCWMP/DEIR review process.)
2. Prepare the Final Comprehensive Wastewater Management Plan and Final Environmental Impact Report (FCWMP/FEIR), and submit it for public and regulatory review.
3. Complete the CCC DRI review process.



### **1.3.5 Phase V – Environmental and Public Review Process. (These tasks occur during Phases I, II, III, and IV)**

1. Utilize the Falmouth Working Groups and Committees for project reviews and public outreach.
2. Prepare and conduct a public participation program.
3. Submit and coordinate public review of the ENF.
4. Submit and coordinate public review of the DCWMP/DEIR (and NPC).
5. Submit and coordinate public review of the FCWMP/FEIR.
6. Coordinate the needed public meetings and hearings to comply with State and regional regulations as well as meet the informational needs of the community.

### **1.4 Public Review and Public Participation Program**

The Town has conducted an active public participation and outreach program involving but not limited to the following components and features:

1. Formation of a Nutrient Management Working Group comprised of interested citizens, volunteer board members, and Town staff.
2. Formation of a Technical Advisory Group (TAG) as a sub-set of the Nutrient Management Working Group for more detailed project reviews.
3. Development of a Town website dedicated to all of the Town's wastewater projects.
4. Updates to the Wastewater Department webpage.
5. Production and dissemination of project newsletters.
6. Televised presentations to the Board of Selectmen and other groups.
7. Collaboration with Falmouth Association Concerned with Estuaries and Saltponds (FACES), a Falmouth advisory group dedicated to improving the water quality in the coastal waters, to conduct a series of community meetings called "Sewer Socials".
8. Active coordination with the local newspaper to distribute the newsletters and to review public opinion on intermediate stages of the plan.
9. Formation of the CWMP Review Committee to review and provide recommendations on the 2009 Preliminary DCWMP/DEIR. The Committee greatly enhanced the Public Participation Program with a series of televised Committee Meetings, as well as facilitated Public Meetings.
10. Formation of the Water Quality Management Committee (WQMC) to implement the recommendations of the CWMP Review Committee. Again, this Committee greatly enhanced the Public Participation Program with their ongoing televised Committee Meetings and support for multiple specialty workshops to investigate non-traditional approaches to wastewater and nitrogen management.

These components are described and documented in greater detail in Chapter 5.



## **1.5 Environmental Review Process**

The environmental review process was initiated in December 2007 with the filing of an ENF with the MEPA office of the Executive Office of Energy and Environmental Affairs (EOEEA) as well as with the Cape Cod Commission. The ENF summarized the findings of the Needs Assessment and Alternatives Screening Reports and identified the evaluation process for the selected alternatives. A public hearing was convened to receive comments on the ENF and a bus tour was organized to visit the Planning Area as well as the alternative treatment and recharge sites identified for evaluation.

A certificate of the Secretary of Energy and Environmental Affairs (EEA) approved the Project ENF on January 30, 2008.

Several alternative management plans were then evaluated and the Draft Report was submitted for MEPA review in September 2012. A second certificate of the EEA Secretary was issued on November 14, 2012 along with several comment letters that are attached in Appendix 1-4. A comment response memorandum (also contained in Appendix 1-4) has endeavored to address these comments. The Draft Report has been revised to this CWMP/FEIR/TWMP based on these comments and further decision-making of the Town.

The environmental review process will continue with the MEPA and CCC review of this CWMP/FEIR/TWMP document. A Secretary's certificate will be received at the end of this review. After a successful MEPA review, the CCC will complete their DRI review.

## **1.6 Planning Period**

The Comprehensive Wastewater Management Plan will provide a Recommended Plan for wastewater facilities in the Planning Areas for the 20-year planning period of 2015 to 2035. The starting year (2015) of this planning period is estimated as the approximate period to initiate implementation of proposed wastewater facilities. Planning for several demonstration projects was already started in 2012: shellfish aquaculture, eco-toilets, and widening of Bournes Pond inlet. Implementation of these and other demonstration projects will begin as soon as the relevant permits are in hand. The results of each demonstration project will be monitored for at least three years. Expansion of promising technologies will be folded into the CWMP through Notices of Project Change as part of the Adaptive Management Plan. Where shared watersheds are involved, planning will be coordinated with the CCC. The plan will also be developed with a planning horizon based on the estimated potential buildout of the Planning Area and the need to meet the nitrogen TMDLs. Falmouth will coordinate with abutting Towns and the Massachusetts Military Reservation (MMR) in the Planning Area. This larger planning horizon extends from 2035 to 2055.

## **1.7 Blacksmith Shop Road WWTF Settlement Agreement and Proposed Effluent Discharge Permit**

In June 2012, the town of Falmouth, MassDEP, and the Buzzards Bay Coalition Inc. entered into a Settlement Agreement following an appeal by the Town and the Coalition of a Groundwater Discharge Permit issued by the MassDEP on November 2, 2011. The Agreement and Effluent Discharge Permit are attached as Appendix 1-5 and are incorporated into this CWMP by reference.

Under the terms of the Agreement, the Town agreed to submit a scope of work, plan, and schedule to implement a nitrogen removal optimization plan at the Wastewater Treatment Facility; to evaluate and—if necessary—provide a plan and schedule to upgrade its flow measurement mechanism at the plant; and to



use its best efforts to achieve an average annual effluent total nitrogen concentration of 3 mg/L and an annual load of 5,204 pounds associated with an average annual flow of 0.57 mgd.

In accordance with the Settlement Agreement, this CWMP includes a plan for the Town to exercise its best efforts to bring West Falmouth Harbor into compliance with the West Falmouth Harbor TMDL and the Surface Water Quality Standards by December 2, 2016.

Those efforts shall include a plan and schedule to remove 30,000 gallons per day (gpd) of infiltration and inflow from the wastewater collection system by December 2, 2016; the potential installation of a Permeable Reactive Barrier (PRB) Demonstration Project in the West Falmouth Harbor Watershed; the exploration of alternative nitrogen reduction remedies through various demonstration projects; and passage of a Comprehensive Nitrogen Control Bylaw for Fertilizer at the Fall 2012 Town Meeting.

## **1.8 Organization of this CWMP/FEIR/TWMP**

The Comprehensive Wastewater Management Plan and Final Environmental Impact Report and Targeted Watershed Management Plan (DCWMP/DEIR/TWMP) is written to summarize Phase III and Phase IV of the Project Scope. The report text and tables are contained in Volume 1 of this document. Volume 2 contains the report figures and appendices to make reference to these items as easy as possible.

This Report is divided into eight chapters:

1. Chapter 1 presents general introductory information about the CWMP Project.
2. Chapter 2 briefly summarizes the previous wastewater and nitrogen management planning evaluations and reports that occurred before this CWMP/FEIR/TWMP document.
3. Chapter 3 summarizes the evaluations and Town decision-making for non-traditional nitrogen management technologies.
4. Chapter 4 summarizes the evaluations and Town decision-making for the traditional wastewater management technologies.
5. Chapter 5 identifies the public participation program implemented as part of the CWMP to gain public understanding and support of Project efforts to find the best solution for the Town's wastewater and nitrogen problems.
6. Chapter 6 presents the Recommended Plan, and identifies the implementation schedule and financial considerations.
7. Chapter 7 presents a summary of the environmental impact and benefit analysis.
8. Chapter 8 presents the "Draft Section 61 Findings for all State Agencies" which is a required format for all environmental impact reports.