Chapter 1
Introduction

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INTRODUCTION

1.1 PROJECT PURPOSE AND PLANNING AREA

The purpose of the Comprehensive Wastewater Management Planning (CWMP) Project is to provide an environmentally and economically sound plan for wastewater treatment and nutrient management in the Town of Barnstable (Town) for the next 20 years. The CWMP Project will assess the wastewater and nutrient-related needs in the Town; evaluate appropriate mitigation measures for those needs; and develop a recommended plan for improved management systems. The primary purpose of the project is to develop a plan to:

- Protect public health and address Board of Health concerns.
- Protect the water supply.
- Meet the nitrogen Total Maximum Daily Load (TMDL) limits for the marine waters in and around Barnstable.
- Protect and remediate pond water quality.
- Address new regulations and public health concerns about Contaminants of Emerging Concern (CEC) including pharmaceuticals, personal care products, and endocrine disrupting compounds.
- Plan for and maintain flexibility to meet future Massachusetts Department of Environmental Protection (MassDEP) and United States Environmental Protection Agency (USEPA) requirements.
- Incorporate the wastewater infrastructure and facilities planning into a cohesive document.

The Town of Barnstable is located in the middle portion of Cape Cod as shown in Figure 1-1. This figure also identifies the watersheds to Popponesset Bay, Rushy Marsh, Three Bay System, Centerville River System, Halls Creek, Lewis Bay, and Barnstable Harbor which are the primary estuarine waters in Barnstable. This figure also illustrates the many freshwater ponds that will be considered in this planning project; and it illustrates the seven villages that comprise the Town:

Hyannis, Barnstable, Centerville, Osterville, Marstons Mills, Cotuit, and West Barnstable. It also illustrates the wastewater management facilities owned and operated by the Town.

1.2 PROJECT ISSUES AND BACKGROUND

The Town of Barnstable is faced with several nutrient management and wastewater-related problems as it plans to protect its water resources and plans for growth and economic development. Nitrogen loadings into the Town's coastal watersheds are causing an overproduction of algae in several coastal estuaries and are impacting the water quality and marine resources in the estuaries. Recently completed studies by the Massachusetts Estuaries Project (MEP) indicate most (75 to 85 percent) of the nitrogen originates from wastewater sources. The other sources that comprise the remaining 15 to 25 percent include lawn and agricultural fertilizers, road and roof runoff, and precipitation from the sky. These reports have recommended extensive wastewater nitrogen removal to meet specific nitrogen limits that have been developed for the waterbodies. The limits are called Total Maximum Daily Loads (TMDLs) as discussed later in this report.

The Town draws its public water supplies from the groundwater system under the land area of the Town. This groundwater system (for all of Cape Cod) has been designated as a Sole Source Aquifer by USEPA, and as such is a highly protected resource. Current discharges from individual septic systems and from wastewater treatment facilities have the potential to impact this drinking water supply, and there are new MassDEP regulations that must be met to protect the resource.

The Town has many freshwater ponds and lakes which provide fishing, swimming, and other aesthetic resources. Phosphorus loadings into the pond watershed areas (mainly from individual septic systems) are causing an overproduction of algae in several ponds and are impacting the water quality in these ponds. Recently completed studies have documented these impacts and the need to remediate these impacts. The studies have identified that phosphorus moves into a pond from its watershed with surface water runoff and groundwater flow. Once it is in the pond it accumulates in the sediments. Under certain conditions it can be released and cause large algal blooms that impact the environmental health, human health, and recreational value of these resources. Several ponds appear to be exceeding their nutrient balances.

Several previous and ongoing projects have developed valuable information that will be referenced and used in this CWMP project. These previous projects are briefly described below.

A. **Background on the 2007 Wastewater Facilities Plan and Subsequent Implementation.** In 1993 the Town initiated a Wastewater Facilities Plan that was completed in 2007. It was a detailed evaluation and planning process that was completed to address wastewater impacts to the Town's water resources. It focused on the ability of individual septic systems to meet the State's sanitary code (Title 5 regulations) and the impacts from failing (and even properly working) systems on the groundwater used for drinking water supplies, and other public health issues. The plan recommended the following upgrades to the Hyannis Water Pollution Control Facility (WPCF) and its collection system:

1. Treatment upgrade and expansion to meet the new (imposed in 1990) nitrogen discharge limit of 10 milligrams per liter (mg/L) total nitrogen, and to improve plant performance and operability.

2. Modified sludge management practices that were required due to the closure of the Town's landfill in Marstons Mills.

3. Sewer system modifications, improvements, and pump station improvements to correct bottlenecks and to allow for sewer system expansions.

4. Water system expansion to several wastewater Areas of Concern (AOC) where it was determined that extending public water supply to these areas best solved the wastewater problems.

5. Sewer system expansion to several documented wastewater AOC where it was determined that the wastewater problems at these areas would be best solved by connecting these areas to the Hyannis WPCF.

6. Additional sludge management improvements as the wastewater (and sludge production) increases in the future.

7. Future development of a new treated water recharge (remote from the Hyannis WPCF) at a 6.9-acre site located along Route 132 near Exit 6 of Route 6.

8. Defer addressing wastewater AOC located in the central and western portions of Town until the nitrogen limits were developed for the Town's coastal estuaries with the intent of incorporating and addressing these wastewater concerns into the current CWMP.

Items 1 through 4 and portions of Item 5 have been implemented. There are additional sewer extensions (of Item 5) that will be implemented during the next 10 years. Items 6 and 7 will be implemented as the sewer extensions of Item 5 proceed. The wastewater AOC (identified in Item 8) that were not addressed will be addressed in this CWMP Project because the Town now has many of the needed nitrogen limits.

The Executive Summary of the 2007 WWFP is attached in Appendix 1-1 and provides a complete summary of that Project.

The Massachusetts Environmental Policy Act (MEPA) approval for the 2007 WWFP is attached in Appendix 1-2, and the Cape Cod Commission (CCC) Development of Regional Impact (DRI) approval is attached in Appendix 1-3. These three documents provide much background on this Project. It is expected that the 2007 WWFP project will provide significant information to allow the CWMP Project to proceed efficiently and consistently. The specific findings of the 2007 WWFP are described in greater detail in Chapter 2, Data Review.

B. **Background on Massachusetts Estuaries Project (MEP) Evaluations and Development of Nitrogen TMDLs.** The MEP is a collaborative effort between several federal, state, regional, and municipal agencies to develop nitrogen thresholds and limits for a group of approximately 90 estuaries in southeastern Massachusetts. The main agencies involved include:

1. Massachusetts Department of Environmental Protection (MassDEP).

2. University of Massachusetts (UMass) School of Marine Science and Technology (SMAST).

3. United States Geological Survey (USGS).

4. Cape Cod Commission (CCC).

5. Applied Coastal Research and Engineering, Inc. (ACRE).

6. Several municipalities that surround the estuaries including the Town of Barnstable.

The nitrogen limits are developed for the estuaries through the following evaluation steps:

1. The watershed of each estuary is delineated by USGS with the use of their regional groundwater flow model.

2. The nitrogen loading to the watershed of each estuary is calculated by CCC and/or SMAST for each of the major nitrogen sources.

3. Sediment cores are collected and estimates of nitrogen loadings from the sediments to the estuary waters are calculated.

4. Detailed surveys of each estuary are completed to quantify the condition and extent of several biological parameters, including eel grass coverage, benthic life forms, etc., and to correlate environmental conditions in healthy areas of the estuary with a nitrogen concentration that is associated with these healthy conditions. This step (with other inputs and considerations) identifies the threshold nitrogen concentration for each estuary.

5. A water quality model is developed for each estuary based on tidal mixing and flushing of the estuary and the nitrogen loads from the watersheds and sediments. The model is calibrated with several parameters, including averages of long-term water quality monitoring data.

6. The model is then run with different watershed loading values to estimate the resulting estuaries' nitrogen concentration for the following scenarios:

   a. Existing conditions.

   b. Buildout conditions.

   c. "No anthropogenic loading" condition, which is the condition of no nitrogen loadings from wastewater, fertilizers, or stormwater sources.

d. "Nitrogen threshold" condition which simulates the upper limit of nitrogen loading that can go into the estuary and still have the water quality meet the nitrogen threshold concentration (identified above in Step 4) at one or more key locations (sentinel stations) in the estuary.

e. Additional alternative scenarios as requested by the municipality or as needed.

Once the nitrogen thresholds and limits are developed and presented for each estuary in a technical report produced by the MEP, MassDEP then prepares a draft TMDL report that presents the nitrogen limits as TMDLs for approval by United States Environmental Protection Agency (USEPA). Several of these documents have been produced for the Town of Barnstable, as listed below:

1. MEP Technical Report for Popponesset Bay; MEP, September 2004.

2. MassDEP TMDL Report for Popponesset Bay; MassDEP, April 10, 2006.

3. MEP Technical Report for Rushy Marsh; MEP, April 2006 (No TMDL Report has been developed).

4. MEP Technical Report for Three Bay System; MEP, April 2006.

5. MassDEP TMDL Report for Three Bay System; MassDEP, September 7, 2007.

6. MEP Technical Report for Centerville River System; MEP, November 2006.

7. MassDEP TMDL Report for Centerville River System; MassDEP, January 29, 2008.

8. MEP Technical Report for Lewis Bay (and Halls Creek); MEP, December 2008.

The Town is awaiting the TMDL report for Lewis Bay and the Technical and TMDL Reports for Barnstable Harbor. No TMDL Report is expected for Rushy Marsh because it is so small.

USEPA then reviews these reports and accepts the nitrogen limits as TMDLs which, once accepted, have regulatory status by USEPA and MassDEP.

The main findings of these evaluations and reports indicate that a large percentage of the existing nitrogen loading to the estuarine watersheds must be removed to restore the water quality and habitat of the estuaries. Most of the nitrogen comes from individual septic systems in the watersheds. The findings of these reports are reviewed in detail in Chapter 5, Existing and Future Conditions in the Town of Barnstable.

C. **Background on Water Quality Conditions of the Groundwater System and the Town's Freshwater Ponds.** Many reports and evaluations have been completed on the groundwater system and the Town's freshwater ponds. These water resources have also been impacted by nutrients and other contaminants.

Nitrogen is a major concern in the groundwater because it has a state and federal drinking water standard of 10 mg/L to protect public health. There are also many drinking water standards for specific contaminants that can enter the groundwater when there is improper land use. There has recently been concern about pharmaceuticals, personal care products, and "endocrine disruptors" that are being observed in the groundwater system and are coming from wastewater sources. Drinking water standards have not yet been developed for these categories of manmade compounds. These categories are often called Contaminants of Emerging Concern (CEC) because they have no limits yet and they may pose human-health and/or environmental-health concerns. MassDEP has started to regulate these CECs by requiring a stringent discharge limit of Total Organic Carbon (TOC) for wastewater treatment facility discharges in Zone II areas (areas that can contribute groundwater to public water supply wells). The CECs are typically comprised of organic carbon; therefore, when the TOC concentration in treated water is low, then CEC concentrations will be low or non-detectable.

Phosphorous is typically the nutrient of concern for freshwater ponds. It is the "limiting nutrient" (similar to nitrogen for marine waters), which means that it is the essential plant (algae) nutrient that is in short supply, so that when it is added it will produce an over-abundance of algae, which will impact water quality. Recent studies in Barnstable and across Cape Cod have indicated that wastewater discharge in the watersheds of these ponds is the largest source of phosphorous. Other sources include lawn and agricultural fertilizers, road and roof runoff, and precipitation from the sky.

The groundwater system and the Town's many freshwater ponds are as equally important as the Town's marine waters to the quality of life in Barnstable. Their water quality will be evaluated and addressed as part of this planning project.

D. **Regional Wastewater Management Efforts.** Several regional wastewater management planning efforts are underway to define and implement wastewater and nitrogen mitigation efforts on Cape Cod. These efforts are identified below.

1. Cape Cod Commission and Barnstable County regional efforts, including:

   a. Formation and coordination of the Cape Cod Water Protection Collaborative.

   b. Development of a regional wastewater management plan.

   c. Coordination with USGS and Cape Cod towns to provide groundwater modeling services to towns involved with wastewater planning activities.

   d. Funding assistance and guidance documents for wastewater projects as listed below:

      1) "*Enhancing Wastewater Management on Cape Cod: Planning, Administrative, and Legal Tools,"* Wright-Pierce, July 2004.

      2) "*Sewer Modeling and Preliminary Design Evaluations, Guidance Document and Case Study Report, Popponesset Bay Watershed,"* Mashpee, MA and Stearns & Wheler, November 2005.

      3) "*Effluent Disposal and Reuse Planning: Guidance Document and Case Study Report,"* Town of Barnstable and Stearns & Wheler, 2005.

      4) "*Small Community-Size Wastewater Treatment Technologies Evaluation,"* Town of Yarmouth and Tighe and Bond, June 2005.

5) "*Innovative Septic System Management Project,"* Town of Eastham and BCDHE, 2007.

6) "*Evaluation of Wastewater Management Options for Freshwater Ponds Guidance Document and Case Study Report for the Great Sand Lakes,"* Town of Harwich and Stearns & Wheler, May 2007.

7) "*Groundwater Modeling to Support Comprehensive Wastewater Management Planning; Guidance Document and Case Study Report,"* Town of Falmouth and Stearns & Wheler, June 2009.

8) "*On-Site System GIS Mapping and Management Project,"* Town of Bourne and Norfolk RAM, 2004.

9) "*Tri-Town Septage Facility Evaluation Project,"* Town of Orleans and Wright-Pierce, August 2005.

10) "*Cape Cod Pond and Lake Atlas,"* CCC, May 2003.

11) "*Comparison of Costs for Wastewater Management Systems Applicable to Cape Cod: Guidance to Cape Cod Towns Undertaking Comprehensive Wastewater Management Planning."* Barnstable County Wastewater Task Force, April 2010.

e. Creation of the Cape Keepers Public Education Program.

The Cape Cod Water Protection Collaborative (CCWPC) has recently (February 2010) become active in supporting shared watershed/solution concepts for the following areas:

- Lewis Bay Watershed and possibly sharing wastewater management solutions and costs for Barnstable and Yarmouth.
- Popponesset Bay Watershed and possibly sharing wastewater management solutions and costs for Barnstable, Mashpee, and Sandwich.
- Falmouth, Mashpee, Bourne, and Sandwich regional treatment opportunities at the Massachusetts Military Reserve (MMR).

They will support these concepts through subcommittee meetings, technical assistance, and regulatory support.

The CCWPC is also trying to advance the regulatory acceptance of wetland and watershed modifications as part of a town's plan for nitrogen management. They plan to create a special review process with the State regulatory agencies to streamline the review of the following types of wetland/watershed modifications:

- Sediment removal from behind dams to facilitate greater nitrogen attenuation in ponds. Mill Pond in Marstons Mills is planned to be a test case.
- Tidal restriction removal at coastal ponds/estuaries to increase tidal flushing and reduce nitrogen sensitivity. Enlargement of culverts at Bournes Pond in Falmouth and Parkers River in Yarmouth are planned to be test cases for this type of project.
- Flooding of fallow cranberry bogs to create ponds and facilitate increased nitrogen attenuation in the watershed. No specific test cases have been identified for this type of project.

2. Association to Preserve Cape Cod (APCC), CCC, and Waquoit Bay National Estuarine Research Reserve (NERR) specialty conferences on wastewater issues.

3. Legislative passage of the 2008 Environmental Board Act (ass supported by Cape Cod Water Protection Collaborative and Senator Robert O'Leary) to help fund and address Cape Cod's wastewater and nutrient-related problems.

4. Barnstable County Department of Health and Environment (BCDHE) efforts to provide public health technical assistance and to oversee the Alternative On-Site Septic System Test Center to test innovative septic system technologies and management scenarios.

5. Decentralized wastewater treatment seminars and information outreach by technology vendors and advocates to ensure that these technologies are considered in the wastewater planning process.

E. **Wastewater and Nutrient Management Planning Projects in Neighboring Towns.** Barnstable shares estuarine watersheds (illustrated in Figure 1-1) with the following towns:

- Yarmouth for Lewis Bay.
- Mashpee for Popponesset Bay and a small portion of the Three Bays System.
- Sandwich for Popponesset Bay, the Three Bays System, and Barnstable Harbor.

Yarmouth and Mashpee both have ongoing wastewater and nutrient management planning projects. Sandwich is planning to start a wastewater and nutrient management planning project in 2010 or 2011. The ongoing planning projects for Yarmouth and Mashpee are identified below.

1. Town of Yarmouth Integrated Water Resources Management Planning (IWRMP) Project.

This project was initiated in 2004 to develop a plan to address wastewater and nitrogen loading issues along Route 28; in the watersheds to Lewis Bay, Parkers River, and Bass River; and in water supply areas. This project has considered possible regional wastewater treatment solutions with the Town of Barnstable that resulted in a Technical Memorandum contained in Appendix 1-4. Coordination between the two towns continues.

2. Town of Mashpee Watershed Nitrogen Management Planning (WNMP) Project. This project was initiated in 2000 to address nitrogen loading problems to Popponesset Bay and Waquoit Bay. A portion of this project area is in the Town of Barnstable because the Popponesset Bay Watershed extends into Barnstable. Coordination between the two towns continues.

1.3 TOWN OF BARNSTABLE VISION AND GOALS AS ARTICULATED IN THE BARNSTABLE COMPREHENSIVE PLAN

The Barnstable Comprehensive Plan (2010) is the most recent Local Comprehensive Plan completed by the Town in compliance with Cape Cod Commission guidelines. It articulates a Town vision and Comprehensive Plan Goals that will help guide the formation of this CWMP.

A. **Vision.** "The seven diverse yet interconnected villages of Barnstable form one community that is an integral part of Cape Cod. As the town in 2008 has been shaped by its past, through

this plan Barnstable will shape a sustainable future. The town will preserve its history, environment and community for future generations through active stewardship of community character and quality of life while balancing growth, infrastructure and natural systems."

B. **Comprehensive Plan Goals.** The following goals are stated for the Comprehensive Plan:

1. Sustain diverse villages and livable neighborhoods for year round residents while providing housing opportunities for all.

2. Preserve, protect and enhance sensitive natural habitats and systems.

3. Provide town services and infrastructure through an efficient, planned and prioritized process.

4. Support and manage the regional resources and services unique to Cape Cod.

5. Preserve and enhance historic and maritime character, public viewsheds and cultural landscapes.

6. Enhance pedestrian activity in historic village centers.

7. Preserve and enhance access to public spaces including the waterfront.

8. Foster and support the creative economy which includes history, culture and arts.

9. Promote traffic reduction, traffic management, alternate transportation modes, property interconnections, and travel demand management.

10. Foster and support public transit while planning for associated parking, pedestrian and bicycle travel needs.

11. Allow development review to be more efficient for applicants and town regulatory bodies in a predictable and fair manner.

12. Develop and support a process to encourage private investments and support appropriate economic development.

13. Fully integrate implementation of plan goals, actions and strategies into the municipal budget and capital planning process.

1.4 PROJECT SCOPE

The project has been divided into seven phases. A brief listing of the tasks associated with each phase of this project follows, and the complete Project Scope for the project as submitted for MassDEP review is included in Appendix 1-5.

A. **Phase I – Environmental Monitoring and Modeling, and Development of Nutrient Limit Targets.**

1. Perform water quality monitoring of coastal embayments and ponds.

2. Collect additional environmental parameters.

3. Assess the nutrient related health of the coastal embayments and ponds.

4. Perform embayment flushing analyses and hydrodynamic model development.

5. Develop existing and future nitrogen loadings to coastal embayments.

6. Perform water quality modeling.

7. Develop nitrogen loading targets.

8. Prepare nutrient loading assessment reports (MEP Technical Reports).

B. **Phase II – Nutrient Management Needs Assessment.**

1. Review and summarize Town issues and data.

2. Review and summarize regulatory issues affecting nutrient management planning.

3. Evaluate, summarize, and describe existing conditions in Town.

4. Identify the goals and objectives of the Town related to nutrient management.

5. Evaluate, summarize, and describe future conditions in Town.

6. Identify nutrient related areas of concern and prepare Nutrient Management Needs Assessment Report.

C. **Phase III - Identification and Screening of Alternative Solutions and Sites.**

1. Identify, review and summarize alternative solutions to meet the Town's nutrient management needs.

2. Screen the alternative solutions to identify the most feasible ones for detailed evaluation.

3. Identify and screen potential sites for nutrient management facilities.

4. Group feasible solutions and sites into alternative nutrient management scenarios.

5. Prepare the Nutrient Management Alternatives Screening Analysis Report.

D. **Phase IV – Detailed Evaluation and Development of the Nutrient Management Plan.**

1. Perform subsurface and/or environmental investigations and modeling for potential nutrient management sites.

2. Prepare a methodology of the planned detailed evaluations for project and regulatory review.

3. Perform present-worth evaluations of the alternative nutrient management scenarios.

4. Perform non-monetary evaluations of the alternative scenarios.

5. Perform an environmental impact analysis of the alternative scenarios.

6. Evaluate the present-worth analysis with the non-monetary evaluation and the environmental impact analysis to select the most appropriate management scenario.

7. Develop and present the recommended Nutrient Management Plan, and prepare the Nutrient Management Plan and Draft Environmental Impact Report (DEIR).

8. Submit the Nutrient Management Plan and DEIR for regulatory and public reviews.

E. **Phase V - Resolution of Remaining Issues and Project Completion.**

1. Resolve remaining issues.

2. Modify the DEIR to prepare the Nutrient Management Plan and Final Environmental Impact Report (FEIR), and submit it for public and regulatory review.

F. **Phase VI – Environmental and Public Review Process.**

1. Establish and utilize a Citizens Advisory Committee.

2. Establish and utilize a Technical Advisory Committee.

3. Prepare and conduct a public participation program.

4. Prepare, submit, and coordinate the public review of the Environmental Notification Form and Development of Regional Impact Document.

5. Coordinate public review of the other project documents.

6. Coordinate and attend meetings and public hearings.

G. **Project Management and Funding**

1. Develop and administer State Revolving Fund loan applications and agreements.

2. Develop and administer contract agreements for specialized services.

3. Provide overall project management and coordination.

As mentioned earlier, the full Project Scope is attached in Appendix 1-5. It was originally prepared in August 2001, submitted and approved by MassDEP in 2005, and updated and used in a State Revolving Fund (SRF) funding application in August 2008. The full Project Scope provides narrative text about the purpose and approach of the major tasks and identifies the tasks that have been completed as of 2008.

1.5 PLANNED PUBLIC REVIEW

Several public outreach and review components are planned and have been initiated for this project. A Citizens Advisory Group has been established to provide oversight and assist with public outreach. Participants in this group (and their affiliations or titles) are listed below.

- Barnstable Representatives:
  - Philip Boudreau, Chairman
  - Rod Anderson
  - Milton Berglund
  - Oliver P. Cipollini, Jr.
  - Lindsey Counsell
  - Stewart Goodwin
  - Gail Maguire
  - Wayne Miller
  - Susan Rask
  - Donald Schwinn
  - George Zoto
- Neighboring Town Representatives:
  - Ralph Vitacco, Sandwich
  - Michael R. Richardson, Mashpee

- No representative at this time (June 2010) for Yarmouth

Coordination meetings have been (and will be) held with MassDEP and CCC staff to coordinate efforts and keep the associated agencies informed. Progress meetings have been and will be convened with interested community groups in the Town. Phase reports (such as this Needs Assessment Report) will be produced through the project to allow interim reviews of the project efforts and public and regulatory comment. A website has been created to allow access to Project information and documents and can be accessed at www.town.barnstable.ma.us/Boards/CitizenAdvisory/default.asp .

1.6 PLANNED ENVIRONMENTAL REVIEW

As identified in the project scope listing, the approach for the environmental review process is to file an ENF document at the end of Phase III to initiate the MEPA and CCC DRI Joint Environmental Review Process. This ENF will summarize the findings of Phases I, II, and III and focus the review on the alternative management scenarios developed at the end of Phase III and their associated environmental impacts and benefits. The ENF will detail how these alternative management scenarios will be evaluated. The subsequent environmental evaluations will be summarized in the Draft Comprehensive Wastewater Management Plan and Draft Environmental Impact Report (DCWMP/DEIR) and in the Final Comprehensive Wastewater Management Plan and Final Environmental Impact Report (FCWMP/FEIR).

1.7 PLANNING PERIOD

The Comprehensive Wastewater Management Plan will provide a recommended plan for wastewater facilities and nutrient management recommendations in Town for the 20-year planning period of 2015 to 2035. This is an approximate period that would start following newly constructed wastewater facilities resulting from the plan. The plan will also be developed with a planning horizon based on the estimated potential buildout of the Town.

1.8 PURPOSE AND ORGANIZATION OF THE NEEDS ASSESSMENT REPORT

The Needs Assessment Report is written to summarize the subtasks identified in Phase II of the project scope. This work includes the research and description of existing conditions in the Town related to wastewater treatment and disposal; the Town's treatment and recharge facilities

(both centralized and decentralized); projected wastewater flows and loadings; and assessment of existing and future conditions.

This Needs Assessment Report is divided into six chapters. Chapter 1 presents general introductory information about the Project. Chapter 2 describes the technical documents reviewed along with Town and regional data. Chapter 3 identifies the regulatory issues (local, regional, state, and federal) that must be considered during the project. Chapter 4 describes the existing wastewater collection, treatment, and recharge facilities as well as the water supply systems. Chapter 5 identifies existing and future conditions in the Town. Chapter 6 provides a summary of the wastewater needs in the Town, and describes the results of the No Action Alternative, which is the expected outcome for the Town if no changes are made to the existing wastewater and nutrient management practices.