

## SECTION 1.0 EXECUTIVE SUMMARY

### 1.1 INTRODUCTION

The primary purpose of the Alternatives Report is to describe the components of the four selected alternatives for wastewater management in the New Hampshire Seacoast Region and to evaluate the environmental, non financial issues, and planning level construction costs associated with their implementation. The alternatives have been developed to address the projected future wastewater flow and loads as well as effluent permit limits.

The four alternatives are as follows:

- Alternative 1 - No Action
- Alternative 2 - Treatment at Existing Wastewater Treatment Facilities (WWTFs) with a Regional Gulf of Maine Discharge
- Alternative 3 - Decentralized Treatment and Continued Use of Existing WWTFs
- Alternative 4 - Treatment at Existing WWTFs and Discharge to Land Application Sites

As agreed with the NHDES, the Great Bay Estuary Commission, and the attendees of the Project Charrette it is not the intent of this report to recommend a specific alternative to carry forward. Rather, the intent of this report is to discuss a number of issues and impacts associated with the implementation of the four alternatives and allow stakeholders to subsequently decide on the next steps.

It should be noted that the development and analysis of the four alternatives are planning level in nature and are intended to provide a relative comparison between alternatives. Many of the analyses are qualitative in nature due to the level of detail available at the feasibility study level. If one or more of these alternatives or a combination of the alternatives were to be carried forward, then significant refinement would need to occur on both the development and analysis of the alternatives.

### 1.2 REPORT FORMAT

The Alternatives Report is presented in ten report sections and seven appendices.

The ten report sections present the development and analysis of the selected wastewater management alternatives. The appendices include more specific details on methodologies and analyses.

### 1.3 SUMMARY OF REPORT SECTIONS

The following is a brief summary of the contents of the report sections.

**Section 1 – Executive Summary.** Section 1 provides an overview of the Alternatives Report and its contents.

**Section 2 - Introduction and Background.** Section 2 outlines the process used to identify ten wastewater management alternatives and the selection of four alternatives to evaluate. This section highlights the background information used to develop the selected alternatives including the projected future flows and loads for the study area, the septage disposal issues in the study area, and the projected WWTF effluent limits for the different alternatives. This section introduces the methods used to develop the four alternatives and the categories of analyses that were used to evaluate and compare the alternatives in this report.

**Section 3 – Alternatives Description and Components.** In Section 3, readers will find a technical description of the components that would be required to implement each of the four alternatives. For each alternative, the components have been developed and described in the following categories:

- Anticipated Wastewater Treatment Facility Upgrade Requirements.
- Anticipated Conveyance Requirements.
- Anticipated Discharge and Disposal Requirements.
- Other Anticipated Components.

The Anticipated Wastewater Treatment Facility Upgrades for each alternative include descriptions of the following upgrade components:

- Types of Process Upgrade Needed.
- Carbon Removal Upgrades.
- Total Nitrogen Removal Upgrades.
- Total Phosphorus Removal Upgrades.
- Other Unit Process and Equipment Upgrades.

The Anticipated Conveyance Requirements include descriptions of the following components as applicable to specific alternatives:

- Pump Stations.
- Pipelines.

The Anticipated Discharge and Disposal Requirements include descriptions of the following components as applicable to specific alternatives:

- No Change in Current Discharge Practice.
- Gulf of Maine Outfall.
- Land Application.

The Other Anticipated Components subcategory includes descriptions of the following alternative components which do not fall into one of the three categories above:

- Regional Post-Treatment Facility.
- Community On-lot Decentralized Systems.

**Section 4 – Methods of Analysis.** Section 4 identifies and describes the different methods of analysis that were used to evaluate the four wastewater alternatives. The general categories of analysis include the following:

- Environmental Analysis including:
  - Land Use and Growth
  - Air Quality
  - Surface Water Flow, Groundwater Recharge, and Water Quality
  - Wetlands and Terrestrial Resources
  - Aquatic Resources
  - Rare and Endangered Species
- Non-Monetary Factor Analysis including:
  - Complexity
  - Public Testimony
  - Implementation

- Planning Level Construction Costs including:
  - Capital Costs
  - Land Acquisition

**Section 5 – Alternative 1 (No Action) Analysis.** This section identifies and describes the analysis and evaluation of Alternative 1. This section evaluates and analyzes the alternative components described in Section 3 with the methods identified and described in Section 4.

**Section 6 – Alternative 2 (Treatment at Existing WWTFs with a Regional Gulf of Maine Discharge) Analysis.** This section identifies and describes the analysis and evaluation of Alternative 2. This section evaluates and analyzes the alternative components described in Section 3 with the methods identified and described in Section 4.

**Section 7 – Alternative 3 (Decentralized Treatment and Continued Use of Existing WWTFs) Analysis.** This section identifies and describes the analysis and evaluation of Alternative 3. This section evaluates and analyzes the alternative components described in Section 3 with the methods identified and described in Section 4.

**Section 8 – Alternative 4 (Treatment at Existing WWTFs and Discharge to Land Application Sites) Analysis.** This section identifies and describes the analysis and evaluation of Alternative 4. This section evaluates and analyzes the alternative components described in Section 3 with the methods identified and described in Section 4.

**Section 9 – Alternatives Comparison.** Section 9 compares the four alternatives against each other based on the analysis performed for each alternative in Section 5 through Section 8.