

## SECTION 1

### INTRODUCTION

The Town of Orleans has embarked on a multi-year, multi-phase process to determine if improved methods of wastewater management are needed, and if so, what those improved methods would entail and what they would cost. The process has been called Comprehensive Wastewater Management Planning, and the result will be a Comprehensive Wastewater Management Plan or CWMP. The CWMP process is being conducted in five phases, as follows:

Phase 1: Project Administration and Support

Phase 2: Data Review and Scoping

Phase 3: Needs Assessment

Phase 4: Development and Screening of Alternatives

Phase 5: Detailed Evaluation of Alternatives, Regulatory Filings and Development of Recommended Plan

Phase 1 includes activities that span all other phases. Phase 2 was completed in late 2005, allowing the start of technical work on later phases. The Needs Assessment Report (Phase 3) was issued in draft form in February 2007 and was the subject of a public meeting on February 26, 2007. In December 2007, the Alternatives Screening Report (Phase 4) was issued, and it was reviewed with the public at two meetings held on January 17, 2008. The alternative wastewater management plans identified in the Phase 4 Report have been the subject of more detailed investigation in Phase 5. The Detailed Evaluation of Alternatives summarized that investigation and was released in May 2008. It was the subject of two public meetings held on May 22, 2008. Public input on that evaluation continued over the summer of 2008, culminating in the selection of a single wastewater plan (the Recommended Plan) in August 2008. This current report is a compilation of the three prior reports with a single new chapter describing the Recommended Plan.

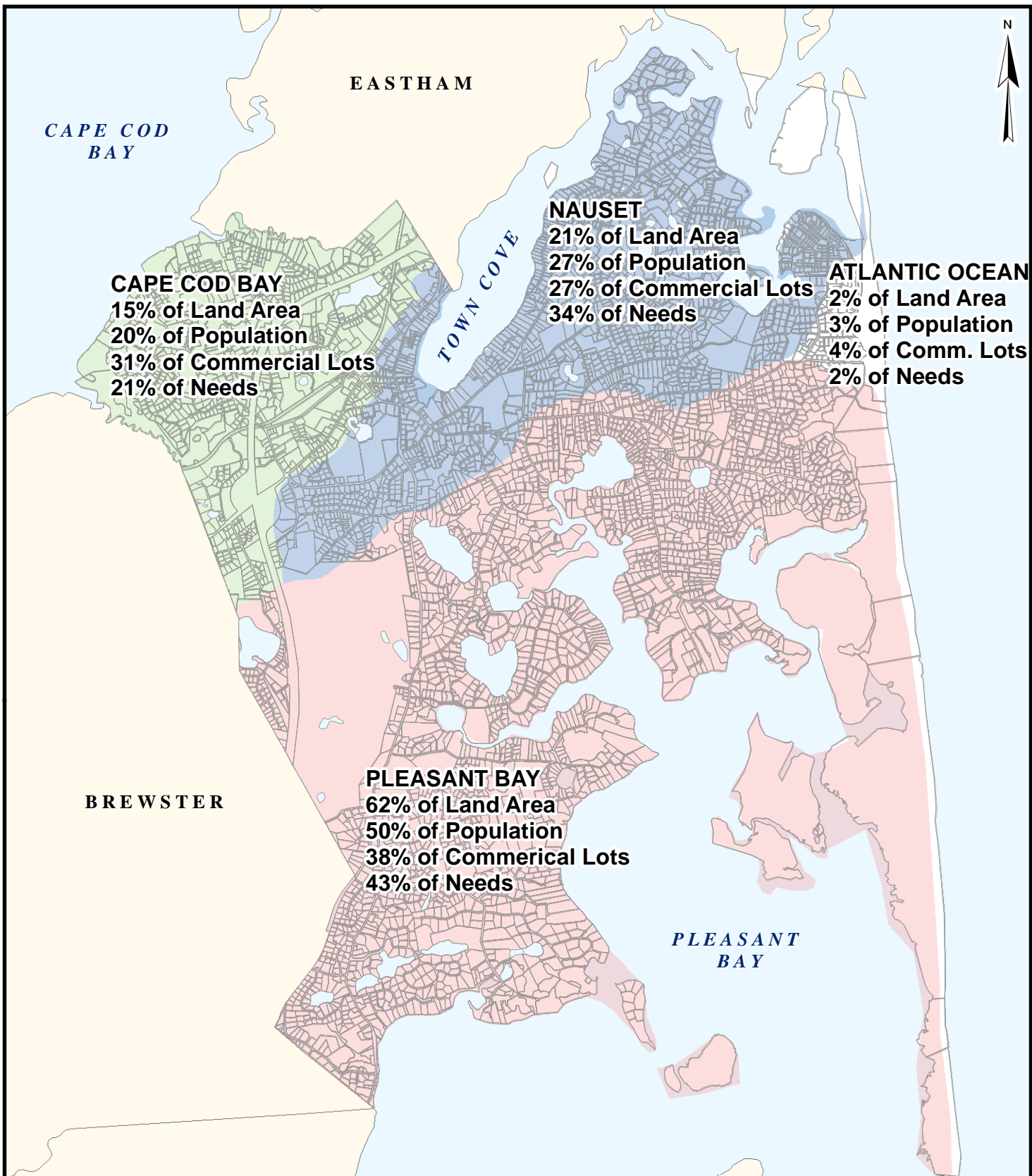
The Town has elected to call this process Comprehensive Wastewater Management Planning. Other related terms in use in the industry include Comprehensive Water Resources Planning and Integrated Water Resource Planning. The Town has chosen the CWMP title for consistency with Town Meeting appropriations, requests for proposals and engineering agreements. The Town's intention is to incorporate many of the broader aspects implicit in the alternative titles.

Orleans is blessed with significant access to marine resources, with frontage on Pleasant Bay, the Atlantic Ocean, Nauset Inlet and Cape Cod Bay. Whenever possible, this and prior reports present both town-wide data and information specific to the areas in town tributary to those water bodies. These major watersheds are the fundamental building blocks of this analysis; their geographic extent is shown in Figure 1-1.

This report consists of 11 sections and a number of supporting appendices. Following this introduction are the following sections:

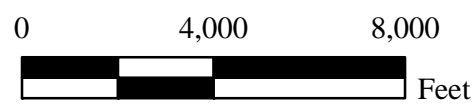
- Section 2: A summary of existing conditions
- Section 3: Documentation of wastewater management needs
- Section 4: A description of expected future conditions
- Section 5: Identification and review of components of a wastewater plan
- Section 6: Description of three wastewater plans for more detailed review
- Section 7: The detailed evaluation of the three candidate wastewater plans
- Section 8: A comparison of the environmental aspects of the three plans
- Section 9: A review of the potential for regional wastewater facilities
- Section 10: A review of the potential for water reuse
- Section 11: The details of the Recommended Plan

Many technical terms, abbreviations and acronyms are used throughout this report. Table 1-1 defines those that are most commonly used.



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Source: Base data obtained from the Town of Orleans and MassGIS



Orleans CWMP	
<b>Major Watersheds</b>	
PROJ NO: 10645D	DATE: Oct. 2008
FIGURE: 1-1	

**TABLE 1-1**  
**LIST OF COMMONLY USED ACRONYMS AND ABBREVIATIONS**

<b>ACEC</b>	Area of Critical Environmental Concern
<b>BOH</b>	Board of Health
<b>BOS</b>	Board of Selectmen
<b>CAC</b>	Citizens Advisory Committee
<b>CCC</b>	Cape Cod Commission
<b>"Current"</b>	Covering the dates 2002 to 2005, applied to population, wastewater flow or nitrogen load conditions
<b>CWMP</b>	Comprehensive Wastewater Management Plan
<b>DEIR</b>	Draft Environmental Impact Report
<b>DEP</b>	Department of Environmental Protection (Massachusetts)
<b>DRI</b>	Developments of Regional Impact
<b>EIR</b>	Environmental Impact Report
<b>ENF</b>	Environmental Notification Form
<b>EOEEA</b>	Executive Office of Energy and Environmental Affairs
<b>ESA</b>	Environmentally Sensitive Area
<b>FEIR</b>	Final Environmental Impact Report
<b>"Future"</b>	Referring to population, wastewater flows or nitrogen loads, expected at Planning Horizon (2030)
<b>GIS</b>	Geographic Information System
<b>gpd</b>	Gallons Per Day
<b>gpd/sf</b>	Gallons Per Day Per Square Foot
<b>I/A</b>	Innovative and Alternative
<b>I/I</b>	Infiltration and Inflow
<b>kg/day</b>	Kilograms Per Day
<b>lb/yr</b>	Pounds Per Year
<b>MEP</b>	Massachusetts Estuaries Project
<b>MEPA</b>	Massachusetts Environmental Policy Act
<b>mgd</b>	Million Gallons Per Day
<b>mg/l</b>	Milligrams Per Liter
<b>NRCS</b>	Natural Resources Conservation Service
<b>OBEGWPD</b>	Orleans Brewster Eastham Groundwater Protection District
<b>ORW</b>	Outstanding Resource Water
<b>PALS</b>	Pond and Lake Stewards
<b>ppm</b>	Parts Per Million
<b>SMAST</b>	School of Marine Science and Technology, University of Massachusetts at Dartmouth
<b>SRF</b>	State Revolving Fund
<b>TMDL</b>	Total Maximum Daily Load
<b>USEPA</b>	U.S. Environmental Protection Agency
<b>USGS</b>	United States Geologic Survey
<b>WMSC</b>	Wastewater Management Steering Committee