

TOWN OF TISBURY

COMPREHENSIVE WASTEWATER MANAGEMENT PLAN

Plan of Study

June 14, 2021

Environmental Partners (EP) prepared this Plan of Study (POS) for the Town of Tisbury (Town) to initiate the Comprehensive Wastewater Management Plan for the Town. EP prepared the POS in accordance with the Massachusetts Department of Environmental Protection's Guide to Comprehensive Wastewater Management Planning dated January 1996 and feedback from MassDEP and the Massachusetts Environmental Policy Act (MEPA) office. Tisbury's Water Resources Committee has reviewed the plan, provided comments, and finalized the Public Outreach and Participation Program at their May 2021 meeting.

Project Background

The Town of Tisbury proposes to prepare a town-wide CWMP in a four-phased approach.

- Phase I – Existing and Future Conditions Review, and Needs Assessment
- Phase II – Identification and Screening of Alternatives
- Phase III – Draft Recommended Plan
- Phase IV – MEPA and Martha's Vineyard Commission Development of Regional Impact (DRI) Review and Final Recommended Plan

While the CWMP is a Town of Tisbury project, the CWMP will include recommendations for inter-municipal agreements between Tisbury, Oak Bluffs, and West Tisbury to address water quality, particularly in the shared watersheds of Lagoon Pond and Lake Tashmoo.

Figure 1 shows the Tisbury study area and the watersheds that contribute to the Town's water quality. The development of this CWMP will be consistent with the goals and recommendations of previous and ongoing planning efforts of the Town, including the Tisbury Community Development Plan, the Tisbury Housing Production Plan, and the ongoing Master Plan update, as well as regional planning by the Martha's Vineyard Commission's (MVC) and their Martha's Vineyard Island Plan.

All work will be coordinated and developed with the Town's Select Board, their Water Resources Committee, and Town staff with regular meetings, updates, and workshops.



CWMP Detailed Plan of Study

Phase I - Needs Assessment

The objective of the Needs Assessment is to develop an understanding of the existing and future water quality conditions within the planning area, and to review previous planning efforts related to watershed protection, economic development, and population growth. The Needs Assessment will describe water quality in the Town's watersheds, identify impacts associated with nitrogen loadings from wastewater disposal and other sources under existing and anticipated future population levels, and identify areas of need for wastewater disposal solutions based on each watershed's Total Maximum Daily Load (TMDL) goals. The understanding developed through the Needs Assessment will provide the context of the alternative management and mitigation strategies developed in Phase II.

Review of Prior Planning Efforts

Existing planning studies will be reviewed and summarized, and will be incorporated into the needs assessment as applicable. Flow projections and needs areas will be updated using current Board of Health Title 5 compliance data, records of onsite system failures, onsite I/A systems in operation, and neighborhood treatment systems, as well as incorporating land use and zoning. Figures will be prepared using GIS mapping that depicts wastewater disposal issues and historic data. Additional data sources EP will incorporate into the assessment are water quality data and historic records of the Town's marine and freshwater surface water bodies and embayments.

The Massachusetts Estuaries Project Total Nitrogen TMDL final reports for Lake Tashmoo and Lagoon Pond and the associated linked watershed-embayment model final reports will also be incorporated.

Assessment of Current and Future Conditions

Base mapping showing existing conditions will be created using GIS data layers from Town, State, and Federal sources. The GIS mapping will portray conditions of the human-made and natural environment including land use; zoning; surficial geology; soils; infrastructure such as town roads, water, and wastewater; watershed delineations; water supply zones of contribution; environmental justice areas; and environmentally sensitive areas.

Current wastewater nitrogen loading rates and septage/wastewater flows will be estimated on a watershed and Town-wide basis in the same approach as the Massachusetts Estuaries Project process. Future septage/wastewater flows will be estimated on a watershed and Town-wide basis in a similar manner, using the approach that was the basis of the Massachusetts Estuaries Project studies, the Tisbury Community Development Plan, and data from the Martha's Vineyard Commission, with adjustments based on guidance from the Planning Board. If the appropriate Assessor's data is available, these estimates will also be described with respect to residential, commercial and industrial property uses, and will also characterize discharges according to seasonal and year-round property uses. Nitrogen loads provided in existing Massachusetts Estuaries Project reports will be used for those watersheds that have been evaluated.

Wastewater Needs and Problem Identification

Based on the findings of the above tasks, a technical report will summarize the Town's existing wastewater conditions and future wastewater needs, including the nitrogen loading on a watershed and Town-wide basis, and provide recommendations for priority areas of need. The technical report will also identify needs outside the Town's boundaries, but within nitrogen-limited watersheds, that would warrant inter-municipal coordination.

Phase II – Identification and Screening of Alternatives

This phase includes an analysis and screening of wastewater treatment and management alternatives for addressing the water quality and infrastructure issues identified in the Needs Assessment. This Phase will consist of two screening processes:

- preliminary screening of alternatives
- detailed evaluation of alternatives

Both structural and non-structural measures will be assessed. Management alternatives will be identified and evaluated based on the following factors:

- A baseline conditions alternative that would determine the level of treatment possible by optimizing the existing wastewater collection, treatment and disposal facilities;
- Identification of areas where conventional septic systems and on-site denitrifying septic systems are feasible;
- On-site wastewater system management on a needs-area and town-wide basis;
- Identification of areas where on-site septic systems and I/A system are inadequate;
- Decentralized treatment options for areas with inadequate on-site septic systems, including alternative treatment systems such as Permeable Reactive Barriers (PRB) or aquaculture, cluster systems, and package wastewater treatment facilities;
- Centralized treatment options, including expansion/upgrade of the existing WWTF to improve nitrogen removal, and regional options for residuals reuse and/or disposal;
- Collection system alternatives for centralized and decentralized treatment; and
- Flow and load reduction measures, including water conservation.

The screening analysis will evaluate the options identified above and potential locations for the siting of facilities. Factors to be considered include capital and life cycle cost, design flexibility for handling varying loads and upgrades, environmental impacts and constraints, effluent quality, permit requirements, odor emissions, land requirements, ease of implementation, maintenance/operation requirements, greenhouse gas (GHG) emissions, public acceptance, conformance with the TMDLs and the Town's planning goals, and climate change resiliency.

An alternatives matrix will be prepared and organized by findings from the Needs Analysis, including both structural and non-structural approaches. Evaluation criteria will be drafted, and provided to the WRC for review and modification. The report *Comparison of Costs for Wastewater Management Systems Applicable to Cape Cod*, prepared by the Barnstable County Wastewater Cost Task Force, and the Cape Cod Commission's Technologies Matrix will inform the discussion regarding alternatives

and conceptual costs. Based on discussions with the WRC, the committee will recommend alternative strategies to the Select Board for detailed evaluation in Phase III.

The process will be discussed with the MVC regarding inter-municipal coordination and actions that could be undertaken as part of a watershed-based plan. A report summarizing the findings and recommendations of this Phase will be submitted to MassDEP and we will hold an informal review meeting to discuss any pre-review comments.

Phase III – Draft Recommended Plan

The purpose of the draft Recommended Plan is to describe the benefits, impacts and potential mitigation measures associated with each of the alternatives selected through the Screening of Alternatives. It will detail the factors and evaluation methodology used to rank the alternatives identified in the Screening of Alternatives and select a Recommended Plan. Alternatives will be ranked based on environmental impacts, costs, implementation capability, regulatory requirements and constraints, public acceptance, reliability, flexibility, optimization of existing facilities, compliance with regulatory requirements, GHG emissions, climate change resiliency, and other considerations identified during the planning process.

The following will be developed for each of the final alternatives:

- Concept-level capital costs for design, permitting and construction;
- Estimated operation and maintenance costs, including energy usage of the alternative;
- Administrative and regulatory requirements associated with the alternative, including Board of Health bylaw changes associated with onsite systems and permitting requirements;
- Water quality improvement attributes, as outlined in the MassDEP CWMP guidelines; and
- Potential consequences on growth in the context of current zoning and on the goals articulated in the Housing Production Plan and Master Plan.

Based on discussions with the Select Board, cost-allocation approaches will be considered for each alternative, such as betterments, property taxes, user fees, or a combination of these. Once the Select Board determines the cost-allocation approach, a financial pro-forma will be developed for each alternative that identifies estimated annual costs to the Town and property owners.

Results will be compiled according to the detailed characterization of each alternative and summarized in a table according to the following factors:

- Present worth;
- Cost effectiveness, including capital and operating costs;
- Environmental impacts, including impacts on nitrogen limited watersheds, wetlands, water supplies, and historical and archeological considerations;
- Institutional considerations such as the need for changes in local by-laws and government organizations;
- Siting considerations for any necessary pumping and/or treatment systems;
- Phased Implementation opportunities that could reduce cost and environmental impacts;
- Reliability and flexibility; and
- Other factors as determined by the planning process.

Based on the comparison results, the Select Board will select a recommended plan, including formulating an implementation schedule for the recommended plan that considers design, permitting, and construction stages. The project team will coordinate with the MVC to outline actions with neighboring watershed communities that will contribute to the joint effort to restore watershed health.

Phase IV – MEPA, DEP and MVC Reviews; Final Recommended Plan

Once the Town presents the Draft Plan to the public and it has received public support, EP will compile the findings and comments from public workshops, and include them in the Draft Recommended Plan/Single Environmental Impact Report (SEIR) for submission to MassDEP and MEPA. The Town will submit notices to the MEPA Environmental Monitor and local newspaper, in compliance with Section 11.16 of the MEPA regulations. MEPA will perform a 47-day review, including a Public Site Visit. The Town will also complete a Public Information Hearing during this review period.

The Town will coordinate with the Martha's Vineyard Commission (MVC) on a Development of Regional Impact (DRI) review, using the Draft CWMP as the basis. The DRI application will articulate the relationship of the CWMP to the Martha's Vineyard Wastewater Management Study, for which the Martha's Vineyard Commission is the lead agency. The DRI will include actions that can be taken as part of inter-municipal agreements.

The Final CWMP will be compiled including addressing comments received from MassDEP, MEPA, the MEPA Public Comment Period, and the MVC. The Town will conduct a final public hearing at an annual town meeting to vote on the approval of the final recommended plan. EP will then finalize and distribute the CWMP.

Public Participation and Outreach

Public Participation and Outreach will be initiated at the start of the project and be ongoing throughout the life of the project. Communications during execution of the project are intended to provide an opportunity for public education, outreach, and participation. The public workshops and meetings will begin with an announcement of the meeting date, location, and agenda.

Announcements on the town website, local cable channel and other outlets for distribution, as directed by the Town, will inform participants of upcoming meetings and workshops. Agendas and background information will be provided to attendees prior to the meetings. The Town will structure workshops to ensure engagement with time allotted for interaction and sharing of opinions and ideas.

The WRC has a dedicated page on the Town's website at <https://www.tisbury.ma.gov/water-resources-committee>. Meeting agendas and minutes, a library of documents reviewed and created as part of the CWMP process, and links to online resources will be on the webpage. A dedicated email, CWMP@tisbury.ma.gov, is set up for compiling questions and feedback, and to solicit contact information for disseminating information such as public meeting schedules.

The program includes at least 12 public forums, excluding WRC and Select Board meetings, which are open to the public. Further, the WRC will provide summaries of the planning progress at each

Phase's deliverable for publishing on the webpage, local cable channel, and local newspapers, as well as distributed through emails. Figure 2 shows the extensive public outreach program and scheduled meetings during the course of the plan development.

Figure 2: Town of Tisbury CWMP: Schedule of Project and Public Meetings and Workshops

Description	2021											
	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21
Project Coordination and Meetings												
Water Resources Committee												
Select Board												
Martha's Vineyard Commission												
MassDEP / MEPA												
Public Information / Outreach / Hearing												
	2022											
	Jan-22	Feb-22	Mar-22	Apr-22	May-22	Jun-22	Jul-22	Aug-22	Sep-22	Oct-22	Nov-22	Dec-22
Project Coordination and Meetings												
Water Resources Committee												
Select Board												
Martha's Vineyard Commission												
MassDEP / MEPA												
Public Information / Outreach / Hearing												
	2023											
	Jan-23	Feb-23	Mar-23	Apr-23	May-23	Jun-23	Jul-23	Aug-23	Sep-23	Oct-23	Nov-23	Dec-23
Project Coordination and Meetings												
Water Resources Committee												
Select Board												
Martha's Vineyard Commission												
MassDEP / MEPA												
Public Information / Outreach / Hearing												
	2024											
	Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24
Project Coordination and Meetings												
Water Resources Committee												
Select Board												
Martha's Vineyard Commission												
MassDEP / MEPA												
Public Information / Outreach / Hearing												
	2025											
	Jan-25	Feb-25	Mar-25	Apr-25	May-25	Jun-25	Jul-25	Aug-25	Sep-25	Oct-25	Nov-25	Dec-25
Project Coordination and Meetings												
Water Resources Committee												
Select Board												
Martha's Vineyard Commission												
MassDEP / MEPA												
Public Information / Outreach / Hearing												

Town Meeting