Wellfleet Selectboard

NOTE START TIME 7PM

The Wellfleet Selectboard will hold a public meeting on **June 23, 2022, at 7:00 p.m.** This meeting will be conducted solely through the Zoom platform.
Join the meeting hosted in Zoom by using the following link:
https://us02web.zoom.us/j/85689604806?pwd=blplVFFBZzViQ0xNWkZKMm9iMVdrdz09

By Phone**: phone to +1 929 205 6099** and enter **Meeting ID: 856 8960 4806** | **Passcode: 611877** Landline callers can participate by dialing *9 to raise their hand.

To Participate during public comment:
• Zoom: Raise hand to be called on to speak.
• Phone: dial *9 to raise your hand.

It is at the Chair's discretion to call on members of the public. All speakers must to recognized to speak. If attending a meeting in person, please find the closest available microphone and confine any personal conversations to outside the meeting room. Anyone may record the session but must notify the Chair and may not interfere with the meeting to record it.

I. Announcements, Open Session, Public Comments

NOTE: Public comments must be brief. The Board will not deliberate or vote on any matter raised solely during Announcements & Public Comments.

II. Joint meeting with Board of Health, Clean Water Advisory Committee, & Selectboard

- DEP MassDEP's Regulatory Strategy for Cape Cod Estuaries Impaired by Nitrogen
- Board of Health Draft Regulations
- Presentation of Targeted Wastewater Plan
- Sewer Sheds GHD
- Next Steps
- DEP proposed changes to SRF Priority Ranking System

III. Adjourn

SELECTBOARD

AGENDA ACTION REQUEST

MassDEP's Regulatory Strategy for Cape Cod Estuaries Impaired by Nitrogen

REQUESTED BY:	**Chair Curley/ Massachusetts Department of Environmental Protection**
DESIRED ACTION:	**Present Proposed Regulations and Solicit Comments**
PROPOSED MOTION:	
SUMMARY (Optional)	
ACTION TAKEN:	Moved By: _____ Seconded By: _____ Condition(s):
VOTED:	Yea _____ Nay_____ Abstain _____

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

June 1, 2022

Dear Municipal Official:

I am writing to inform you of regulatory revisions the Massachusetts Department of Environmental Protection (MassDEP) is developing to ensure that timely actions are taken to restore and protect coastal estuaries that have been impacted by excessive nitrogen pollution. The two regulatory approaches we developed and plan to publish for public comment this fall provide communities with choices on how to address the growing pollution problem affecting our waters. MassDEP will be requesting a meeting with you as we seek input on these proposals prior to publication.

As you are well aware, nutrient contamination is one of the most pressing environmental challenges facing Cape Cod. Increased population and development in those areas surrounding Cape Cod's estuaries have resulted in excessive amounts of nutrients being discharged into these sensitive resources, causing eutrophication and prompting the accelerated growth of nuisance plants, weeds and algae, using up much of the oxygen in the water. This forces out finfish, shellfish, and indigenous plant species. The result-water bodies that violate state water quality standards, are visually displeasing, smell bad, and cannot support the natural uses that the estuaries have historically offered. This is not only an environmental problem- if not addressed in a timely way, it is likely to harm the Cape's economy through a decline in fishing, shellfishing, tourism, and property values.

The primary water quality problem on Cape Cod stems from nitrogen contamination. Nitrogen from septic systems, wastewater treatment plants, lawns and stormwater leaches into groundwater and flows underground and is discharged to surface water bodies. While nitrogen comes from a variety of sources, on Cape Cod the predominant sources are on-site septic systems. Approximately 85 percent of the wastewater flow into Cape Cod's embayments comes from on-site septic systems.

MassDEP has been working closely with Cape Cod communities to assess and address this problem. First, MassDEP collaborated with Cape Cod communities and the University of Massachusetts, through the Massachusetts Estuaries Project, to provide communities with the scientific studies they need to effectively address the specific water quality issues impacting each estuary. These studies, which clearly demonstrate the need to take action, were also used to form the underlying basis for Total Maximum Daily Loads (TMDLs). TMDLs are U.S.

Environmental Protection Agency or EPA-approved calculations of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the source(s) of the pollutant. There are currently 30 TMDLs for nitrogen across Cape Cod, generally requiring significant reductions in nitrogen loads.

To further facilitate development of solutions to this problem, in 2013 MassDEP directed the Cape Cod Commission to prepare an update to the 1978 Water Quality Management (WQM) Plan for Cape Cod in accordance with §208 of the Federal Clean Water Act ("CWA" or the "Act"). The Plan was certified by Governor Baker and approved by EPA in 2015, after an extensive public participation process that included numerous public meetings across the Cape and input from hundreds of residents, community officials and stakeholders. The Plan examines the causes of water quality issues on Cape Cod and provides options for communities to consider, including new planning tools to use in making local decisions about potential solutions. The Plan Update also offers greater flexibility and discusses financing and funding options to help implement those solutions.

Since adoption of the Updated Plan there have been important steps taken to further assist such efforts, including a new source of ongoing funding, proposed by Cape legislators and signed into law by the Governor, to help towns pay for necessary wastewater infrastructure and water quality remediation projects. This fund, known as the Cape Cod and Islands Water Protection Fund, is already providing substantial financial assistance to wastewater efforts on Cape Cod . MassDEP has also continued to work with communities to develop and implement wastewater plans, and we have been pleased to see a range of progress across with the Cape, including planning, funding, evaluating pilot approaches, and, in some cases, the actual implementation of solutions. At the same time, such progress has been inconsistent and unpredictable across the Cape communities. We have clearly heard this concern from citizens and advocates who have urged additional action. MassDEP ultimately has the responsibility to ensure that concrete actions are taken in a timely way to address the ongoing nitrogen contamination and ensure these critical water resources meet water quality standards.

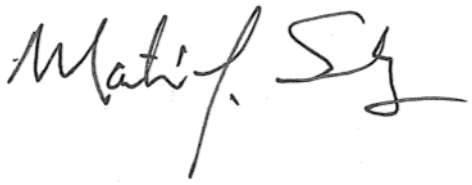
MassDEP, therefore, is planning to propose two regulatory changes to meet this responsibility. First, the primary source of the nitrogen contamination is septic systems, and our regulatory authority for such systems is the Title 5 regulation- and MassDEP must ensure these requirements are protective of water quality. Therefore, we are proposing to revise Title 5 regulations to establish “Nitrogen Sensitive Areas” (NSAs) for watersheds draining into an estuaries where there is an EPA-approved “Total Maximum Daily Load,” which finds that the estuary is impaired by nitrogen. The revised regulations would require - unless Towns take advantage of an alternative watershed approach - that within 5 years of the effective of the NSA designation, new on-site systems include, and existing on-site systems upgrade to, enhanced nitrogen treatment systems demonstrating the lowest nitrogen levels in their effluent. For Cape Cod communities subject to the Section 208 Water Quality Management Plan, the designation and new requirements would become effective upon the final promulgation of the regulations.

MassDEP has prioritized our efforts for years to work with communities to develop more tailored and effective wastewater solutions and remains committed to such efforts. Therefore, we are also proposing a second regulatory revision to formally establish the "watershed permit." These permits are 20-year permits that are based on long-term wastewater plans that will achieve water quality goals and provide communities the opportunity to utilize a range of approaches, including centralized sewer treatment and innovative approaches. Importantly, if communities take advantage of this approach, and obtain a watershed permit that covers an area that would be subject to new NSA regulations, the system-by-system approach can be avoided.

To help provide some of the immediate funding needs that Towns moving forward will face, Governor Baker has proposed $200 million in additional funding for communities moving forward to addressing this environmental challenge. These funds will help support the needed actions over the next several years to improve water quality, and demonstrate our ongoing commitment to working with communities. The Baker-Polito Administration will be working to secure passage of this important funding in the coming weeks.

MassDEP recognizes that Cape communities have been working to develop and implement plans to address these water quality challenges. As we seek input and comment on these regulatory approaches over the next few months, we would like to meet with appropriate officials in your community to discuss the status of these efforts and how they may comport with the proposed changes. I have attached a fact sheet that provides more details on the proposed regulatory framework. Please contact Millie Garcia-Serrano, Director of MassDEP's Southeast Regional Office at millie.garcia-serrano@mass.gov to schedule a time where we can meet to discuss these regulatory approaches in person.

Sincerely,



Martin J. Suuberg
Commissioner

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Bethany A. Card
Secretary

Martin Suuberg
Commissioner

Fact Sheet
MassDEP Regulatory Strategy for Estuaries Impaired by Nitrogen
June 1, 2022

1. **Nitrogen Sensitive Area Designations**: A primary source of nitrogen contamination of coastal estuaries in Southeastern Massachusetts and Cape Cod and the Islands are on-site septic systems. MassDEP, in conjunction with local Boards of Health, regulates these systems through "Title 5" regulations, 310 CMR 15.00.

To ensure the Title 5 regulations are protective of the environment, particularly in relation to the impact of nitrogen discharges on surface water quality, MassDEP is proposing the following revisions to Title 5:

Establish New Nitrogen Sensitive Areas (NSAs)

To more effectively address nitrogen impacting estuaries, MassDEP is proposing to establish new "Natural Resource Area" NSAs for:

- any watershed to an embayment or sub-embayment that is the subject of a Nitrogen Total Maximum Daily Load (TMDL) approved by the EPA pursuant to the federal Clean Water Act and an Area-Wide Water Quality Management Plan pursuant to Section 208 of the Clean Water Act addressing nitrogen pollution:
    - A "TMDL" is an EPA-approved calculation of the maximum amount of a pollutant allowed to enter a waterbody so that the waterbody will meet and continue to meet water quality standards for that particular pollutant. A TMDL determines a pollutant reduction target and allocates load reductions necessary to the sources of the pollutant.
    - All Cape Cod communities are subject to the "208 Plan" approved by EPA in 2015.
    - There are currently 30 watersheds across Cape Cod with EPA-approved nitrogen TMDLs.

    - For these watersheds, the NSA designation is effective on the effective date of the final regulations.
- any watershed to an embayment or sub-embayment that is the subject to an EPA-approved TMDL or determined to be nitrogen sensitive by the Department based on scientific evaluation and adopted through a public process involving public notice, including the scientific and regulatory rational for the designation, and a 60-day public comment period.
    - For these watersheds, the NSA designation is effective upon completion of the public process and MassDEP's issuance of the final designation.

New Requirements for Natural Resource Area NSAs

MassDEP is proposing new requirements for these new NSAs to more effectively address the specific problems related to septic systems contaminating coastal estuaries.

- Unless a community is the subject of a Watershed Permit described below, any system serving a new construction, or an existing facility must incorporate Best Available Nitrogen Reducing Technology within five years of the effective date of the NSA designation of the watershed in which they are located.
- Best Available Nitrogen Reducing Technology is an alternative system certified by MassDEP for general use pursuant to Title 5 which has the lowest effluent Total Nitrogen performance value. An alternative system granted provisional or pilot approval by MassDEP may also be utilized as long as such system has a Total Nitrogen performance value less than or equal to the lowest alternative system certified by the Department for general use.

Exemption from Enhanced Treatment Requirements in Watersheds with Watershed Permits

While the enhanced treatment requirements for septic systems will result in significant reductions in nitrogen pollution, they may not be the most effective and efficient way to restore the impacted estuaries and achieve established water quality goals. Therefore, MassDEP is also proposing a second, concurrent regulatory revision to formally establish a "watershed permit process." If communities take advantage of this approach, and obtain a watershed permit that covers an area that would be subject to new "Nitrogen Sensitive Area" regulations, the above Title 5 NSA requirements would not become effective for that area.

However, if a Watershed Permit is terminated by the permittee or revoked by MassDEP, new systems installed after the date of termination/revocation would have to install Best Available Nitrogen Reducing Technology and existing systems would have to install such technology within five years from the effective date of the new NSA regulations or two years of the date of termination/revocation, whichever is longer.

2. **Watershed Permit Regulations:** The Watershed Permitting regulations are a new, innovative approach to provide communities the opportunity to develop and implement the most effective

and efficient solutions to addressing water quality challenges. This approach provides the opportunity for communities to employ a greater range of solutions to address their water quality needs, including alternative or innovative approaches. The Watershed Permit is a 20-year permit instead of the traditional five-year permit which utilizes an adaptive management approach, requiring permittees to monitor, evaluate and report results, and adjust and modify the strategies and practices as needed to address conditions that are causing the water quality impairments.

Watershed Management Plan

The Watershed Permit is based on a "Watershed Management Plan" a long-term plan to address an existing water quality impairment to restore and protect water quality. The Watershed Management Plan must be approved by town meetings of each respective watershed permit applicant, and is based on a Comprehensive or Targeted Watershed Management Plan. The Plan provides a schedule and description of actions to restore the waterbody to applicable Water Quality Standards in accordance with any applicable TMDL and/or any other applicable scientific evaluation, such as the Massachusetts Estuaries Project (MEP) report.

For watersheds where a TMDL has been established, the Watershed Management Plan must achieve compliance with the Water Quality Standards required by the TMDL and demonstrate that at a minimum, 75% of the necessary pollutant reduction levels will be achieved within 20 years, unless MassDEP determines an alternative schedule is appropriate based on watershed-specific issues.

Watershed Permit Application

- Any Local Government Unit or Regional Local Government Unit can file for a watershed permit. Multiple local government units that share a watershed or sub-watershed may apply jointly for a Watershed Permit, provided they have entered into an enforceable agreement (e.g., Intermunicipal Agreement) that confirms each permittee's percentage share of the aggregate pollutant removal responsibility and provides a framework to coordinate resource management decision-making and arrangements relating to the receipt and expenditure of funds for implementation.
- The Watershed Permit authorizes work needed to implement the Permittee's mitigation strategy for the watershed or sub-watershed, therefore the Application must include the Watershed Management Plan for the watershed or sub-watershed including:
    - maps depicting the regulated area (watershed boundary) and a narrative describing the area proposed to be covered under a Watershed Permit;
    - a description of the current and historic water quality conditions, including short- (daily/seasonal) and long- (annual) term variability, proposed sentinel sampling locations within the watershed/stations, sampling frequency, parameters and sampling technique (e.g., grab/observation);

- the earlier planning approaches taken prior to filing the application, including any related findings and recommendations;
- the types, locations, and timing of any on-going and proposed TMDL or alternative TMDL implementation activities within the watershed or sub-watershed proposed for coverage;
- a table identifying the nitrogen load that the area proposed for coverage under the watershed permit contributes to the surface waters of the watershed for the past 10 years and projected loads for the following 10 and depicting the necessary load reductions (removal requirements) within the watershed to meet the TMDL or TMDLs and a concise description of the means of achieving those specified reductions during the term of the permit;
- the Conventional Control Technologies and Alternative Control Approaches or Technologies selected for pollutant load reductions, the area covered by these approaches, and identification of the permittee who will be responsible for implementing each activity;
- the estimated load reductions needed to meet the threshold concentration(s) at the sentinel station(s) for each of the selected Conventional Control Technologies and Alternative Control Approaches or Technologies;
- the implementation schedule for each Alternative Control Approach or Technology proposed, including a timeframe for demonstration, testing, and acceptance or abandonment of such approaches or technologies;
- the Core Sewer Area and the service areas prioritized for wastewater collection and treatment after accounting for implementation of the selected Alternative Control Approaches and Technologies;
- if Alternative Control Approaches and Technologies are proposed, a contingency plan for a back-up Conventional Control Technology in the event that the Alternative Control Approaches and Technologies selected do not function as predicted;
- the proposed approach to control 100% of all future pollutant loads to ensure that loads will always stay below the applicable threshold levels cost estimates for the infrastructure and programs associated with the proposed actions, if available;
- an implementation schedule, not to exceed 20 years, currently envisioned by the applicant(s), including a designated set of activities that will occur in the first 5-year block of time, and the results of which will enable the permittee to revise the implementation plans for the next 5-year period as necessary to meet load reduction requirements as specified.

Standard Watershed Permit Provisions

- The Department shall not issue a Watershed Permit if the Watershed Management Plan does not provide for achievement of the Surface Water Quality standards applicable to the

water bodies covered by the permit or if the permit does not provide for reasonable progress in achievement of the TMDL load reductions necessary to meet water quality standards.

- Consistent with the Watershed Management Plan, the permit shall require that 75% of the necessary pollutant reduction levels will be achieved within 20 years, unless MassDEP determines an alternative schedule is appropriate based on watershed-specific issues.
- The proposed activities, implementation schedule for such activities, and facilities set forth in the applicant's Watershed Management Plan shall be enforceable requirements, incorporated in a Watershed Permit.
- Subject to Department approval, a permittee is granted pollutant reduction credit for Alternative Control Approaches and Technologies only if the permittee implements and maintains such approaches and/or technologies in accordance with the terms and conditions of the Watershed Permit.
- The permittee shall provide a Contingency Plan in its Watershed Management Plan that relies on Conventional Control Technologies to achieve the target threshold concentrations identified in the Watershed Management Plan.
- The permittee shall monitor water quality in accordance with the permittee's monitoring plan and report the results in the Annual Reports required by the Watershed Permit.
- The Permit requires annual reporting, with 5-Year Reports evaluating results of program and proposed adjustments through adaptive management.
- Any prospective changes to the Watershed Management Plan or the approved implementation schedule shall be identified in the Annual Reports required by the Watershed Permit. Any such proposed changes to the Watershed Management Plan shall be subject to the Department's review and approval.
- For a permittee(s) to terminate permit coverage, they must provide public notice and hold a public meeting.
- Any permits issued by the Department that comprise a component of the implementation activities or are applicable to the pollutant discharges in the watershed shall be incorporated by reference into the Watershed Permit.

Watershed Permit Process

- The applicant shall publish public notice of the Watershed Permit proceeding in the MEPA Environmental Monitor and in a newspaper circulated within the area that will be affected by the Watershed Permit. The Department will post the notice on the Department's webpage.
- Public notice will afford a comment period of at least 60 days.
- A public hearing will be held if requested by the applicant, or if the Department determines a public hearing to be in the public interest.

- After the conclusion of the 60-day public comment period, the Department may issue or deny a final Watershed Permit.
    - If no comments objecting to the issuance or terms of the Watershed Permit were received by the Department during the public comment period, then the Watershed Permit shall take effect upon issuance.
    - If comments objecting to the issuance or the terms and conditions of the Watershed Permit were received by the Department during the public comment period, then the final Watershed Permit shall become effective 21 days after issuance, unless a request for an adjudicatory hearing is timely filed.
    - During the 21-day period following issuance of the Watershed Permit or determination to deny, any person aggrieved by the decision may file a request for an adjudicatory hearing with the Department.

Watershed Permit Modification/Suspension/Revocation

- The Department may propose and determine to modify, suspend or revoke any Watershed Permit, in whole or in part, for cause including, but not limited to, violation of any permit, obtaining a permit by misrepresentation, or failure to disclose fully all relevant facts or any change in or discovery of conditions that calls for reduction or discontinuance of the authorized discharge or activity.
- The Department shall process a Watershed Permit modification, suspension or revocation in the same manner as an application for a Watershed Permit; provided, however, that the Department may revise a schedule in a Watershed Permit at the request of a permittee if the Department determines that good and valid cause, for which the permittee is not at fault, exists for such revision, and in such cases the provision for public notice and hearing shall not apply.
- Any one or more of the permittees may terminate coverage under this Permit by providing written notice to the Department at least 60 days in advance of the date such termination is to take effect. Such notice will include public notice of a public hearing to be held at least 30 days prior to the termination date. Such notice will be published in the MEPA Environmental Monitor and in a newspaper circulated within the area affected by the Watershed Permit at least 30 days prior to the hearing.

SELECTBOARD

AGENDA ACTION REQUEST

Proposed Board of Health Regulations on Septic Systems

REQUESTED BY:	**Clean Water Advisory Committee/BOH/Health Director Hillary Greenberg-Lemos**
DESIRED ACTION:	**To Present the BOH's proposed regs on Septic Systems**
PROPOSED MOTION:	
SUMMARY (Optional)	
ACTION TAKEN:	Moved By: _____ Seconded By: _____ Condition(s):
VOTED:	Yea _____ Nay_____ Abstain _____

Time for Upgrades and Administrative Consent Orders

DEFINITIONS:

ADMINISTRATIVE CONSENT ORDER (ACO) is a duly executed and recorded document that affords a property owner in Wellfleet an opportunity to defer major repair, replacement and /or upgrade of a failed on-site wastewater treatment system until a municipal plan is available to direct the course of action for that owner or until a time frame specified and requires funds for septic upgrade be placed in an escrow account.

SYSTEM INSPECTION REPORTS: Inspections of septic systems shall report on the functioning and condition of the system, and a description of the components. This report will be the basis to determine whether a property is eligible for an Administrative Consent Order (ACO) or will be required to upgrade immediately. If an inspection is required by Order of the Board of Health, or by the Wellfleet Board of Health regulations, those properties with a cesspool system will not be required to submit a title 5 inspection form; however, a licensed inspector must provide the Board of Health with a letter describing the condition of the cesspool system and a description of its components.

TIME FOR UPGRADES

All onsite septic systems shall be upgraded within one hundred and eighty (180) days from completion of an inspection of the system whenever an inspection determines that the system requires upgrade due to a condition identified in Section 601 of the Wellfleet Board of Health Regulation or Title 5.

The Board of Health may grant a variance extending the time for completing the required upgrade, subject to the property owner entering into an Administrative Consent Order within thirty (30) days from completion of the inspection.

ADMINISTRATIVE CONSENT ORDER

Administrative Consent Orders shall be on such terms and conditions as the Board determines are in the best interests of protecting public health and the environment until such time as the system is upgraded.

All Administrative Consent Orders shall have the following minimum terms:

1. The Board of Health agrees to extend the time for upgrading the system for a specified period of time, provided that there is compliance with the terms of the ACO;
2. The Property owner agrees to deposit a predetermined sum of money into an interest bearing escrow account in an amount sufficient to complete the required upgrade; said sum may be paid in installments;
3. The Property owner agrees to upgrade the system upon expiration of the stay;
4. The Property owner agrees to periodic inspections and pumping of the system as needed;

5. The Property owner agrees to abate any imminent health hazards arising prior to upgrade of the system, which may require earlier repairs or upgrade; and

6. The Property owner agrees to record the ACO in the chain of title to the property and that the ACO will be binding on any successors in interest.

Notwithstanding the terms of this Regulation or an ACO issued pursuant thereto, the Board reserves the right to issue any such order as may be deemed necessary to protect public health and the environment from an imminent hazard caused by any onsite septic system, including requiring pumping, repairs, or immediate upgrades.

All requests for an ACO shall be processed in accordance with the Wellfleet Board of Health Regulations and Title 5 and shall be within the sole discretion of the Board.

WELLFLEET BOARD OF HEALTH REGULATIONS

~~October 2017~~April 2022

TOWN OF WELLFLEET
BOARD OF HEALTH REGULATIONS
~~**September**~~

CONTENTS:

TOWN OF WELLFLEET
BOARD OF HEALTH REGULATIONS

As amended 03/07/94, 06/15/00, 7/1/01, 11/14/01, 3/27/02, 2/26/03, 3/26/03, 3/22/06, 9/27/06, 8/7/08, 4/28/10, 5/26/10, 7/11/12, 11/13/13, 4/9/14, 5/11/16, 10/11/17

100 INTRODUCTION

101 The following regulations are promulgated under the authority of the General Laws of the Commonwealth. They supplement those provided by the State Building and Sanitary Codes, and those issued under the Wetlands Protection Act, the Water Pollution Control Act, the Wellfleet Floodplain Bylaw, and the Wellfleet Environmental Protection Bylaw. The Wellfleet Board of Health Regulations will prevail when they are more restrictive.

102 The following regulations are designed to protect the public health and safety of the residents and visitors, and are based on the particular physical, environmental, hydrogeological, and demographic conditions, and land use information and projections available to the Board as they relate to the Town of Wellfleet. Of specific concern is the need to protect the groundwater, which is the sole source of our drinking water.

103 These regulations become effective January 1, 1988 and supercede all previously issued Board of Health regulations, except as noted hereinafter.

104 If any section, paragraph, sentence, clause, phrase or word of these regulations shall be judged invalid for any reason, that decision shall not affect any other portion of these regulations which shall remain in full force and effect; and, to this end, the provisions of these regulations are hereby declared severable.

200 ADMINISTRATION

201 The Board of Health will make determinations in accordance with these and other regulations, but reserves the right in special circumstances, as determined in its judgment, to be more restrictive, to issue variances, or to grant exemptions. The rationale for such departures shall be documented in written minutes of the Board of Health meeting in question.

202 The Health Agent is authorized to act for the Board of Health (1) when an applicant has clearly met all State and Wellfleet requirements, and (2) in emergency situations. At its next posted meeting, the Board of Health is required to ratify or modify as necessary in its judgment, the actions taken and/or decisions made by the Health Agent in such emergency situations.

DEFINITIONS

300 With the exceptions listed in 302, the definitions provided in the State Building and Sanitary Codes and the Wetlands Protection Regulations will apply. "Board" shall mean the Wellfleet Board of Health.

301 The following definitions are adopted by the Board for use in administering these regulations and interpreting State laws, regulations and codes.

ABUTTERS Owners of all adjacent properties and properties directly across any public or private highway, road, street or way.

ALTERATION To make different by changing, adding and/or subtracting components, piping, and/or location.

BEDROOM A room providing privacy, intended primarily for sleeping, and consisting of all of the following:

(a) floor space of no less than 70 square feet
(b) for new construction or existing houses and mobile homes a ceiling height of no less than 7'0"
(c) an electrical service and ventilation, and with regard to new construction at least one building code conforming egress window.

The following are not considered bedrooms:
Any "pass through" room that does not afford privacy, a living room or "great" room, a dining room, kitchens, halls, bathrooms, unfinished cellars, unheated storage areas over garages, and loft spaces less than 70 square feet. Any extra rooms (such as a finished basement or playroom with building conforming egress) may be considered a bedroom if it meets the definition. For new construction, proposed renovation, alteration or replacement of structure, conformity to definition criteria is expected; for existing developments, criteria will be applied in context of the vintage of construction. In determining proper design flow where there is no corroborating record of a grandfathered number of bedrooms on file in the Health Department, the calculation will be derived only from presently existing bedrooms in instances where the Nitrogen Loading Limitation is exceeded. Deed restrictions will be required if maximum bedroom allotment is met and homeowner wishes to finish rooms that may appear to meet the definition above.

BUILDABLE UPLAND The area of contiguous upland on a lot exclusive of Wetland

FAILED SYSTEM A failed system is defined as one in which there is evidence of sewage flow or ponding to the surface; evidence of overload of the system; any cesspool as defined in Title 5; the system is in such a state of disrepair that it can not function as originally intended; lack of four (4) foot of vertical separation between the bottom of the system and adjusted groundwater (for a 1978 code system) or a lack of five(5) foot of vertical separation between the bottom of the system and adjusted groundwater (for a 1995 code system); system is composed of leach pit(s) ~~or cesspool(s)~~ which is~~are~~ inadequate in design or capacity for the existing use; or system requires pumping more than four (4) times in a twelve-month period to prevent such overflows.

FILLED LAND Land whose elevation is being, or has been, raised within the past fifty years by the addition of fill or spoil on the preexisting natural grade.

GRANDFATHERED NON-CONFORMING DWELLING Aan existing habitable dwelling with a design flow rate that exceeds the nitrogen loading limitations.

MOUNDING Raising the natural elevation or grade of the ground to cover the components of a sewage disposal system, and/or to meet the vertical distance requirements above groundwater.

NEW CONSTRUCTION The construction of a new building for which an occupancy permit is required or an increase in the actual or design flow to any system or an increase in the actual or design flow to any nonconforming system or an increase in the design flow to any system above the existing approved capacity.

NITROGEN LOADING LIMITATIONS The 440 gallons per day per acre nitrogen loading limitations for design of septic systems in Nitrogen Sensitive Areas as designated in Title 5.

NITROGEN SENSITIVE AREAS: Interim Wellhead Protection Areas and Department approved Zone IIs of public water supplies; or Nitrogen sensitive embayments as identified by the Massachusetts Estuaries Project; or other areas which are designated as nitrogen sensitive for purposes of 310 CMR 15.000.

NON_CONFORMING SYSTEM Any system which, when installed did not comply with the provisions of either the 1978 or 1995 iterations of Title 5, including cesspools and all similar systems in use prior to adoption of these codes and without a signed/stamped engineered plan

REPAIR To restore to the original condition in the original location by replacing and/or putting together what is damaged or broken.

UPGRADE To alter in such a fashion as to improve performance over that of the system as originally installed.

WATER COURSE A water course shall be defined as a river or spring; a natural channel in which water flows regularly or intermittently; a wetland, vernal pool, lake, pond, or dam into which, or from which, water flows.

WETLAND Any area that contains swamp, bog, dry bog, fresh or salt marsh, areas of exposed groundwater, embayment's, rivers, ponds, streams, inland banks, coastal banks, and coastal dunes, or any other area subject to the jurisdiction of the Conservation Commission as defined in M.G.L. c. 131, Section 40, 310 CMR 10.00, the Wellfleet Conservation Bylaw and the Wellfleet Environmental

Protection Regulations excluding the bufferzone and the Area of Critical Environmental Concern.

400 REGULATORY PROCESS AND GENERAL PROVISIONS

401 Any project which creates additional bedrooms or commercial space through new construction or by alteration of an existing structure and changes of use of an existing property, must meet both the State Sanitary Code and Wellfleet Board of Health Regulations.

402 Plans prepared by a Registered Engineer or by a Registered Sanitarian are required by the Board for consideration of any project or change requiring Board approval.

403 Board of Health Well and Disposal Works (Septic System) Construction Permits shall expire three (3) years from date of final variance approval. Any approvals of variances granted by the Wellfleet Board of Health are deemed a contract under which the applicant must perform the upgrade or new construction as proposed. Any failure to execute the plans in a timely manner under the Disposal Works ~~(Septic System)~~ Construction Permit~~)~~ will result in ~~—~~the expiration of variance approvals and enforcement notice to file a revised plan ~~—~~compliant with any new Title 5 or local regulations that have come into effect.

404 The following regulation shall apply to all proposed projects comprising six or more dwelling units (existing and/or new) such as hotels, motels, cluster developments, planned developments, subdivisions, nursing homes, and hospitals. Any developer who seeks to discharge septic system effluent to the groundwater from any of the above types of development shall be required to obtain Board approval to do so. A preliminary discussion with the Board of health is recommended to define the specific information needed by the Board in each situation. In the application for Board approval, the information listed below will generally be required:

A. A water table contour map and geological description of the area in the vicinity of the proposed project, depicting groundwater flow direction.
B. Projections of nitrogen levels in down-gradient groundwater and delineation of effluent plumes.
C. Projection of the impact on down-gradient water supplies (both present and potential), lakes, ponds, marshlands, estuaries and coastal waters.
D. Appropriate water quality information.

The information provided to the Board must demonstrate that no significant impact to down-gradient water resources will occur as a result of the project.

500 WATER WELLS

501 A water supply considered acceptable in quality and quantity by the Board of Health is a prerequisite for any project or change requiring Board of Health permission. A water supply shall be deemed acceptable in quality if sodium is not greater than 2000mg/l,

nitrate/nitrogen is not greater than 10 mg/l, coliform does not exceed zero and all EPA standards are met.

502 If a previous water test is on file and has tested above the allowable limits the Board reserves the right to require a retest at its discretion.

503 No well is to be installed without prior issuance of a Board of Health permit. Replacement wells are not excepted. Within seven days after installation, a "Well Construction Record" is to be submitted by the installer to the Board of Health on the form provided.

504 Private water wells are to be located on the property served.

505 Water wells for new construction of private residences are to be located at least 100 feet from any cesspool or septic system leach field, and at least 50 feet from any catch basin serving a paved area. To the extent feasible, replacement wells are to meet the same criteria. In any event, replacement wells are not to be located closer to the nearest cesspool or septic system leach field than the well being replaced.

506 For new construction, water well completion reports must be provided to the Board before a sewage disposal works permit will be issued. Such reports will locate the well installation accurately on the plot plan of the property, and describe the physical characteristics of the well, for example, by providing a well log.

507 Only well-drillers licensed by the Commonwealth of Massachusetts may install wells which are to provide water for drinking purposes, irrigation or monitoring.

508 A water sample shall be obtained from all drinking wells requiring a permit for analysis by the Barnstable County Health Department or by a State-certified laboratory. The testing shall include as a minimum (1) coliform count, (2) pH, (3) conductivity, (4) iron content, (5) nitrate content, and (6) sodium content. A copy of the analysis report shall be furnished to the Board of Health.

509 Whereas there is evidence that the groundwater in the vicinity of the Wellfleet Landfill contains substances which are injurious to human health in the judgment of the Board of Health, and whereas the Board of Health has a responsibility to protect the health of those who obtain their domestic water supplies from such ground waters, and whereas the Cole's Neck public water supply has been installed whose primary purpose is to prevent any potential health problems arising from the use of such waters, therefore it is prohibited to install and/or use drinking water wells in the Cole's Neck Area to be Served (ATBS) as defined in the Cole's Neck Regulations as adopted November 26, 1990 and amended May 7, 1991 and September 24, 2001.

510 a) When a property is sold or transferred, a standard water quality test is required by the seller, and a copy is to be provided to the Health Department.

b) Prior to Board of Health signoff on any Certificate of Occupancy, a standard water quality test taken within one year of the request for Certificate of Occupancy and meeting the Federal Drinking Water Standards is required.
c) Prior to issuance of any Disposal Works Construction Permit, a standard water quality test taken within one year and meeting the Federal Drinking Water Standards is required.

511 It shall be unlawful for a commercial entity to employ the use of non-recycled water-dependent displays of merchandise.

512 Bottled water permits will not be allowed for new food service establishments.

600 SUBSURFACE SEWAGE DISPOSAL SYSTEMS

601 Required Upgrades: In order to improve the quality of water for the Town of Wellfleet elimination of septic systems which meet the failure criteria by Title 5 and the Local BOH Regulation definition of failure shall bring nonconforming septic systems into compliance by upgrading them to meet the standards of this section and/ or Title 5 in the following situations:

A. Prior to any sale or transfer of title to the facility served by the system;
B. Prior to any change of use or increase in design flow;
C. Prior to the subdivision or partitioning of a parcel of land on which a nonconforming septic system is located;
D. If the system demonstrates any of the characteristics of a failed system as defined by these regulations and Title 5
E. If the septic system serving the facility was not constructed according to an approved stamped plan (i.e. Plan shows distribution box but it is not in the plan);
F. If the system does not meet the design flow of the facility it serves;
G. If a facility is replaced, relocated, or demolished;
H. The liquid depth in a leach pit is less than six inches from the inlet pipe invert or the remaining available volume within a leach pit above the liquid depth is less than ½ of one day's design flow;
I. All non-conforming septic systems and cesspools within two hundred (200) feet of any wetland or within the floodplain as mapped by FEMA
J. Cesspools in Wellfleet are herein defined as failed systems and shall be uipgraded to meet the requirements of Title 5 prior to December 31, 2024. All new systems replacing cesspools shall be installed and issued certificates of compliance by December 31, 2024.

602
601 Multiple Systems on One Lot: In the event of the failure of one septic system on a lot that has more than one non-conforming septic system, the failing system shall be immediately upgraded and the remaining non-conforming septic system shall also be upgraded to meet the requirements of the 1995 Title 5 code and these regulations within one years' time. If the design flow for the facility is over 2000 gallons per day, pressure distribution must be used.

603

Sewage Disposal Works Construction Permits will be issued when the proposed system fully meets the physical (i.e. hardware and spatial) requirements of the State Sanitary Code (Title 5), and the following specific requirements of the Wellfleet Board of Health:

A. The leaching field must be at least 100 feet, and the septic tank at least 50 feet, from any water-course.
B. The septic tank and the leaching facility must be at least 1 foot below the existing natural grade when in the 100 year floodplain.
C. A minimum 1500 gallon septic tank is required for single family dwelling unites.
D. Inspection and approval by the Board of Health or its Agent at the time of installation is required by the Board.
E. The applicant must provide evidence that the property to be served by the system has an acceptable water supply before a Sewage Disposal Works Construction Permit will be issued.

604 "As-Built" cards must be filed with the Health Agent prior to final inspection of the system by the contractor. The Board of Health requires certified As-Built plans by the engineer. As-Built cards or plans must accurately depict the installed locations of system components.

605 INSPECTION CRITERIA

Unless inspected previously within two years under the terms of this regulation, the on-site sewage disposal system shall be inspected by a licensed inspector approved by the Board of Health whenever a property containing such a system is transferred by sale, exchange, gift, or bequest to a new ownership, or placed into or taken out of a form of trust ownership; Where there is an application for a special permit that allows uses not otherwise permitted by the Wellfleet Zonong Bylaws; Any changes of use in a property; Application for a new license or transfer of an existing license, renewal of the annual operating permit for the operation of a motel, cottage colony, cabins, campgrounds, lodging houses and restaurants. A copy of the report of such inspection is to be furnished to the Health Department by the prospective new owner prior to the closing, and where an upgrade is required, an agreement specifying the timeframe shall be signed.

Where there is an application for a building permit proposing renovation, replacement or alteration of habitable or accessory area, footprint, or making improvements to structure beyond minimal expense, a septic inspection will be required to determine if an upgrade is needed. A copy of the report of such inspection is to be furnished to the Health Department by the permit applicant prior to the Health Agent's approval for any building permit. Exemptions from this provision are involuntary repairs necessary to maintain structural integrity or minimum standards of habitation, such as framing, window and roofing repairs / replacements or evidence in Health Department files that the septic system was installed within the past ten years, according to the date of the building permit.

In addition to the inspection criteria set forth in Title 5, the following criteria shall be observed in conducting system inspections:

A. An open inspection of all components of the system. If a component can not be found or uncovered after a reasonable search, the inspector must provide evidence for the system's success or failure. Replacement or installation of the component is required in this instance.
B. The septic tank shall be pumped at the time of inspection if it has not been pumped within the past three years.
C. Leach pits must have 6 inches of leaching capacity below the outlet invert in order to pass the inspection. The 6 inches of leaching capacity is determined by clean sidewall absent of staining or evidence of high water.
D. The inspector must clearly indicate on the inspection form the height of standing liquid and the level of staining in any leaching component, and the description of both sanitary tees in any inspected tank.
E. Any work for correction of component failures must be done under benefit of a disposal works construction permit.
F. If the inspector finds that access ports/ inspection port covers are not within six inches of grade, risers shall be provided and installed and shall be indicated on the inspection report submitted.
G. Vertical separation to groundwater shall be confirmed and measured in in the field and documented on the Title 5 inspection report. The groundwater adjustment shall also be evaluated and shown on the report.

The Health Department shall promptly evaluate all such inspection reports received and determine whether or not it requires, within six (6) months from the date of closing or within two years from the date of issuance of any building permit, an upgrade of said disposal system to meet Title 5 and Town regulations to the extent feasible. A system that passes inspection shall be deemed to have met the standards of Title 5 that were in place when the system was permitted, with the exclusion of vertical separation to groundwater standards that may have existed prior to the 1978 version of the Title 5 code.

In making its determination, the Health Department and the Board of Health shall consider the following:

(1) vertical separation between the bottom of the leaching facility and adjusted observed groundwater meets the minimum of 4 feet for existing 1978 code systems and 5 feet for 1995 code systems,
(2) setbacks to septic systems and wells in the neighborhood,
(3) setbacks to wetlands and local requirements for denitrification,
(4) evidence of overflow, hydraulic loading, breakout, filling, or a deviation from the approved plan,
(6) pumping records,
(7) leaching capacity of existing systems relative to potential need.
(8) Nitrogen loading on pre-existing nonconforming lots

This regulation shall not be effective at the conveyance or device of the property to the surviving spouse or, in the case of joint ownership, if the property is conveyed to one of the original owners.

Under these local regulations, a cesspool system serving any property shall be defined as "failed" and must be upgraded to meet Title 5 standards within 6 months of property transfers of any device, and within two years of the issuance of a building permit, or any self-identification associated with a septic inspection or by December 31, 2024.

Systems that have been previously determined to be failed and are under enforcement from the Board of Health must be upgraded prior to property transfer or money to accommodate such upgrade shall be placed into an escrow account. The Board of Health must be provided written evidence of such account. The upgrade must take place within 30 days of property transfer.

606 The addition or application of any chemical or biological agent for the purpose of cleansing or rejuvenating on-site cesspools or septic systems is prohibited except where approved by the DEP.

607 Systems judged by the Health Agent to have failed must be upgraded to meet existing State and local requirements. Systems that are a threat to the public health must be repaired immediately.

~~60 Waterless toilets may be permitted by the Board of Health for temporary use under special circumstances. Use of permanent waterless toilets shall be governed by the State Sanitary Code.~~

608 Required Setbacks for System Components

Notwithstanding the provisions of 310 CMR 15.00 all systems shall conform to the following minimum setback distances for septic tanks and soil absorption systems (SAS), including reserve areas, as measured in feet and set forth below:

	Septic Tank or Pump Chamber	SAS
Surface Water (excluding Wetlands)	50'	100'
Wetlands (including Floodplains)	100'	150'
Ponds	100'	150' or greatest maximum distance available

Pressure Distribution required for systems with Enhanced I/A or I/A?

609~~607~~ Innovative/ Alternative Technology

The use of a nitrogen reducing system (Nitrogen reducing systems are defined as those systems technologies approved by MADEP and rated at 19 mg/liter nitrogen) is required when there is:

A. a variance to the required 100 feet separation between a drinking water supply well and a soil absorption system,

~~A. or when a soil absorption system is located less than 100 feet from a salt marsh or any marine surface water.~~

B. when a soil absorption system is located less than 100 feet from any wetland resource area

C. for nitrogen credit applications

D. for upgrade of non-conforming systems as determined by the Board of Health

E. for upgrades of previously approved systems that exceed current nitrogen loading standards of 110 gpd/10,000 square feet of lot area

F. In Nitrogen Sensitive Areas as determined by MA Estuaries Project

G. in certain cases where a variance is required and circumstances support the use of I/A to mitigate the environmental impact of the proposed system, as determined by the Board of Health

H. for all new construction, repairs, all property transfers and upgrades within the Wellfleet Harbor Embayment System watersheds as identified by the Massachusetts Estuaries Project (MEP) report (2017).

The use of an Enhanced nitrogen reducing system (those technologies that have average nitrogen effluent concentrations less than 10 mg/liter or demonstrate a net average nitrogen removal rate of 75% or greater as demonstrated by third-party testing) is required when:

A. Compliance with nitrogren loading limitations cannot be met and the loading rate exceeds 440 gpd/acre

B. for all new construction, repairs, all property transfers and upgrades within the Wellfleet Harbor Embayment System watersheds as identified by the Massachusetts Estuaries Project (MEP) report (2017).

Variances to this section may take into account the following mitigating factors:
direction of groundwater flow, topography, soil conditions, well depths, water quantity/availability, water quality of the locus and surrounding lots, and feasible location of structure and septic system.

Any property served by an innovative/alternative or enhanced system, or recirculating sand filter system approved by the Board of Health shall have notice of the presence of this system recorded on the property deed at Barnstable County Registry of Deeds.

Non-Performance of Innovatione/Alternative and Enhaned Technology Systems

A. Non-performance includes any system that has been determined to be failing to protect public health and safety and the environment, or a system with equipment failure or anunresolved alarm event, or components that are not functioning as designed, or components that are not functioning in accordance with manufacturers specifications, or a system that is in violation of the terms of the its approval from the Board of Health.

Commented [HL1]:

B. Non-performace requires written notification to the Board of Health within 1 week from receipt of a lab result, along with a remediation plan with outlined corrective actions to be taken.

C. Corrective actions must be taken within two weeks of BOH ntification to address performance that does not meet the standards of approval.

D. Lab results showing an exceedance of TN triggers a retest following the corrective actions to demonstrate that the system is back in compliance with applicable standards.

E. Failure to comply with this process may result in a written warning from the Health Department followed by possible fines and a hearing with the Board of Health that must be attended by the property owner and licensed inspector.

~~Variances to this section may take into account the following mitigating factors:~~
~~direction of groundwater flow, topography, soil conditions, well depths, water quantity/availability, water quality of the locus and surrounding lots, and feasible location of structure and septic system.~~

~~Any property served by an innovative/alternative system, or recirculating sand filter system approved by the Board of Health shall have notice of the presence of this system recorded on the property deed at Barnstable County Registry of Deeds.~~

610 As allowed under M.G.L. Ch. 111 sec. 31, the Board of Health of the Town of Wellfleet hereby requires that owners and operators of all innovative/alternative sewage treatment technologies and all systems where the soil absorption system is designed for pressure distribution of effluent must report the results of all operation, maintenance, and monitoring activities to Barnstable County Department of Health and Environment. Such reporting must be performed in the manner specified by Barnstable County Department of Health and Environment and must occur within 30 days after each maintenance or monitoring event. Further, when a system operator performs a system inspection and finds that a sewage treatment technology has malfunctioning components which have compromised the system's ability to treat sewage as designed, the operator shall report on the system's status and any planned corrective actions to the Board of Health and Barnstable County Department of Health and Environment within 48 hours of inspection.

611 In order to specifically apply the nitrogen loading limitations of 310 CMR 15.214(1) to land area available for recharge, the Board of Health shall only consider buildable~~"~~upland~~"~~ in order to calculate nitrogen loading limitations. ~~This regulation shall apply in cases where the property extends into salt marshes, filled wetlands and land subject to tidal action.~~

612 Tight tanks will not be permitted when it is feasible to site and construct a Title 5 compliant upgrade for a seasonal or year round residential structure. Tight tanks will only be permitted when the Board of Health determines that a sufficiently compliant Title 5 system is not feasible due to excessive variances from state and local regulation.

~~610 As allowed under M.G.L. Ch. 111 sec. 31, the Board of Health of the Town of Wellfleet hereby requires that owners and operators of all innovative/alternative sewage treatment technologies and all systems where the soil absorption system is designed for pressure distribution of effluent must report the results of all operation, maintenance, and monitoring activities to Barnstable County Department of Health and Environment. Such reporting must be performed in the manner specified by Barnstable County Department of Health and Environment and must occur within 30 days after each maintenance or monitoring event. Further, when a system operator performs a system inspection and finds that a sewage treatment technology has malfunctioning components which have compromised the system's ability to treat sewage as designed, the operator shall report on the system's status and any planned corrective actions to the Board of Health and Barnstable County Department of Health and Environment within 48 hours of inspection.~~

700 UNDERGROUND STORAGE TANKS

Underground tanks used for the storage of gasoline, fuel oil, diesel oil, kerosene, antifreeze, chemicals and other toxic liquids represent a major threat of contamination to the groundwater. The owner of a storage tank that leaks or overflows, and the owner of the property on which it is located, are responsible for cost of decontamination and are potentially liable for any damages resulting from such occurrences. These costs can be very substantial. It is the intent of these regulations to minimize the threat of groundwater contamination from underground storage tanks. Any person having first knowledge of significant leaks or spills of the above-mentioned liquids is required to report the matter immediately to the Board of Health. Guidelines, which are part of these regulations, are available from the Board of Health for reference by persons affected by these regulations. These guidelines will be used by the Board in administering these regulations and are based on the Barnstable County Health and Environmental Department Model Underground Storage Tank Regulations and associated backup material.

701 Owners of any such underground storage tank on their property, the primary purpose of which is to serve the needs of a private residence or business, are required to remove said tank(s) by December 31, 1997.

702 Installation of underground gasoline, fuel and other chemical storage tanks on residential sites is prohibited.

703 Such underground storage tanks, not regulated in 701, are subject to the following regulations:

A. They must be registered with the Board of Health when installed or replaced.
B. They may be installed only if secondary confinement and an approved in-tank or interstitial space monitoring system is provided.
C. They must be tested 15 years after installation and annually beginning with the 20th year after installation. Test procedures are to conform to 527 CMR 9.18 (7) and be approved by the State Fire Marshal.
D. They may not be installed any closer than 800 feet from a public or community water supply.

704 No commercial or residential storage tanks may be removed without first obtaining an Underground Storage Tank Removal Permit for the Fire Department.

705 At time of property transfer all above ground tanks (any tank used to store fuel oil for the purpose of heating) shall be required to be replaced with double walled fuel oil storage tanks or shall be required to provide 110% containment capacity to prevent contamination from leaks that may occur. Exterior fuel oil storage tanks must be covered with substantial impermeable construction material to prevent water accumulation within containment in such a way that it satisfies the Board of Health and the Fire Department. The area beneath the exterior tank shall be a 4 inch thick continuous concrete slab. All above ground elements of a fuel storage system shall be maintained free of leaks and visible rust. (Effective 9/22/06)

706 All new construction where above ground fuel storage tanks are installed (inside & outside) shall be required to provide a double walled fuel oil storage tank or shall be required to provide 110% containment capacity to prevent contamination from leaks that may occur. Exterior fuel oil storage tanks must be covered with substantial impermeable construction material to prevent water accumulation within containment in such a way that it satisfies the Board of Health and the Fire Department. The area beneath the exterior tank shall be a 4 inch thick continuous concrete slab. All above ground elements of a fuel storage system shall be maintained free of leaks and visible rust. (Effective 9/22/06)

800 SWIMMING POOLS

801 Installation of an in-ground pool or a pool under permanent cover requires permission of the Board of Health. In general, the Board will require plans to scale showing the exact location of the pool relative to buildings, property lines, and other permanent features. The setbacks and clearances therefore must be adequate in the opinion of the Board, considering the circumstances of each individual situation. New pool installations are to include drywells for use when the pool is drained.

802 Access to residential pools shall be controlled through fencing, locking gates, landscaping, etc. in order to prevent access by the general public. Commercial pools are regulated by the state.

803 When emptying the pool, water shall be drained into an installed drywell, or disposed of in a manner approved by the Board prior to the pool being filled.

804 An annual operating permit from the Board of Health is required for non-residential pools, i.e. those associated with hotels, motels, lodging houses, clubs and other commercial enterprises, whether for profit or not. Depending on the circumstances of the individual case, conditions may be attached to the permit which will impose operating procedures such as cleaning, filter changing, water purification, or testing, and other measures intended to guard public health and safety.

900 FARM ANIMALS

In view of Wellfleet's intent at remaining a rural town (per Article 54, voted at the April 1987 Town Meeting), the keeping of farm animals is allowed when and as permitted by the Board of Health at sites which meet zoning requirements. Conditions may be attached by the Board to any permit issued, which will take into consideration and/or regulate the following:

A. The kind and number of animals to be kept.
B. The intensity of development at the site of keeping.
C. The potential for nuisance factors to abutters and the general public.
D. Environmental and water supply concerns, and any other factors which may relate to public health and safety.
E. The animal(s) is to be properly fed, watered and sheltered; fencing is to be adequate so as to contain the animal; manure is to be removed from pens, stables and corrals on a daily basis; the animal and any compost pile are to be maintained so as to minimize odor, flies and rodents; manure is to be composted and no raw manure is to be used on the property; a plan for composting and storing manure is to be submitted to the Health Department for approval; the permit is subject to annual review. For permits granted to keep larger animals (horses, ponies, donkeys, mules, sheep, cattle, swine, or goats) in variance to the minimum lot size of three quarters of an acre, a standard well water test must be submitted annually, except where property is served by public water supply. Health Agent reserves the right to administer the water test in the event that potability is in question.

901 A new permit application shall be accompanied by a standard well water test taken within a year, except where property is served by public water supply. A permit to keep farm animals must be obtained from the Board of Health by any person wishing to keep one or more horses, ponies, donkeys, mules, sheep, cattle, swine, goats, or a gaggle or more than 3 fowl such as chickens, geese, turkeys, ducks and the like. The permit shall be issued for a period of up to one year and shall have conditions attached as deemed appropriate by the Board. Such permits may be renewed, but in granting a renewed permit, the Board reserves the right to add, modify, or remove any conditions(s) attached to the expiring permit as deemed appropriate in the Board's judgment such as requesting an updated well water test where inspection of site conditions vary significantly from approved plans on file in a manner that suggests inadequate well protection.

902 Permits to keep one or more horses, ponies, donkeys, mules, bovines or other large animal will be granted (1) only after a public hearing of which abutters will have been legally notified in advance, and (2) only if the applicant has by deed, easement, and/or lease at least three-quarters of an acre (30,000 square feet) under his/her control at the site of the keeping of said animal(s).

903 The annual Permit to Keep Farm Animals shall run from January 1st to December 31st .

904 Owners of horses, ponies, donkeys, mules, bovines or other large animals must provide the Board of Health with evidence that the animal(s) has/have been vaccinated in

accordance with all State requirements, when application is made for a Permit to Keep Farm Animals or a renewal thereof.

905 To preclude pollution of shellfish and recreational waters, the keeping of domestic waterfowl within 100 feet of any body of water is prohibited. All domestic waterfowl shall be penned.

1000 SOLID WASTE TRANSFER STATION

Authority: The following rules and regulations are promulgated under the authority of Chapter 111, Section 150A of the Massachusetts General Laws; the Wellfleet Charter, Chapter 5-7-2; and Wellfleet Board of Health Regulations.

Purpose: The Transfer Station is operated and maintained by the Town of Wellfleet for disposal of acceptable waste and recyclable materials which are generated within the boundaries of the Town of Wellfleet. All refuse and other wastes originating outside the Town's boundaries are prohibited.

1001 Access to the Solid Waste Transfer Station

1. The Transfer Station will be open seven (7) days a week from the Friday before Memorial Day to the first Tuesday after Labor Day.
2. The Transfer Station will be open five (5) days a week starting the first Tuesday after Labor Day until the Friday before each Memorial Day. The Transfer Station will be closed on Wednesday and Thursdays during this period.
3. The Transfer Station will be CLOSED on New Year's Day, Martin Luther King Day, Presidents Day, Easter Sunday, Patriots Day, Fourth of July (unless it falls on a Saturday), Columbus Day, Veterans Day, Thanksgiving Day, and Christmas Day.
4. Hours of operation are from 8:00 a.m. until 4:00 pm for solid waste disposal.

4a. Hours of operation are from 8:00 am until 3:30 pm for recycling.

5. All vehicles must have a valid Wellfleet Transfer Station sticker to dispose of solid waste. Visitors or residents who do not have a valid sticker may pay a one-time user fee**.** Proof of stay in Wellfleet may be required upon purchase.
6. All owners, operators, or persons in charge of a vehicle shall upon request submit evidence or answer questions concerning the origin or nature of the materials being disposed of.
7. In order to determine the acceptability and origin of such, all materials being disposed of at the Transfer Station are subject to inspection by the DPW Director or his/her designee.
8. Children under twelve years of age are not permitted out of vehicles at the Transfer Station.
9. Animals and are not permitted outside of vehicles while in the facility
10. Persons wishing to purchase a Transfer Station sticker during the last four months of the fiscal year shall be charged at the rate of $15.00.

1002 Operation of the Transfer Station

1. The Director of the Department of Public Works (DPW) will take all necessary steps to ensure an effective level of facility operation and service.
2. The Director of the DPW or his/her designee may, at his/her discretion, close the Transfer Station when there is an equipment problem, or any other problem that makes transfer of refuse not feasible, or that may result in a health hazard.
3. All vehicles discharging refuse must stop at the gatehouse prior to unloading materials.
4. All materials accepted at the Transfer Station shall be placed in only those areas designated by the DPW Director or his/her designee.
5. The following items are prohibited from disposal into the refuse trailer:
    a) Brick, concrete, sheetrock, rock, sand, dirt, liquids of any composition, tree stumps or large timbers.
    b) Metals, auto parts, motors, engines, closed containers, gas cans, tires and appliances. Not acceptable are any metal, glass, or plastic beverage containers that are returnable.
    c) Any item over four feet long or twelve inches in diameter when rolled up or coiled, such as carpets, carpet pads, wood, snow fencing, chains, mattresses, etc.
    d) Large bulky items over two feet square of any material.
    e) Long stringy material such as magnetic tape, metal banding, or a dedicated load of rags.
    f) Hazardous or toxic materials of any kind. This includes batteries, paint, solvents, motor oil, gasoline, explosives, sewage, chemicals, household cleaning fluids, hospital or biological waste, animal or human waste, nuclear or radioactive material, pesticides, fungicides, toxic materials utilized by artists and crafts people, etc.
    g) Combustible or non-combustible fluids of any type or composition.

Any questions regarding disposal of these materials should be directed to the DPW Director or the Transfer Station attendants.

5. A minor amount of non-combustible material such as metal or glass food containers may be present.
6. Waste material generated by food establishments, municipal, professional and commercial offices, retail stores, etc. is limited to those items that are combustible and conform to the dimensional restrictions in Section 1002.5.
7. Any unacceptable material found in any loadwill result in the rejection of the entire load, and/or will be subject to fine in accordance with Section 7003 of Wellfleet Board of Health Regulations.
8. Ordinary household waste that is generated in a single-family dwelling will be accepted with a valid residential Wellfleet Transfer Station sticker and must be in specific Wellfleet designated “Pay as You Throw” bags (Effective 12/1/13). Residential waste may also be accepted with payment of a one time user fee.

9. Solid waste and recycling from hotels, motels, restaurants, and commercial businesses are required to be delivered in a vehicle with a commercial Wellfleet

Transfer Station sticker. All solid waste material will be assessed a fee based on the net weight of the load or must be in Wellfleet designated "Pay as You Throw" bags (Effective 12/1/13).

10. All residential waste material brought into the Transfer Station by a commercial refuse hauler, licensed by the Wellfleet Board of Health, must be in a vehicle with a commercial Wellfleet Transfer Station sticker and must be in Wellfleet designated "Pay as You Throw" bags (Effective 1/1/14).

11. No unauthorized dumping, salvaging or foraging within the confines of the Transfer Station is permitted. This applies to residents of Wellfleet and to employees of the Town.

12. Restrictions on the use of the Transfer Station are as follows:

a) Yard waste will be accepted with a valid sticker and must be cut into sections no greater than six feet in length and two inches in diameter. No exceptions will be allowed. Brush will not be accepted from any landscapers, builders, or commercial entities.

NOTE: Permits for burning brush on one's own property may be obtained at a nominal fee from the Fire Department during the period of January through April.

b) No stumps or logs will be accepted.

c) No automobiles will be accepted.

d) Metal only will be accepted in the scrap metal pile.

e) Disposal of tires from garages, service stations, and commercial enterprises is prohibited.

f) Bulk metal, auto parts, motors, or engines are acceptable but subject to applicable fees.

g) Boats will be accepted with a valid sticker as follows: metal boats, maximum length 16 ft. Wooden or fiberglass boats must be broken down into pieces no greater than 6 ft. in length or width, and disposed of in the construction pile, with payment of applicable fee. All metal hardware must be removed.

h) It is the responsibility of the hauler to see that all items being discarded shall be cut to size and stripped of rubber, metal, oil or other materials and discarded in specified areas.

i) Used oils will be accepted from Wellfleet residents with a valid sticker (no garages or commercial entities). Used oil may not be mixed with chemicals, solvents, paints, or toxic materials. See the attendant on duty for access to the waste oil tank and/or any questions.

j) Disposal of any waste originating from outside the Town of Wellfleet is strictly prohibited.

14. No refuse, household trash or large discarded items are to be left at the Transfer Station gate, or deposited on any road, wetland, or vacant property within the Town of Wellfleet. It is contrary to State law and to local bylaws and regulations to use any property other than the Transfer Station for the storage of refuse or discarded items of any size or type.

1003 Recycling

1. Refer to Attachment A for information regarding materials that must be recycled and how to prepare them for delivery to the Transfer Station.
2. Non-commercial vehicles without a valid Transfer Station sticker that are driven by residents, non-resident taxpayers, or visitors of Wellfleet will be admitted to the Recycling Area of the Transfer Station for the sole purpose of depositing acceptable items for recycling. This does not include access to the Swap Shop.

2a. Disposal of any recycling from outside the Town of Wellfleet is strictly prohibited.

3. The Town will maintain a Swap Shop for the use of Wellfleet residents only. At all times, items to be left off at the Swap Shop are subject to approval of the attendant on duty. Items must be in at least fair and reusable condition. Appliances and other bulky items may be subject to the normal fee for those items. Proof of residency in Wellfleet will be required.
4. As a service to the community and to support recycling, the Transfer Station will provide space for a Salvation Army and/or Goodwill collection box.
5. An area at the Transfer Station will be provided for non-profit organizations to place bins for the collection of refundable beverage containers.

1004 Construction and Demolition Waste

1. The Transfer Station will accept the following items for the construction & demolition area. These items will incur a separate fee (refer to current fee schedule), and a valid Transfer Station sticker is required.

    a) Construction waste, including sheetrock, bricks, asphalt and wood shingles, windows, doors and scrap lumber which is cut into six-foot lengths.
    b) Mattresses, box springs, sofas, chairs and other furniture, carpets.
    c) Other bulky items subject to approval of the DPW Director and/or the attendant on duty.

1005 Stickers are valid from the first day of July until the last day of June of the succeeding year.

1. The Fee Schedule for the Wellfleet Transfer Station is to be reviewed annually, prior to June 1st, by the Board of Health with input from the Director of the Department of Public Works.

2. Payment on billed accounts are due by the 15th of each month. After one week, an interest rate the same as the current rate charged by the Tax Collector may be applied to any unpaid balance. After fourteen (14) days of non-payment, the permit to use the Transfer Station will be suspended by the Health Agent with written notification to hauler and Board of Health until past due payment has been made in full, including interest accrued. If a permit is suspended all future payments will need to be made at time of disposal.

3. Disputes involving disposal receipts must be made in writing to the Health Department and received with in seven calendar days of dumping. If not disputed, all waste disposal fees will be presumed valid and payable with in the normal billing period.

4. Delinquent payments may result in a Board of Health hearing to consider a prepayment requirement or permanent revocation of license.

1006 If a dispute arises as to the interpretation, application or enforcement of any of the preceding regulations, then the Director of Public Works or his/her designee will adjudicate. If the dispute cannot be resolved to the satisfaction of both parties, a hearing with the Board of Health may be scheduled. Decisions of the Board of Health may only be disputed as a civil matter in a court of competent jurisdiction.

1007 Whoever violates for any reason any provision of these rules and regulations as defined in Sections 1001.0 through 1006.0 shall be punished by a fine in accordance with Section 7003 of the Wellfleet Board of Health Regulations.

1008 If any section, paragraph, sentence, clause or phrase of these rules and regulations should be ruled invalid for any reason whatsoever, such decision shall not affect the remaining portions of these rules and regulations, which shall remain in full force and effect; and to this end the provisions of these rules and regulations are hereby declared severable.

1000A COMMERCIAL REFUSE COLLECTION

1001A

All persons collecting refuse in Wellfleet providing subscription service to households otherwise eligible for the town's solid waste and recycling program must provide trash and recycling at one bundled price. Residents subscribing to private waste collection shall not have the option of paying for trash collection service only at a lower price.

2000 RULES AND REGULATIONS GOVERNING THE PRACTICE OF MASSAGE AND/OR MUSCULAR THERAPY

2001 The following Rules and Regulations governing the licensing and practice of massage/muscular therapy and the operation of an establishment in which massage/muscular therapy is performed are promulgated under the authority of Chapter 111, Section 31 and Chapter 140, Sections 51-53 of the Massachusetts General Laws.

2002 "Massage or muscular therapist" shall mean any person who has been trained in the art of massage/muscular therapy and who has completed a program of instruction in massage/muscular therapy approved by the Massachusetts Board of Education.

2003 No person under the age of eighteen years shall be considered as qualified to be licensed as a massage/muscular therapist.

2004 “Massage/Muscular Therapy” shall mean a method of applying pressure on or friction against, rubbing, kneading, tapping, pounding or stroking parts of the body with the hands and arms; with or without the aid of other devices used manually or electrically activated, such as a vibrator, with or without supplementary aids such as the application of heat or cold, rubbing alcohol, liniments, oils, creams, lotions, powders, or similar preparations; for the purpose of reducing tension, stimulating circulation, and generally providing for an increase in a person’s health and well-being.

2005 The practice of massage/muscular therapy shall exclude any procedures which puncture, pierce, or, in any manner, penetrate the epidermal layer; utilize high-frequency sound (ultra-sonic), or diathermic equipment.

2006 No person shall engage in the practice of massage/muscular therapy, or conduct an establishment for the giving of massage/muscular therapy, or advertise or hold himself/herself out as being engaged in the business/profession of massage/muscular therapy in the Town of Wellfleet without having received a license from the Wellfleet Board of Health.

2007 Any person desiring to practice massage/muscular therapy shall make written application on a form provided by the Wellfleet Board of Health and provide proof of insurance.

2008 a) The application for the original license must include a certified copy of proof of
graduation from a school of massage or muscular therapy approved by the Commonwealth of Massachusetts Department of Education,
(b) or, proof of graduation from a school of massage or muscular therapy certified by the Board of Education in the state in which the school is located.
(c) The applicant must show certification yearly that he or she is free of any communicable disease, as set forth by the Department of Public Health in the Commonwealth of Massachusetts, and evidence satisfactory to the Wellfleet Board of health of moral and physical fitness.

2009 The fee for a license to practice massage/muscular therapy shall be set by the Board of Health. This license is renewable on a yearly basis, on the first of January, and is not transferable.

2010 The fee for a license to operate an establishment for the giving of massage/muscular therapy shall be set by the Board of Health and shall expire on December 31st of each year. This license is not transferable.

2011 The licensing provisions of these regulations shall not apply to classes of individuals who, in the performance of their respective professions, may engage in massage/muscular therapy as defined in these Regulations and who are duly licensed to practice their respective professions by and in the Commonwealth of Massachusetts or who are employed in institutions duly licensed by the Commonwealth of Massachusetts, or coaches and athletic trainers acting within the scope of their employment by schools or educational institutions accredited by the Commonwealth of Massachusetts.

2012 Any establishment offering massage/muscular therapy shall apply for a license from the Wellfleet Board of Health on a form so provided. It is the responsibility of the licensee to apply for a renewal prior to the expiration of the existing license.

2013 The operating requirements for an establishment licensed to practice massage/muscular therapy shall adhere to the following operating requirements:

(a) All rooms shall be well lighted, ventilated, and be maintained in an orderly and sanitary condition.
(b) Adequate means shall be provided for the cleansing and sterilizing of all instruments and utensils and, where required, for the cleansing and sterilization of the skin or flesh of the patron undergoing therapy.
(c) Robes, sheets, blankets, and pillowcases which come into direct contact with the skin of the patrons, and all towels and napkins, after being used and before being used again, shall be laundered in such a manner and under such conditions as to ensure effective sterilization.
(d) No unsterilized part of a vibrator or other mechanical appliance, instrument or device shall be applied directly to the skin of the patron, but the part of the body being treated shall be covered with a clean towel or else the instrument shall be covered in a similar manner.
(e) No sponge, or stick alum, nor any other article, lotion or powder likely to be unsterile or unsanitary shall be applied to the skin or to any cut or wound.
(f) Disposable towels and coverings shall not be re-used. Soiled linens and disposable items shall be deposited in separate covered receptacles and shall be disposed of or laundered in an approved sanitary manner as often as necessary.
(g) Any room used for the purpose of administering massage/muscular therapy must be dedicated to and for such use and must be situated adjacent to a bathroom containing an adequate supply of hot and cold running water.
(h) Every person licensed to practice massage/muscular therapy shall thoroughly cleanse his/her hands by washing immediately before serving any patron.
(i) No establishment licensed for the giving of massage/muscular therapy shall be kept open or operate except between the hours of 8:00 a.m. and 9:00 p.m. unless authorized in writing by the Wellfleet Board of Health.
(j) Operating behind locked doors is held to be in violation hereunder. Any and all establishments licensed and operating under the authority of these Regulations shall not have any doors to any rooms, exits or entrances of said establishment locked or obstructed in any way so as to prevent free ingress or egress of persons.
(k) Any establishment permitted to operate under authority of these Regulations shall post in a conspicuous place within such establishment a schedule of hours. The Health Officer shall be notified of such schedule of hours and of any changes in such schedule. Such establishment shall be open and accessible for inspection during business hours by agents of the Massachusetts Department of Health, or any member of the Wellfleet Police Department, the Fire Department, the Health Officer, or any member of the Town Licensing Authority as provided in MGL, Chapter 140, Section 52.
(l) All persons in such establishment engaged in the practice of massage/muscular therapy shall hold a valid license from the Wellfleet Board of Health.

(m) Every person licensed to practice massage/muscular therapy or to operate an establishment for the giving of massage/muscular therapy will be issued a certificate to that effect which will bear the signature of the licensee and the licensee shall have these certificates in his/her possession or posted on a wall, whichever is applicable, whenever or wherever he/she may be engaged in the practice of massage/muscular therapy, and when requested, shall show such certificate to any legally authorized public official.

2014 Massage/Muscular Therapy may be administered on request to ill, infirm, disabled persons or persons without transportation at their legal residence within the Town of Wellfleet by a therapist licensed to practice massage/muscular therapy in the Town of Wellfleet and who holds a license to do business in the Town of Wellfleet.

2015 Massage/Muscular Therapy, when administered outside of a duly licensed establishment within the Town of Wellfleet, is subject to the same rules and regulations that apply to the practice of massage/muscular therapy in an establishment holding a license to do business in the Town of Wellfleet.

2016 Whoever violates for any reason any provision of the Rules and Regulations defined in paragraphs numbered 3200 through 2015 shall be punished by a fine of not more than one hundred dollars ($100.00) or imprisonment for not more than six months or both in accordance with MGL, Chapter 140, Section 53.

2017 If any action, paragraph, sentence, clause or phrase of these Rules and Regulations should be ruled invalid for any reason whatsoever, such decision shall not affect the remaining portions of these Regulations, which shall remain in full force and effect; and, to this end, the provisions of these Regulations are hereby declared severable.

2000A RULES AND REGULATIONS FOR BODY ART ESTABLISHMENTS AND PRACTITIONERS

2001A. Purpose
Whereas body art is becoming prevalent and popular throughout the Commonwealth; and whereas knowledge and practice of universal precautions, sanitation, personal hygiene, sterilization and aftercare requirements on the part of the practitioner should be demonstrated to prevent the transmission of disease or injury to the client and/or practitioner; now, therefore the Board of Health of the Town of Wellfleet passes these rules and regulations for the practice of body art in the Town of Wellfleet as part of our mission to protect the health, safety and welfare of the public.

2002A. Authority
These regulations are promulgated under the authority granted to the Board of Health under Massachusetts General Law Chapter111, section 31.

2003A. Definitions

Aftercare means written instructions given to the client, specific to the body art procedure(s) rendered, about caring for the body art and surrounding area, including information about when to seek medical treatment, if necessary.
Applicant means any person who applies to the Board of Health for either a body art establishment permit or practitioner permit.
Autoclave means an apparatus for sterilization utilizing steam pressure at a specific temperature over a period of time.
Autoclaving means a process which results in the destruction of all forms of microbial life, including highly resistant spores, by the use of an autoclave for a minimum of thirty minutes at 20 pounds of pressure (PSI) at a temperature of 270 degrees Fahrenheit.
Bloodborne Pathogens Standard means OSHA Guidelines contained in 29 CFR 1910.1030, entitled "Occupational Exposure to Bloodborne Pathogens."
Board of Health or Board means the Board of Health that has jurisdiction in the community in which a body art establishment is located including the Board or officer having like powers and duties in towns where there is no Board of Health.
Body Art means the practice of physical body adornment by permitted establishments and practitioners using, but not limited to, the following techniques: body piercing, tattooing, cosmetic tattooing, branding, and scarification. This definition does not include practices that are considered medical procedures by the Board of Registration in Medicine, such as implants under the skin, which procedures are prohibited.
Body Art Establishment or Establishment means a location, place, or business that has been granted a permit by the Board, whether public or private, where the practices of body art are performed, whether or not for profit.
Body Art Practitioner or Practitioner means a specifically identified individual who has been granted a permit by the Board to perform body art in an establishment that has been granted a permit by the Board.
Body Piercing means puncturing or penetrating the skin of a client with pre-sterilized single-use needles and the insertion of pre-sterilized jewelry or other adornment into the opening. This definition excludes piercing of the earlobe with a pre-sterilized single-use stud-and-clasp system manufactured exclusively for ear-piercing.
Braiding means the cutting of strips of skin of a person, which strips are then to be intertwined with one another and placed onto such person so as to cause or allow the incised and interwoven strips of skin to heal in such intertwined condition.
Branding means inducing a pattern of scar tissue by use of a heated material (usually metal) to the skin, making a serious burn, which eventually becomes a scar.
Cleaning area means the area in a Body Art Establishment used in the sterilization, sanitation or other cleaning of instruments or other equipment used for the practice of body art.
Client means a member of the public who requests a body art procedure at a body art establishment.
Contaminated Waste means waste as defined in 105 CMR 480.000: Storage and Disposal of Infectious or Physically Dangerous Medical or Biological Waste, State Sanitary Code, Chapter VIII and/or 29 Code of Federal Regulation part 1910.1030. This includes any liquid or semi-liquid blood or other potentially infectious material; contaminated items that would release blood or other potentially infectious material in a liquid or semi-liquid state if compressed; items on which there is dried blood or other potentially infectious

material and which are capable of releasing these materials during handling; sharps and any wastes containing blood or other potentially infectious materials.
Cosmetic Tattooing, also known as permanent cosmetics, micro pigment implantation or dermal pigmentation, means the implantation of permanent pigment around the eyes, lips and cheeks of the face and hair imitation.
Disinfectant means a product registered as a disinfectant by the U.S. Environmental Protection Agency (EPA).
Disinfection means the destruction of disease-causing microorganisms on inanimate objects or surfaces, thereby rendering these objects safe for use or handling.
Ear piercing means the puncturing of the lobe of the ear with a pre-sterilized single-use stud-and-clasp ear-piercing system following the manufacturer's instructions.
Equipment means all machinery, including fixtures, containers, vessels, tools, devices, implements, furniture, display and storage areas, sinks, and all other apparatus and appurtenances used in connection with the operation of a body art establishment.
Exposure means an event whereby there is an eye, mouth or other mucus membrane, non-intact skin or parental contact with the blood or bodily fluids of another person or contact of an eye, mouth or other mucous membrane, non-intact skin or parenteral contact with other potentially infectious matter.
Hand Sink means a lavatory equipped with hot and cold running water under pressure, used solely for washing hands, arms, or other portions of the body.
Hot water means water that attains and maintains a temperature 110º-130ºF.
Instruments Used for Body Art means hand pieces, needles, needle bars, and other instruments that may come in contact with a client's body or may be exposed to bodily fluids during any body art procedure.
Invasive means entry into the client's body either by incision or insertion of any instruments into or through the skin or mucosa, or by any other means intended to puncture, break, or otherwise compromise the skin or mucosa.
Jewelry means any ornament inserted into a newly pierced area, which must be made of surgical implant-grade stainless steel; solid 14k or 18k white or yellow gold, niobium, titanium, or platinum; or a dense, low-porosity plastic, which is free of nicks, scratches, or irregular surfaces and has been properly sterilized prior to use.
Light colored means a light reflectance value of 70 percent or greater.
Minor means any person under the age of eighteen (18) years.
Mobile Body Art Establishment means any trailer, truck, car, van, camper or other motorized or non-motorized vehicle, a shed, tent, movable structure, bar, home or other facility wherein, or concert, fair, party or other event whereat one desires to or actually does conduct body art procedures.
Operator means any person who individually, or jointly or severally with others, owns, or controls an establishment, but is not a body art practitioner.
Permit means Board approval in writing to either (1) operate a body art establishment or (2) operate as a body art practitioner within a body art establishment. Board approval shall be granted solely for the practice of body art pursuant to these regulations. Said permit is exclusive of the establishment's compliance with other licensing or permitting requirements that may exist within the Board's jurisdiction.
Person means an individual, any form of business or social organization or any other non-governmental legal entity, including but not limited to corporations, partnerships, limited-liability companies, associations, trusts or unincorporated organizations.

Physician means an individual licensed as a qualified physician by the Board of Registration in Medicine pursuant to M.G.L. c. 112 § 2.
Procedure surface means any surface of an inanimate object that contacts the client's unclothed body during a body art procedure, skin preparation of the area adjacent to and including the body art procedure, or any associated work area which may require sanitizing.
Sanitary means clean and free of agents of infection or disease.
Sanitize means the application of a U.S. EPA registered sanitizer on a cleaned surface in accordance with the label instructions.
Scarification means altering skin texture by cutting the skin and controlling the body's healing process in order to produce wounds, which result in permanently raised wheals or bumps known as keloids.
Sharps means any object, sterile or contaminated, that may intentionally or accidentally cut or penetrate the skin or mucosa, including, but not limited to, needle devices, lancets, scalpel blades, razor blades, and broken glass.
Sharps Container means a puncture-resistant, leak-proof container that can be closed for handling, storage, transportation, and disposal and that is labeled with the International Biohazard Symbol.
Single Use Items means products or items that are intended for one-time, one-person use and are disposed of after use on each client, including, but not limited to, cotton swabs or balls, tissues or paper products, paper or plastic cups, gauze and sanitary coverings, razors, piercing needles, scalpel blades, stencils, ink cups, and protective gloves.
Sterilize means the use of a physical or chemical procedure to destroy all microbial life including highly resistant bacterial endospores.
Student/Apprentice Practioner shall mean any person having accumulated fewer than two (2) years actual experience in the practice of performing body art activities but is in compliance with section (E)(2)(a) & (b) & (E)(3).
Tattoo means the indelible mark, figure or decorative design introduced by insertion of dyes or pigments into or under the subcutaneous portion of the skin.
Tattooing means any method of placing ink or other pigment into or under the skin or mucosa by the aid of needles or any other instrument used to puncture the skin, resulting in permanent coloration of the skin or mucosa. This term includes all forms of cosmetic tattooing.
Temporary Body Art Establishment means the same as Mobile Body Art Establishment.
Three dimensional "3D" Body Art or Beading or Implantation means the form of body art consisting of or requiring the placement, injection or insertion of an object, device or other thing made of matters such as steel, titanium, rubber, latex, plastic, glass or other inert materials, beneath the surface of the skin of a person. This term does not include Body Piercing.
Ultrasonic Cleaning Unit means a unit approved by the Board, physically large enough to fully submerge instruments in liquid, which removes all foreign matter from the instruments by means of high frequency oscillations transmitted through the contained liquid.
Universal Precautions means a set of guidelines and controls, published by the Centers for Disease Control and Prevention (CDC), as "Guidelines for Prevention of Transmission of Human Immunodeficiency Virus (HIV) and Hepatitis B Virus (HBV) to Health-Care and Public-Safety Workers" in Morbidity and Mortality Weekly Report)

(MMWR), June 23, 1989, Vo1.38 No. S-6, and as "Recommendations for Preventing Transmission of Human Immunodeficiency Virus and Hepatitis B Virus to Patients During Exposure-Prone Invasive Procedures" in MMWR, July 12,1991, Vo1.40, No. RR-8. This method of infection control requires the employer and the employee to assume that all human blood and specified human body fluids are infectious for HIV, HBV, and other blood pathogens. Precautions include hand washing; gloving; personal protective equipment; injury prevention; and proper handling and disposal of needles, other sharp instruments, and blood and body fluid-contaminated products.

2004A. Exemptions

(A)Physicians licensed in accordance with M.G.L. c. 112 § 2 who perform body art procedures as part of patient treatment are exempt from these regulations.
(B)Individuals who pierce only the lobe of the ear with a pre-sterilized single-use stud-and-clasp ear-piercing system are exempt from these regulations.

2005A. Restrictions

(A) No tattooing, piercing of genitalia, branding or scarification shall be performed on a person under the age of 18.
(B) Body piercing, other than piercing the genitalia, may be performed on a person under the age of 18 provided that the person is accompanied by a properly identified parent, legal custodial parent or legal guardian who has signed a form consenting to such procedure. Properly identified shall mean a valid photo identification of the adult and a birth certificate of the minor.
(C) The following body piercings are hereby prohibited: piercing of the uvula; piercing of the tracheal area; piercing of the neck; piercing of the ankle; piercing between the ribs or vertebrae; piercing of the web area of the hand or foot; piercing of the lingual frenulum (tongue web); piercing of the clitoris; any form of chest or deep muscle piercings, excluding the nipple; piercing of the anus; piercing of an eyelid, whether top or bottom; piercing of the gums; piercing or skewering of a testicle; so called “deep” piercing of the penis – meaning piercing through the shaft of the penis, or “trans-penis” piercing in any area from the corona glandis to the pubic bone; so called “deep” piercing of the scrotum – meaning piercing through the scrotum, or “transcrotal” piercing; so called “deep” piercing of the vagina.
(D) The following practices hereby prohibited unless performed by a medical doctor licensed by the Commonwealth of Massachusetts: tongue splitting; braiding; three dimensional/beading/implementation; tooth filing/fracturing/removal/tatooing; cartilage modification; amputation; genital modification; introduction of saline or other liquids.

2006A**.** Operation of Body Art Establishments

Unless otherwise ordered or approved by the Board, each body art establishment shall be constructed, operated and maintained to meet the following minimum requirements:

(A) Physical Plant

(1) Walls, floors, ceilings, and procedure surfaces shall be smooth, durable, free of open holes or cracks, light-colored, washable, and in good repair. Walls, floors, and ceilings shall be maintained in a clean condition. All procedure surfaces, including client chairs/benches, shall be of such construction as to be easily cleaned and sanitized after each client.

(2) Solid partitions or walls extending from floor to ceiling shall separate the establishment's space from any other room used for human habitation, any food establishment or room where food is prepared, any hair salon, any retail sales, or any other such activity that may cause potential contamination of work surfaces.

(3) The establishment shall take all measures necessary to ensure against the presence or breeding of insects, vermin, and rodents within the establishment.

(4) Each operator area shall have a minimum of 45 square feet of floor space for each practitioner. Each establishment shall have an area that may be screened from public view for clients requesting privacy. Multiple body art stations shall be separated by dividers or a partition at a minimum.

(5) The establishment shall be well ventilated and provided with an artificial light source equivalent to at least 20 foot candles 3 feet off the floor, except that at least 100 foot candles shall be provided at the level where the body art procedure is being performed where instruments and sharps are assembled and all cleaning areas.

(6) All electrical outlets in operator areas and cleaning areas shall be equipped with approved ground fault (GFCI) protected receptacles.

(7) A separate, readily accessible hand sink with hot and cold running water under pressure, preferably equipped with wrist- or foot-operated controls and supplied with liquid soap, and disposable paper towels stored in fixed dispensers shall be readily accessible within the establishment. Each operator area shall have a hand sink.

(8) There shall be a sharps container in each operator area and each cleaning area.

(9) There shall be a minimum of one toilet room containing a toilet and sink. The toilet room shall be provided with toilet paper, liquid hand soap and paper towels stored in a fixed dispenser. A body art establishment permanently located within a retail shopping center, or similar setting housing multiple operations within one enclosed structure having shared entrance and exit points, shall not be required to provide a separate toilet room within such body art establishment if Board-approved toilet facilities are located in the retail shopping center within 300 feet of the body art establishment so as to be readily accessible to any client or practitioner.

(10) The public water supply entering a body art establishment shall be protected by a testable, reduced pressure back flow preventor installed in accordance with 142 Code of Massachusetts Regulation 248, as amended from time to time.

(11) At least one covered, foot operated waste receptacle shall be provided in each operator area and each toilet room. Receptacles in the operator area shall be emptied daily. Solid waste shall be stored in covered, leakproof,

rodent-resistant containers and shall be removed from the premises at least weekly.

(12) At least one janitorial sink shall be provided in each body art establishment for use in cleaning the establishment and proper disposal of non-contaminated liquid wastes in accordance with all applicable Federal, state and local laws. Said sink shall be of adequate size equipped with hot and cold running water under pressure and permit the cleaning of the establishment and any equipment used for cleaning.

(13) All instruments and supplies shall be stored in clean, dry, and covered containers. Containers shall be kept in a secure area specifically dedicated to the storage of all instruments and supplies.

(14) The establishment shall have a cleaning area. Every cleaning area shall have an area for the placement of an autoclave or other sterilization unit located or positioned a minimum of 36 inches from the required ultrasonic cleaning unit.

(15) The establishment shall have a customer waiting area, exclusive and separate from any workstation, instrument storage area, cleaning area or any other area in the body art establishment used for body art activity.

(16) No animals of any kind shall be allowed in a body art establishment except service animals used by persons with disabilities (e.g., Seeing Eye dogs). Fish aquariums shall be allowed in waiting rooms and nonprocedural areas.

(17) Smoking, eating, or drinking is prohibited in the area where body art is performed, with the exception of non-alcoholic fluids being offered to a client during or after a body art procedure.

(B) Requirements for Single Use Items Including Inks, Dyes and Pigments

(1) Single-use items shall not be used on more than one client for any reason. After use, all single-use sharps shall be immediately disposed of in approved sharps containers pursuant to 105 CMR 480.000.

(2) All products applied to the skin, such as but not limited to body art stencils, applicators, gauze and razors, shall be single use and disposable.

(3) Hollow bore needles or needles with cannula shall not be reused.

(4) All inks, dyes, pigments, solid core needles, and equipment shall be specifically manufactured for performing body art procedures and shall be used according to manufacturer's instructions.

(5) Inks, dyes or pigments may be mixed and may only be diluted with water from an approved potable source. Immediately before a tattoo is applied, the quantity of the dye to be used shall be transferred from the dye bottle and placed into single-use paper cups or plastic cups. Upon completion of the tattoo, these single-use cups or caps and their contents shall be discarded.

(C) Sanitation and Sterilization Measures and Procedures

(1) All non-disposable instruments used for body art, including all reusable solid core needles, pins and stylets, shall be cleaned thoroughly after each use by scrubbing with an appropriate soap or disinfectant solution and hot

water, (to remove blood and tissue residue), and shall be placed in an ultrasonic unit sold for cleaning purposes under approval of the U.S. Food and Drug Administration and operated in accordance with manufacturer's instructions.

(2) After being cleaned, all non-disposable instruments used for body art shall be packed individually in sterilizer packs and subsequently sterilized in a steam autoclave sold for medical sterilization purposes under approval of the U.S. Food and Drug Administration. All sterilizer packs shall contain either a sterilizer indicator or internal temperature indicator. Sterilizer packs must be dated with an expiration date not to exceed six (6) months.

(3) The autoclave shall be used, cleaned, and maintained according to manufacturer's instruction. A copy of the manufacturer's recommended procedures for the operation of the autoclave must be available for inspection by the Board. Autoclaves shall be located away from workstations or areas frequented by the public.

(4) Each holder of a permit to operate a body art establishment shall demonstrate that the autoclave used is capable of attaining sterilization by monthly spore destruction tests. These tests shall be verified through an independent laboratory. The permit shall not be issued or renewed until documentation of the autoclave's ability to destroy spores is received by the Board. These test records shall be retained by the operator for a period of three (3) years and made available to the Board upon request.

(5) All instruments used for body art procedures shall remain stored in sterile packages until just prior to the performance of a body art procedure. After sterilization, the instruments used in body art procedures shall be stored in a dry, clean cabinet or other tightly covered container reserved for the storage of such instruments.

(6) Sterile instruments may not be used if the package has been breached or after the expiration date without first repackaging and resterilizing.

(7) If the body art establishment uses only single-use, disposable instruments and products, and uses sterile supplies, an autoclave shall not be required.

(8) When assembling instruments used for body art procedures, the operator shall wear disposable medical gloves and use medically recognized sterile techniques to ensure that the instruments and gloves are not contaminated.

(9) Reusable cloth items shall be mechanically washed with detergent and mechanically dried after each use. The cloth items shall be stored in a dry, clean environment until used. Should such items become contaminated directly or indirectly with bodily fluids, the items shall be washed in accordance with standards applicable to hospitals and medical care facilities, at a temperature of 160°F or a temperature of 120°F with the use of chlorine disinfectant.

(D) Posting Requirements

The following shall be prominently displayed:

(1) A Disclosure Statement, a model of which shall be available from the Board.A Disclosure Statement shall also be given to each client, advising him/her of the risks and possible consequences of body art procedures.

(2) The name, address and phone number of the Wellfleet Board of Health.
(3) An Emergency Plan, including:
    (a) the event of an emergency;
    (b) a telephone in good working order shall be easily available and accessible to all employees and clients during all hours of operation; and
    (c) a sign at or adjacent to the telephone indicating the correct emergency telephone numbers.
(4) An a plan for the purpose of contacting police, fire or emergency medical services in occupancy and use permit as issued by the local building official.
(5) A current establishment permit.
(6) Each practitioner's permit.

(E) Establishment Recordkeeping

The establishment shall maintain the following records in a secure place for a minimum of three (3) years, and such records shall be made available to the Board upon request:

(1) Establishment information, which shall include:
(a) establishment name;
(b) hours of operation;
(c) owner's name and address;
(d) a complete description of all body art procedures performed;
(e) an inventory of all instruments and body jewelry, all sharps, and all inks used for any and all body art procedures, including names of manufacturers and serial or lot numbers, if applicable. Invoices or packing slips shall satisfy this requirement;
(f) Material Safety Data Sheet, when available, for each ink and dye used by the establishment;
(g) copies of waste hauler manifests
(h) copies of commercial biological monitoring tests
(i) a copy of these regulations.

(2) Employee information, which shall include:
(a) full legal names and exact duties;
(b) date of birth;
(c) home address;
(d) home /work phone numbers;
(e) identification photograph;
(f) dates of employment;
(g) Hepatitis B vaccination status or declination notification;
(h) Training records

(3) Client Information, which shall include:
(a) name;
(b) valid photo identification and date of birth;
(c) address of the client;
(d) date of the procedure;
(e) name of the practitioner who performed the procedure(s);
(f) description of procedure(s) performed and the location on the body;

(g) a signed consent form as specified by 7(D)(2); and,
(h) if the client is a person under the age of 18, proof of parental or guardian identification, presence and consent including a copy of the photographic identification of the parent or guardian.

Client information shall be kept confidential at all times.

(4) Exposure Control Plan

Each establishment shall create, update, and comply with an Exposure Control Plan. The Plan shall be submitted to the Board for review so as to meet all of the requirements of OSHA regulations, to include, but not limited to, 29 Code of Federal Regulation 1910.1030 OSHA Bloodborne Pathogens Standards et seq, as amended from time to time. A copy of the Plan shall be maintained at the Body Art Establishment at all times and shall be made available to the Board upon request.

(F) No person shall establish or operate a mobile or temporary Body Art Establishment.

2007A. Standards of Practice

Practitioners are required to comply with the following minimum health standards:

(A) A practitioner shall perform all body art procedures in accordance with Universal Precautions set forth by the U.S Centers for Disease Control and Prevention.
(B) A practitioner shall refuse service to any person who may be under the influence of alcohol or drugs.
(C) Practitioners who use ear-piercing systems must conform to the manufacturers directions for use, and to applicable U.S. Food and Drug Administration requirements. No practitioner shall use an ear piercing system on any part of the client's body other than the lobe of the ear.
(D) Health History and Client Informed Consent. Prior to performing a body art procedure on a client, the practitioner shall:
  (1) Inform the client, verbally and in writing that the following health conditions may increase health risks associated with receiving a body art procedure:
    (a) history of diabetes;
    (b) history of hemophilia (bleeding);
    (c) history of skin diseases, skin lesions, or skin sensitivities to soaps, disinfectants etc.;
    (d) history of allergies or adverse reactions to pigments, dyes, or other sensitivities;
    (e) history of epilepsy, seizures, fainting, or narcolepsy;
    (f) use of medications such as anticoagulants, which thin the blood and/or interfere with blood clotting; and
    (g) any other conditions such as hepatitis or HIV.
  (2) Require that the client sign a form confirming that the above information was provided, that the client does not have a condition that prevents them

from receiving body art, that the client consents to the performance of the body art procedure and that the client has been given the aftercare instructions as required by section 7(K).

(E) A practitioner shall maintain the highest degree of personal cleanliness, conform to best standard hygienic practices, and wear clean clothes when performing body art procedures. Before performing body art procedures, the practitioner must thoroughly wash their hands in hot running water with liquid soap, then rinse hands and dry with disposable paper towels. This shall be done as often as necessary to remove contaminants.

(F) In performing body art procedures, a practitioner shall wear disposable single-use gloves. Gloves shall be changed if they become pierced, torn, or otherwise contaminated by contact with any unclean surfaces or objects or by contact with a third person. The gloves shall be discarded, at a minimum, after the completion of each procedure on an individual client, and hands shall be washed in accordance with section (E) before the next set of gloves is put on. Under no circumstances shall a single pair of gloves be used on more than one person. The use of disposable single-use gloves does not preclude or substitute for handwashing procedures as part of a good personal hygiene program.

(G) The skin of the practitioner shall be free of rash or infection. No practitioner affected with boils, infected wounds, open sores, abrasions, weeping dermatological lesions or acute respiratory infection shall work in any area of a body art establishment in any capacity in which there is a likelihood that that person could contaminate body art equipment, supplies, or working surfaces with body substances or pathogenic organisms.

(H) Any item or instrument used for body art that is contaminated during the procedure shall be discarded and replaced immediately with a new disposable item or a new sterilized instrument or item before the procedure resumes.

(I) Preparation and care of a client's skin area must comply with the following:

(1) Any skin or mucosa surface to receive a body art procedure shall be free of rash or any visible infection.

(2) Before a body art procedure is performed, the immediate skin area and the areas of skin surrounding where body art procedure is to be placed shall be washed with soap and water or an approved surgical skin preparation. If shaving is necessary, single-use disposable razors or safety razors with single-service blades shall be used. Blades shall be discarded after each use, and reusable holders shall be cleaned and autoclaved after use. Following shaving, the skin and surrounding area shall be washed with soap and water. The washing pad shall be discarded after a single use.

(3) In the event of bleeding, all products used to stop the bleeding or to absorb blood shall be single use, and discarded immediately after use in appropriate covered containers, and disposed of in accordance with 105 CMR 480.000.

(J) Petroleum jellies, soaps, and other products used in the application of stencils shall be dispensed and applied on the area to receive a body art procedure with sterile gauze or other sterile applicator to prevent contamination of the original container and its contents. The applicator or gauze shall be used once and then discarded.

(K) The practitioner shall provide each client with verbal and written instructions on the aftercare of the body art site. The written instructions shall advise the client:
(1) on the proper cleansing of the area which received the body art;
(2) to consult a health care provider for:
(a) unexpected redness, tenderness or swelling at the site of the body art procedure;
(b) any rash;
(c) unexpected drainage at or from the site of the body art procedure; or
(d) a fever within 24 hours of the body art procedure; and
(3) of the address, and phone number of the establishment.

A copy shall be provided to the client. A model set of aftercare instructions shall be made available by the Board.

(L) Contaminated waste shall be stored, treated and disposed in accordance with 105 CMR 480.000: Storage and Disposal of Infectious or Physically Dangerous Medical or Biological Waster, State Sanitary Code, Chapter VIII.

2008A. Injury and/or Complication Reports

A written report of any injury, infection complication or disease as a result of a body art procedure, or complaint of injury, infection complication or disease, shall be forwarded by the operator to the Board which issued the permit, with a copy to the injured client within five working days of its occurrence or knowledge thereof. The report shall include:

(A) the name of the affected client;
(B) the name and location of the body art establishment involved;
(C) the nature of the injury, infection complication or disease;
(D) the name and address of the affected client's health care provider, if any;
(E) any other information considered relevant to the situation.

2009A. Complaints

(A) The Board shall investigate complaints received about an establishment or practitioner's practices or acts, which may violate any provision of the Board's regulations.
(B) If the Board finds that an investigation is not required because the alleged act or practice is not in violation of the Board's regulations, then the Board shall notify the complainant of this finding and the reasons on which it is based.
(C) If the Board finds that an investigation is required, because the alleged act or practice may be in violation of the Board's regulations, the Board shall investigate and if a finding is made that the act or practice is in violation of the Board's regulations, then the Board shall apply whatever enforcement action is appropriate to remedy the situation and shall notify the complainant of its action in this manner.

2010A. Application for Body Art Establishment Permit

(A) No person may operate a body art establishment except with a valid permit from the Board.

(B) Applications for a permit shall be made on forms prescribed by and available from the Board. An applicant shall submit all information required by the form and accompanying instructions. The term "application" as used herein shall include the original and renewal applications.

(C) An establishment permit shall be valid from the date of issuance and shall expire on December 31st of the year in which it was issued.

(D) The Board shall require that the applicant provide, at a minimum, the following information in order to be issued an establishment permit:

(1) Name, address, and telephone number of:

(a) the body art establishment;

(b) the operator of the establishment; and

(c) the body art practitioner(s) working at the establishment;

(2) The manufacturer, model number, model year, and serial number, where applicable, of the autoclave used in the establishment;

(3) A signed and dated acknowledgment that the applicant has received, read and understood the requirements of the Board's body art regulations;

(4) A drawing of the floor plan of the proposed establishment to scale for a plan review by the Board, as part of the permit application process; and,

(5) Exposure Report Plan

(6) Such additional information as the Board may reasonably require.

(E) The annual fee for the Body Art Establishment Permit shall be $600.00.

(F) A permit for a body art establishment shall not be transferable from one place or person to another.

2011A. Application for Body Art Practitioner Permit

(A) No person shall practice body art or perform any body art procedure without first obtaining a practitioner permit from the Board. The annual fee for a practitioner permit shall be $400.00.

(B) A practitioner shall be a minimum of 18 years of age.

(C) A practitioner permit shall be valid from the date of issuance and shall expire on December 31st of the year in which it was issued.

(D) Application for a practitioner permit shall include:

(1) name;

(2) date of birth;

(3) residence address;

(4) mailing address;

(5) phone number;

(6) place(s) of employment as a practitioner; and

(7) training and/or experience as set out in (E) below.

(E) <u>Practitioner Training and Experience</u>

(1) In reviewing an application for a practitioner permit, the Board may consider experience, training and/or certification acquired in other states that regulate body art.

(2) Training for all practitioners shall be approved by the Board and, at a minimum, shall include the following:

(a) bloodborne pathogen training program (or equivalent) which includes infectious disease control; waste disposal; hand washing techniques; sterilization equipment operation and methods; and sanitization, disinfection and sterilization methods and techniques; and

(b) Current certification in First Aid and cardiopulmonary resuscitation (CPR).

Examples of courses approved by the Board include "Preventing Disease Transmission" (American Red Cross) and "Bloodborne Pathogen Training" (U.S. OSHA). Training/courses provided by professional body art organizations or associations or by equipment manufacturers may also be submitted to the Board for approval.

(3) All applicants shall provide documentation, acceptable to the Board, that s/he completed a course on anatomy and physiology with a grade of C or better at a college accredited by the New England Association of Schools and Colleges, or comparable accrediting entity. This course must include instruction on the system of the integumentary system (skin).

(4) The applicant for all practitioners shall submit evidence satisfactory to the Board of at least two years actual experience in the practice of performing body art activities of the kind for which the applicant seeks a body art practitioner permit to perform, whether such experience was obtained within or outside of the Commonwealth.

(F) A practitioner's permit shall be conditioned upon continued compliance with all applicable provisions of these rules and regulations.

(G) The Board may consider the application for student/apprentice practitioner provided the applicant must perform under the direct supervision of a permitted practitioner.

2012A. Grounds for Suspension, Denial, Revocation, or Refusal to Renew Permit

(A) The Board may suspend a permit, deny a permit, revoke a permit or refuse to renew a permit on the following grounds, each of which, in and of itself, shall constitute full and adequate grounds for suspension, denial, revocation or refusal to renew:

(1) any actions which would indicate that the health or safety of the public would be at risk;

(2) fraud, deceit or misrepresentation in obtaining a permit, or its renewal;

(3) criminal conduct which the Board determines to be of such a nature as to render the establishment, practitioner or applicant unfit to practice body art as evidenced by criminal proceedings resulting in a conviction, guilty plea, or plea of *nolo contendere* or an admission of sufficient facts;

(a) any present or past violation of the Board's regulations governing the practice of body art;

(b) practicing body art while the ability to practice is impaired by alcohol, drugs, physical disability or mental instability;

(c) being habitually drunk or being dependent on, or a habitual user of narcotics, barbiturates, amphetamines, hallucinogens, or other drugs having similar effects;

(d) knowingly permitting, aiding or abetting an unauthorized person to perform activities requiring a permit;
(e) continuing to practice while his/her permit is lapsed, suspended, or revoked; and
(f) having been disciplined in another jurisdiction in any way by the proper permitting authority for reasons substantially the same as those set forth in the Board's regulations.
(g) other just and sufficient cause which the Board may determine would render the establishment, practitioner or applicant unfit to practice body art.

(B) The Board shall notify an applicant, establishment or practitioner in writing of any violation of the Board's regulations, for which the Board intends to deny, revoke, or refuse to renew a permit. The applicant, establishment or practitioner shall have seven (7) days after receipt of such written notice in which to comply with the Board's regulations. The Board may deny, revoke or refuse to renew a permit, if the applicant, establishment or practitioner fails to comply after said seven (7) days subject to the procedure outlined in Section 14.

(C) Applicants denied a permit may reapply at any time after denial.

2013A. Grounds for Suspension of Permit
The Board may summarily suspend a permit pending a final hearing on the merits on the question of revocation if, based on the evidence before it, the Board determines that an establishment and/or a practitioner is an immediate and serious threat to the public health, safety or welfare. The suspension of a permit shall take effect immediately upon written notice of such suspension by the Board.

2014A. Procedure for Hearings
The owner of the establishment or practitioner shall be given written notice of the Board's intent to hold a hearing for the purpose of suspension, revocation, denial or refusal to renew a permit. This written notice shall be served through a certified letter sent return receipt requested or by constable. The notice shall include the date, time and place of the hearing and the owner of the establishment or practitioner's right to be heard. The Board shall hold the hearing no later than 21 days from the date the written notice is received.

In the case of a suspension of a permit as noted in Section 2012A, a hearing shall be scheduled no later than 21 days from the date of the suspension.

2015A. Severability
If any provision contained in the model regulations is deemed invalid for any reason, it shall be severed and shall not affect the validity of the remaining provisions.

2016A. Violations, Penalties and Enforcement
Non-Criminal Disposition -Whoever violates any provision of these rules and regulations may be penalized by a non-criminal method in the District Court pursuant to the provisions of MGL Chapter 40ss 21D. For the purposes of this regulation the following fine schedule will be imposed:

First offense – written warning
Second offense - $50.00
Third offense - $100.00
Fourth and subsequent offenses - $300.00

Each day on which a violation exists shall be deemed to be a separate offense. The third offense at a single facility shall result in a hearing before the Board of Health to suspend or withdraw a body art license if appropriate or a determination to file a criminal complaint.
Criminal Complaint – as provided in MGL Chapter 111 § 31 – Whoever violates any provision of these rules and regulations may be penalized by indictment or complaint brought in District Court. Except as otherwise provided by law, the fine shall be $1,000.00 for each offense.

2017A. Variances
Variances from this regulation may be granted by the Board of Health after a hearing at which the applicant establishes the following:

(a) Enforcement thereof would do manifest injustice; and
(b) A variance contemplated from these regulations will not in the opinion of the Board of Health adversely affect the purpose and intent of this regulation.

3000 MISCELLANEOUS REGULATIONS

3001 All commercial establishments must have automatic pilots on their gas appliances, with 100% shutoffs. Any appliance found unsafe will be subject to removal. This applies to all preexisting appliances.

~~**4000 TOBACCO CONTROL REGULATIONS**~~

~~4001 Statement of Purpose:~~

~~Whereas there exists conclusive evidence that tobacco smoke causes cancer, respiratory and cardiac diseases, negative birth outcomes, irritations to the eyes, nose and throat; and whereas more than eighty percent of all smokers begin smoking before the age of eighteen years (Centers for Disease Control and Prevention, "Youth Surveillance - United States 2000," 50 MMWR 1 (Nov. 2000); and whereas nationally in 2000, sixty nine percent of middle school age children who smoke at least once a month were not asked to show proof of age when purchasing cigarettes (Id.); and whereas the U.S. Department of Health and Human Services has concluded that nicotine is as addictive as cocaine or heroin; and whereas despite state laws prohibiting the sale of tobacco products to minors, access by minors to tobacco products is a major problem; now, therefore it is the intention of the Wellfleet Board of Health to curtail the access of tobacco products by minors.~~

~~4002 Authority:~~

~~This regulation is promulgated pursuant to the authority granted to the Wellfleet Board of Health by Massachusetts General Laws Chapter 111, Section 31 that "Boards of Health may make reasonable health regulations"~~

~~4003 Definitions:~~

~~For the purpose of this regulation, the following words shall have the following meanings:~~

~~Business Agent: An individual who has been designated by the owner or operator of any establishment to be the manager or otherwise in charge of said establishment.~~

~~Employee: Any individual who performs services for an employer.~~

~~Employer: Any individual, partnership, association, corporation, trust or other organized group of individuals, including Wellfleet or any agency thereof, which uses the services of one (1) or more employees.~~

~~Minor: Any individual who is under the age of eighteen (18).~~

~~Permit Holder: Any person engaged in the sale or distribution of tobacco products directly to consumers who applies for and receives a tobacco sales permit or any person who is required to apply for a tobacco sales permit pursuant to these regulations, or his or her business agent.~~

~~Person: An individual, employer, employee, retail store manager or owner, or the owner or operator of any establishment engaged in the sale or distribution of tobacco products directly to consumers.~~

~~Self Service Display: Any display from which customers may select a tobacco product without assistance from an employee or store personnel, excluding vending machines.~~

~~Tobacco Product: Cigarettes, cigars, chewing tobacco, pipe tobacco, bidis, snuff or tobacco in any of its forms.~~

~~Vending Machine: Any automated or mechanical self service device, which upon insertion of money, tokens or any other form of payment, dispenses cigarettes or any other tobacco product.~~

~~4004 Tobacco Sales to Minors Prohibited:~~

~~1. No person shall sell tobacco products or permit tobacco products to be sold to a minor; or not being the minor's parent or legal guardian, give tobacco products to a minor.~~
~~2. In conformance with and in addition to Massachusetts General Law, Chapter 270, Section 7, a copy of Massachusetts General Laws, Chapter 270, Section 6, shall be posted conspicuously by the owner or other person in charge thereof in the shop or other place used to sell tobacco products at retail. The notice shall be provided by the Massachusetts Department of Public Health and made available from the Wellfleet Board of Health. The notice shall be at least 48 square inches and shall be posted conspicuously by the permit holder in the retail establishment or other place in such a manner so that it may be readily seen by a person standing at or approaching the cash register. The notice shall directly face the purchaser and shall not be obstructed from view or placed at a height of less than four (4) feet or greater than nine (9) feet from the floor.~~

3. Identification: Each person selling or distributing tobacco products shall verify the age of the purchaser by means of government-issued photographic identification containing the bearer's date of birth that the purchaser is 18 years old or older. Verification is required for any person under the age of 27.

4. All retail sales of tobacco must be face-to-face between the seller and the buyer.

4005 Sales Permit:

1. No person shall sell or otherwise distribute tobacco at retail within Wellfleet without first obtaining a tobacco sales permit issued annually by the Wellfleet Board of Health.

2. As part of the tobacco sales permit application process, the applicant will be provided with the Wellfleet Board of Health regulation. Each applicant is required to sign a statement declaring that the applicant has read said regulation and that the applicant is responsible for instructing any and all employees who will be responsible for tobacco sales regarding both state laws regarding the sale of tobacco and this regulation.

3. Each applicant is required to provide proof of a current tobacco sales license issued by the Massachusetts Department of Revenue before a tobacco sales permit can be issued.

4. The fee for a tobacco sales permit shall be determined by the Wellfleet Board of Health and Wellfleet Board of Selectmen. All such permits shall be renewed annually by January 1.

5. A separate permit is required for each retail establishment selling tobacco.

6. Each tobacco sales permit shall be displayed at the retail establishment in a conspicuous place.

7. No tobacco sales permit holder shall allow any employee to sell cigarettes or other tobacco products until such employee reads this regulation and state laws regarding the sale of tobacco and signs a statement, a copy of which will be placed on file in the office of the employer, that he/she has read the regulation and applicable state laws.

8. A tobacco sales permit is non-transferable, except a new permit will be issued to a retailer who changes location.

9. Issuance of a tobacco sales permit shall be conditioned on an applicant’s consent to unannounced, periodic inspections of his/her retail establishment to ensure compliance with this regulation.

4006 Out-of-Package Sales:

No person may sell or cause to be sold or distribute or cause to be distributed, any cigarette package that contains fewer than twenty (20) cigarettes, including single cigarettes.

4007 Self Service Displays:

~~All self service displays of tobacco products are prohibited. All humidors including, but not limited to, walk-in humidors must be locked.~~

~~4008. Tobacco Vending Machines:~~

~~All tobacco vending machines are prohibited.~~

~~4009 Violations:~~

~~1. It shall be the responsibility of the permit holder and/or his or her business agent to ensure compliance with all sections of this regulation pertaining to his or her distribution of tobacco. The violator shall receive:~~

~~a. In the case of a first violation, a fine of one hundred dollars ($100.00).~~

~~b. In the case of a second violation within 18 months of the date of the current violation, a fine of two hundred dollars ($200.00) and the tobacco sales permit shall be suspended for seven (7) consecutive business days.~~

~~c. In the case of three or more violations within an 18 month period, a fine of three hundred dollars ($300.00) and the tobacco sales permit shall be suspended for thirty (30) consecutive business days.~~

~~2. Refusal to cooperate with inspections pursuant to this regulation shall result in the suspension of the tobacco sales permit for thirty (30) consecutive business days.~~

~~3. In addition to the monetary fines set above, any permit holder who engages in the sale or distribution of tobacco products directly to a consumer while his or her permit is suspended shall be subject to the suspension of all Board of Health issued permits for thirty (30) consecutive business days.~~

~~4. The Wellfleet Board of Health shall provide notice of the intent to suspend a tobacco sales permit, which notice shall contain the reasons therefore and establish a time and date for a hearing which date shall be no earlier than seven (7) days after the date of said notice. The permit holder or its business agent shall have an opportunity to be heard at such hearing and shall be notified of the Board of Health's decision and the reasons therefore in writing. The Wellfleet Board of Health after a hearing, may suspend the tobacco sales permit. All tobacco products shall be removed from the retail establishment upon suspension of the tobacco sales permit. Failure to remove all tobacco products shall constitute a separate violation of this regulation.~~

~~5. Any permit holder who does not pay the assessed fine within twenty-one days from fine issuance may be subject to criminal proceedings.~~

~~4010 Non-Criminal Disposition:~~

~~Whoever violates any provision of this regulation may be penalized by the non-criminal method of disposition as provided in General Laws, Chapter 40, Section 21 D or by filing a criminal complaint at the appropriate venue.~~

~~Each day any violation exists shall be deemed to be a separate offense.~~

~~4011 Enforcement:~~

~~Enforcement of this regulation shall be by the Board of Health of Wellfleet or its designated agent(s).~~

~~Any citizen who desires to register a complaint pursuant to the regulation may do so by contacting the Board of Health of Wellfleet or its designated agent(s) and the Board shall investigate.~~

~~4012 Severability:~~

~~If any provision of these regulations is declared invalid or unenforceable, the other provisions shall not be affected thereby but shall continue in full force and effect.~~

4000: Tobacco Control (Effective January 1, 2018)

4001: Statement of Purpose:

Whereas there exists conclusive evidence that tobacco smoking causes cancer, respiratory and cardiac diseases, negative birth outcomes, irritations to the eyes, nose and throat[1];

Whereas the U.S. Department of Health and Human Services has concluded that nicotine is as addictive as cocaine or heroin[2] and the Surgeon General found that nicotine exposure during adolescence, a critical window for brain development, may have lasting adverse consequences for brain development,[3] and that it is addiction to nicotine that keeps youth smoking past adolescence.[4]

Whereas a Federal District Court found that Phillip Morris, RJ Reynolds and other leading cigarette manufacturers "spent billions of dollars every year on their marketing activities in order

[1] Center for Disease Control and Prevention, (CDC) (2012), *Health Effects of Cigarette Smoking Fact Sheet.* Retrieved from*:* http://www.cdc.gov/tobacco/data_statistice/fact_sheets/health_effects/effects_cig_smoking/index.htm.
[2] CDC (2010), *How Tobacco Smoke Causes Disease: The Biology and Behavioral Basis for Smoking-Attributable Disease*. Retrieved from: http://www.cdc.gov/tobacco/data_statistics/sgr/2010/.
[3] U.S. Department of Health and Human Services. 2014. *The Health Consequences of Smoking – 50 Years of Progress: A Report of the Surgeon General*. Atlanta: U.S. National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, p. 122. Retrieved from: http://www.surgeongeneral.gov/library/reports/ 50-years-of-progress/full-report.pdf.
[4] Id. *at* Executive Summary p. 13. Retrieved from: http://www.surgeongeneral.gov/library/reports/50-years-of-progress/exec-summary.pdf

to encourage young people to try and then continue purchasing their cigarette products in order to provide the replacement smokers they need to survive" and that these companies were likely to continue targeting underage smokers[5];

Whereas more than 80 percent of all adult smokers begin smoking before the age of 18, more than 90 percent do so before leaving their teens, and more than 3.5 million middle and high school students smoke;[6]

Whereas 18.1 percent of current smokers aged <18 years reported that they *usually* directly purchased their cigarettes from stores (i.e. convenience store, supermarket, or discount store) or gas stations, and among 11th grade males this rate was nearly 30 percent ;[7]

Whereas the Institute of Medicine (IOM) concludes that raising the minimum age of legal access to tobacco products to 21 will likely reduce tobacco initiation, particularly among adolescents 15 – 17, which would improve health across the lifespan and save lives[8].

Whereas cigars and cigarillos, can be sold in a single "dose;" enjoy a relatively low tax as compared to cigarettes; are available in fruit, candy and alcohol flavors; and are popular among youth[9];

Whereas research shows that increased cigar prices significantly decreased the probability of male adolescent cigar use and a 10% increase in cigar prices would reduce use by 3.4%[10];

Whereas 59% of high school smokers in Massachusetts have tried flavor cigarettes or flavored cigars and 25.6% of them are current flavored tobacco product users; 95.1 % of 12 – 17 year olds who smoked cigars reported smoking cigar brands that were flavored;[11]

Whereas the Surgeon General found that exposure to tobacco marketing in stores and price discounting increase youth smoking;[12]

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[5] United States v. Phillip Morris, Inc., RJ Reynolds Tobacco Co., et al., 449 F.Supp.2d 1 (D.D.C. 2006) at Par. 3301 and Pp. 1605-07.

[6] SAMHSA, Calculated based on data in 2011 National Survey on Drug Use and Health and U. S. Department of Health and Human services (HHA).

[7] CDC (2013) Youth Risk Behavior, Surveillance Summaries (MMWR 2014: 63 (No SS-04)). Retrieved from: www.cdc.gov.

[8] IOM (Institute of Medicine) 2015. *Public Health Implications of Raising the Minimum Age of Legal Access to Tobacco Products.* Washington DC: The National Academies Press, 2015.

[9] CDC (2009), *Youth Risk Behavior, Surveillance Summaries* (MMWR 2010: 59, 12, note 5). Retrieved from: http:www.cdc.gov/mmwr/pdf/ss/ss5905.pdf.

[10] Ringel, J., Wasserman, J., & Andreyeva, T. (2005) *Effects of Public Policy on Adolescents' Cigar Use: Evidence from the National Youth Tobacco Survey.* American Journal of Public Health, 95(6), 995-998, doi: 10.2105/AJPH.2003.030411 and cited in *Cigar, Cigarillo and Little Cigar Use among Canadian Youth: Are We Underestimating the Magnitude of this Problem?,* J. Prim. P. 2011, Aug: 32(3-4):161-70. Retrieved from: www.nebi.nim.gov/pubmed/21809109.

[11] Massachusetts Department of Public Health, 2015 Massachusetts Youth Health Survey (MYHS); Delneve CD et al., Tob Control, March 2014: Preference for flavored cigar brands among youth, young adults and adults in the USA.

[12] U.S. Department of Health and Human Services. 2012. *Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General*. Atlanta: U.S. National Center for Chronic Disease Prevention and Health

Whereas the federal Family Smoking Prevention and Tobacco Control Act (FSPTCA), enacted in 2009, prohibited candy- and fruit-flavored cigarettes,[13] largely because these flavored products were marketed to youth and young adults,[14] and younger smokers were more likely to have tried these products than older smokers[15], neither federal nor Massachusetts laws restrict sales of flavored non-cigarette tobacco products, such as cigars, cigarillos, smokeless tobacco, hookah tobacco, and electronic devices and the nicotine solutions used in these devices;

Whereas the U.S. Food and Drug Administration and the U.S. Surgeon General have stated that flavored tobacco products are considered to be "starter" products that help establish smoking habits that can lead to long-term addiction;[16]

Whereas the U.S. Surgeon General recognized in his 2014 report that a complementary strategy to assist in eradicating tobacco related death and disease is for local governments to ban categories of products from retail sale;[17]

Whereas the U.S. Centers for Disease Control and Prevention has reported that the current use of electronic cigarettes, a product sold in dozens of flavors that appeal to youth, among middle and high school students tripled from 2013 to 2014;[18]

Whereas 5.8% of Massachusetts youth currently use e-cigarettes and 15.9% have tried them;[19]

Whereas the Massachusetts Department of Environmental Protection has classified liquid nicotine in any amount as an "acutely hazardous waste";[20]

Promotion, Office on Smoking and Health, p. 508-530, *www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/full-report.pdf*.

[13] 21 U.S.C. § 387g.

[14] Carpenter CM, Wayne GF, Pauly JL, et al. 2005. "New Cigarette Brands with Flavors that Appeal to Youth: Tobacco Marketing Strategies." *Health Affairs*. 24(6): 1601–1610; Lewis M and Wackowski O. 2006. "Dealing with an Innovative Industry: A Look at Flavored Cigarettes Promoted by Mainstream Brands." *American Journal of Public Health*. 96(2): 244–251; Connolly GN. 2004. "Sweet and Spicy Flavours: New Brands for Minorities and Youth." *Tobacco Control*. 13(3): 211–212; U.S. Department of Health and Human Services. 2012. *Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General*. Atlanta: U.S. National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, p. 537, *www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/full-report.pdf*.

[15] U.S. Department of Health and Human Services. 2012. *Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General*. Atlanta: U.S. National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, p. 539, *www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/full-report.pdf*.

[16] Food and Drug Administration. 2011. *Fact Sheet: Flavored Tobacco Products*, *www.fda.gov/downloads/TobaccoProducts/ProtectingKidsfromTobacco/FlavoredTobacco/UCM183214.pdf*; U.S. Department of Health and Human Services. 2012. *Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General*. Atlanta: U.S. National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health, p. 539, *www.surgeongeneral.gov/library/reports/preventing-youth-tobacco-use/full-report.pdf*.

[17] *See* fn. 3 at p. 85.

[18] Centers for Disease Control & Prevention. 2015. "Tobacco Use Among Middle and High School Students — United States, 2011–2014," *Morbidity and Mortality Weekly Report (MMWR)* 64(14): 381–385;

[19] Massachusetts Department of Public Health, 2015 Massachusetts Youth Health Survey (MYHS)

[20] 310 CMR 30.136

Whereas in a lab analysis conducted by the FDA, electronic cigarette cartridges that were labeled as containing no nicotine actually had low levels of nicotine present in all cartridges tested, except for one[21];

Whereas according to the CDC's youth risk behavior surveillance system, the percentage of high school students in Massachusetts who reported the use of cigars within the past 30 days is 10.8% in 2013; [22]

Whereas data from the National Youth Tobacco Survey indicate that more than two-fifths of U.S. middle and high school smokers report using flavored little cigars or flavored cigarettes;[23]

Whereas the sale of tobacco products is incompatible with the mission of health care institutions because these products are detrimental to the public health and their presence in health care institutions undermine efforts to educate patients on the safe and effective use of medication, including cessation medication;

Whereas educational institutions sell tobacco products to a younger population, who is particularly at risk for becoming smokers and such sale of tobacco products is incompatible with the mission of educational institutions that educate a younger population about social, environmental and health risks and harms;

Whereas the Massachusetts Supreme Judicial Court has held that " . . . [t]he right to engage in business must yield to the paramount right of government to protect the public health by any rational means"[24].

Now, therefore it is the intention of the Wellfleet Board of Health to regulate the sale of tobacco products.

4002 Authority:
This regulation is promulgated pursuant to the authority granted to the Wellfleet Board of Health by Massachusetts General Laws Chapter 111, Section 31 which states "Boards of health may make reasonable health regulations".

4003 Definitions:
For the purpose of this regulation, the following words shall have the following meanings:

Adult-only retail tobacco store: An establishment that is not required to possess a retail food permit whose primary purpose is to sell or offer for sale but not for resale, tobacco products and tobacco paraphernalia, in which the sale of other products is merely incidental, and in which the

[21] Food and Drug Administration, *Summary of Results: Laboratory Analysis of Electronic Cigarettes Conducted by FDA*, available at: http://www.fda.gov/newsevents/publichealthfocus/ucm173146.htm.
[22] *See* fn. 7.
[23] King BA, Tynan MA, Dube SR, et al. 2013. "Flavored-Little-Cigar and Flavored-Cigarette Use Among U.S. Middle and High School Students." *Journal of Adolescent Health*. [Article in press], *www.jahonline.org/article/S1054-139X%2813%2900415-1/abstract.*
[24] Druzik et al v. Board of Health of Haverhill, 324 Mass.129 (1949).

entry of persons under the minimum legal sales age is prohibited at all times, and maintains a valid permit for the retail sale of tobacco products as required to be issued by the Wellfleet Board of Health.

Blunt Wrap: Any tobacco product manufactured or packaged as a wrap or as a hollow tube made wholly or in part from tobacco that is designed or intended to be filled by the consumer with loose tobacco or other fillers regardless of any content.

Business Agent: An individual who has been designated by the owner or operator of any establishment to be the manager or otherwise in charge of said establishment.

Characterizing flavor: A distinguishable taste or aroma, other than the taste or aroma of tobacco, menthol, mint or wintergreen, imparted or detectable either prior to or during consumption of a tobacco product or component part thereof, including, but not limited to, tastes or aromas relating to any fruit, chocolate, vanilla, honey, candy, cocoa, dessert, alcoholic beverage, herb or spice; provided, however, that no tobacco product shall be determined to have a characterizing flavor solely because of the provision of ingredient information or the use of additives or flavorings that do not contribute to the distinguishable taste or aroma of the product.

Cigar: Any roll of tobacco that is wrapped in leaf tobacco or in any substance containing tobacco with or without a tip or mouthpiece not otherwise defined as a cigarette under Massachusetts General Law, Chapter 64C, Section 1, Paragraph 1.
Component part: Any element of a tobacco product, including, but not limited to, the tobacco, filter and paper, but not including any constituent.

Constituent: Any ingredient, substance, chemical or compound, other than tobacco, water or reconstituted tobacco sheet, that is added by the manufacturer to a tobacco product during the processing, manufacturing or packaging of the tobacco product. Such term shall include a smoke constituent.

Coupon: Any card, paper, note, form, statement, ticket or other issue distributed for commercial or promotional purposes to be later surrendered by the bearer so as to receive an article, service or accommodation without charge or at a discount price.

Distinguishable: Perceivable by either the sense of smell or taste.

Educational Institution: Any public or private college, school, professional school, scientific or technical institution, university or other institution furnishing a program of higher education.

Employee: Any individual who performs services for an employer.

Employer: Any individual, partnership, association, corporation, trust or other organized group of individuals that uses the services of one (1) or more employees.

Flavored tobacco product: Any tobacco product or component part thereof that contains a constituent that has or produces a characterizing flavor. A public statement, claim or indicia made or disseminated by the manufacturer of a tobacco product, or by any person authorized or

permitted by the manufacturer to make or disseminate public statements concerning such tobacco product, that such tobacco product has or produces a characterizing flavor shall constitute presumptive evidence that the tobacco product is a flavored tobacco product.

Health Care Institution: An individual, partnership, association, corporation or trust or any person or group of persons that provides health care services and employs health care providers licensed, or subject to licensing, by the Massachusetts Department of Public Health under M.G.L. c. 112 or a retail establishment that provides pharmaceutical goods and services and is subject to the provisions of 247 CMR 6.00. Health care institutions include, but are not limited to, hospitals, clinics, health centers, pharmacies, drug stores, doctor offices, optician/optometrist offices and dentist offices.

Liquid Nicotine Container: A bottle or other vessel which contains nicotine in liquid or gel form, whether or not combined with another substance or substances, for use in a tobacco product, as defined herein. The term does not include a container containing nicotine in a cartridge that is sold, marketed, or intended for use in a tobacco product, as defined herein, if the cartridge is prefilled and sealed by the manufacturer and not intended to be open by the consumer or retailer.

Listed or non-discounted price: The higher of the price listed for a tobacco product on its package or the price listed on any related shelving, posting, advertising or display at the place where the tobacco product is sold or offered for sale plus all applicable taxes if such taxes are not included in the state price, and before the application of any discounts or coupons.

Minimum Legal Sales Age (MLSA): The age an individual must be before that individual can be sold a tobacco product in the municipality.

Non-Residential Roll-Your-Own (RYO) Machine: A mechanical device made available for use (including to an individual who produces cigars, cigarettes, smokeless tobacco, pipe tobacco, or roll-your-own tobacco solely for the individual's own personal consumption or use) that is capable of making cigarettes, cigars or other tobacco products. RYO machines located in private homes used for solely personal consumption are not Non-Residential RYO machines.

Permit Holder: Any person engaged in the sale or distribution of tobacco products who applies for and receives a tobacco product sales permit or any person who is required to apply for a Tobacco Product Sales Permit pursuant to these regulations, or his or her business agent.

Person: Any individual, firm, partnership, association, corporation, company or organization of any kind, including but not limited to, an owner, operator, manager, proprietor or person in charge of any establishment, business or retail store.

Self-Service Display: Any display from which customers may select a tobacco product, as defined herein, without assistance from an employee or store personnel.
Schools: Public or private elementary or secondary schools.

Smoke Constituent: Any chemical or chemical compound in mainstream or sidestream tobacco smoke that either transfers from any component of the tobacco product to the smoke or that is

formed by the combustion or heating of tobacco, additives or other component of the tobacco product.

Smoking Bar: An establishment that primarily is engaged in the retail sale of tobacco products for consumption by customers on the premises and is required by Mass. General Law Ch. 270, §22 to maintain a valid permit to operate a smoking bar issued by the Massachusetts Department of Revenue. "Smoking bar" shall include, but not be limited to, those establishments that are commonly known as "cigar bars" and "hookah bars".

Tobacco Product: Any product containing, made, or derived from tobacco or nicotine that is intended for human consumption, whether smoked, chewed, absorbed, dissolved, inhaled, snorted, sniffed, or ingested by any other means, including, but not limited to: cigarettes, cigars, little cigars, chewing tobacco, pipe tobacco, snuff; or electronic cigarettes, electronic cigars, electronic pipes, electronic hookah, liquid nicotine, "e-liquids" or other similar products, regardless of nicotine content, that rely on vaporization or aerosolization. "Tobacco product" includes any component or part of a tobacco product. "Tobacco product" does not include any product that has been approved by the United States Food and Drug Administration either as a tobacco use cessation product or for other medical purposes and which is being marketed and sold or prescribed solely for the approved purpose.

Vending Machine: Any automated or mechanical self-service device, which upon insertion of money, tokens or any other form of payment, dispenses or makes cigarettes or any other tobacco products, as defined herein.

4004 Tobacco Sales to Persons Under the Minimum Legal Sales Age Prohibited:

1. No person shall sell tobacco products or permit tobacco products, as defined herein, to be sold to a person under the minimum legal sales age; or not being the individual's parent or legal guardian, give tobacco products, as defined herein, to a person under the minimum legal sales age. The minimum legal sales age in Wellfleet is twenty-one (21).
2. Required Signage:
    a. In conformance with and in addition to Massachusetts General Law, Chapter 270, Section 7, a copy of Massachusetts General Laws, Chapter 270, Section 6, shall be posted conspicuously by the owner or other person in charge thereof in the shop or other place used to sell tobacco products at retail. The notice shall be provided by the Massachusetts Department of Public Health and made available from the Wellfleet Board of Health. The notice shall be at least 48 square inches and shall be posted conspicuously by the permit holder in the retail establishment or other place in such a manner so that it may be readily seen by a person standing at or approaching the cash register. The notice shall directly face the purchaser and shall not be obstructed from view or placed at a height of less than 4 feet or greater than 9 feet from the floor. The owner or other person in charge of a shop or other place used to sell tobacco products at retail shall conspicuously post any additional signs required by the Massachusetts Department of Public Health. The owner or other person in charge of a shop or other place used to sell hand rolled cigars must display a warning about cigar consumption in a sign at least 50 square inches pursuant to 940 CMR 22.06 (2) (e).

b. The owner or other person in charge of a shop or other place used to sell tobacco products, as defined herein, at retail shall conspicuously post signage provided by the Wellfleet Board of Health that discloses current referral information about smoking cessation.

c. The owner or other person in charge of a shop or other place used to sell tobacco products that rely on vaporization or aerosolization, as defined herein as "tobacco products", at retail shall conspicuously post a sign stating that "The sale of tobacco products, including e-cigarettes, to someone under the minimum legal sales age of 21 years is prohibited." The notice shall be no smaller than 8.5 inches by 11 inches and shall be posted conspicuously in the retail establishment or other place in such a manner so that it may be readily seen by a person standing at or approaching the cash register. The notice shall directly face the purchaser and shall not be obstructed from view or placed at a height of less than four (4) feet or greater than nine (9) feet from the floor.

3. Identification: Each person selling or distributing tobacco products, as defined herein, shall verify the age of the purchaser by means of a valid government-issued photographic identification containing the bearer's date of birth that the purchaser is 21 years old or older. Verification is required for any person under the age of 27.
4. All retail sales of tobacco products, as defined herein, must be face-to-face between the seller and the buyer and occur at the permitted location.

4005 <u>Tobacco Product Sales Permit</u>:
1. No person shall sell or otherwise distribute tobacco products, as defined herein, within the Town of Wellfleet without first obtaining a Tobacco Product Sales Permit issued annually by the Wellfleet Board of Health. Only owners of establishments with a permanent, non-mobile location in Wellfleet are eligible to apply for a permit and sell tobacco products, as defined herein, at the specified location in Wellfleet.
2. As part of the Tobacco Product Sales Permit application process, the applicant will be provided with the Wellfleet regulation. Each applicant is required to sign a statement declaring that the applicant has read said regulation and that the applicant is responsible for instructing any and all employees who will be responsible for tobacco product sales regarding federal, state and local laws regarding the sale of tobacco and this regulation.
3. Each applicant who sells tobacco products is required to provide proof of a current Tobacco Retailer License issued by the Massachusetts Department of Revenue, when required by state law, before a Tobacco Product Sales Permit can be issued.
4. A separate permit, displayed conspicuously, is required for each retail establishment selling tobacco products, as defined herein. The fee for which shall be determined by the Wellfleet Board of Health annually.
5. A Tobacco Product Sales Permit is non-transferable. A new owner of an establishment that sells tobacco products, as defined herein, must apply for a new permit. No new permit will be issued unless and until all outstanding penalties incurred by the previous permit holder are satisfied in full.
6. Issuance of a Tobacco Product Sales Permit shall be conditioned on an applicant's consent to unannounced, periodic inspections of his/her retail establishment to ensure compliance with this regulation.

7. A Tobacco Product Sales Permit will not be renewed if the permit holder has failed to pay all fines issued and the time period to appeal the fines has expired and/or the permit holder has not satisfied any outstanding permit suspensions.
8. A Tobacco Product Sales Permit shall not be issued to any new applicant for a retail location within 500 feet of a public or private elementary or secondary school as measured by a straight line from the nearest point of the property line of the school to the nearest point of the property line of the site of the applicant's business premises.
9. Applicants who purchase an existing business that holds a valid Tobacco Product Sales Permit at the time of the sale of said business must apply within sixty (60) days of such sale for the permit held by the Seller if the Buyer intends to sell tobacco products, as defined herein.

4006 Cigar Sales Regulated:
1. No person shall sell or distribute or cause to be sold or distributed a single cigar.

2. No person shall sell or distribute or cause to be sold or distributed any original factory-wrapped package of two or more cigars, unless such package is priced for retail sale at $5.00 or more.

3. This Section shall not apply to:
   ~~a.~~ The sale or distribution of any single cigar having a retail price of two dollars and fifty cents ($2.50) or more.
   a.
   ~~a.~~b. A person or entity engaged in the business of selling or distributing cigars for commercial purposes to another person or entity engaged in the business of selling or distributing cigars for commercial purposes with the intent to sell or distribute outside the boundaries of Wellfleet**.**

4. The Wellfleet Board of Health may adjust from time to time the amounts specified in this Section to reflect changes in the applicable Consumer Price Index by amendment of this regulation.

4007 Sale of Flavored Tobacco Products Prohibited:
No person shall sell or distribute or cause to be sold or distributed any flavored tobacco product, except in smoking bars and adult-only retail tobacco stores.

4008 Prohibition of the Sale of Blunt Wraps:
No person or entity shall sell or distribute blunt wraps in Wellfleet**.**

4009 Free Distribution and Coupon Redemption:
No person shall:
1. Distribute or cause to be distributed, any free samples of tobacco products, as defined herein;

2. Accept or redeem, offer to accept or redeem, or cause or hire any person to accept or redeem or offer
   to accept or redeem any coupon that provides any tobacco product, as defined herein, without

charge or for less than the listed or non-discounted price; or

3. Sell a tobacco product, as defined herein, to consumers through any multi-pack discounts (e.g., "buy-two-get-one-free") or otherwise provide or distribute to consumers any tobacco product, as defined herein, without charge or for less than the listed or non-discounted price in exchange for the purchase of any other tobacco product.

4. Sections 2 and 3 shall not apply to products, such as cigarettes, for which there is a state law prohibiting them from being sold as loss leaders and for which a minimum retail price is required by state law.

4010 Out-of-Package Sales:

1. The sale or distribution of tobacco products, as defined herein, in any form other than an original factory-wrapped package is prohibited, including the repackaging or dispensing of any tobacco product, as defined herein, for retail sale. No person may sell or cause to be sold or distribute or cause to be distributed any cigarette package that contains fewer than twenty (20) cigarettes, including single cigarettes.

2. A retailer of Liquid Nicotine Containers must comply with the provisions of 310 CMR 30.000, and must provide the Wellfleet Board of Health with a written plan for disposal of said product, including disposal plans for any breakage, spillage or expiration of the product.

3. All retailers must comply with 940 CMR 21.05 which reads: “It shall be an unfair or deceptive act or practice for any person to sell or distribute nicotine in a liquid or gel substance in Massachusetts after March 15, 2016 unless the liquid or gel product is contained in a child-resistant package that, at a minimum, meets the standard for special packaging as set forth in 15 U.S. C.§§1471 through 1476 and 16 CFR §1700 et. Seq.”

4011 Self-Service Displays:

All self-service displays of tobacco products, as defined herein, are prohibited. All humidors including, but not limited to, walk-in humidors must be locked.

4012 Vending Machines:

All vending machines containing tobacco products, as defined herein, are prohibited.

4013 Non-Residential Roll-Your-Own Machines:

All Non-Residential Roll-Your-Own machines are prohibited.

4014 Prohibition of the Sale of Tobacco Products by Health Care Institutions:

No health care institution located in Wellfleet shall sell or cause to be sold tobacco products, as defined herein. No retail establishment that operates or has a health care institution within it, such as a pharmacy, optician/optometrist or drug store, shall sell or cause to be sold tobacco products, as defined herein.

4015 Prohibition of the Sale of Tobacco Products by Educational Institutions:
No educational institution located in Wellfleet shall sell or cause to be sold tobacco products, as defined herein. This includes all educational institutions as well as any retail establishments that operate on the property of an educational institution.

4016 Incorporation of Attorney General Regulation 940 CMR 21.00:

The sale or distribution of tobacco products, as defined herein, must comply with those provisions found at 940 CMR 21.00 ("Sale and Distribution of Cigarettes, Smokeless Tobacco Products, and Electronic Smoking Devices in Massachusetts").

4017 Violations:
1. It shall be the responsibility of the establishment, permit holder and/or his or her business agent to ensure compliance with all sections of this regulation. The violator shall receive:

a. In the case of a first violation, a fine of one hundred dollars ($100.00).
b. In the case of a second violation within 24 months of the date of the current violation, a fine of two hundred dollars ($200.00) and the Tobacco Product Sales Permit shall be suspended for seven (7) consecutive business days.
c. In the case of three or more violations within a 24 month period, a fine of three hundred dollars ($300.00) and the Tobacco Product Sales Permit shall be suspended for thirty (30) consecutive business days.
d. In the case of four violations or repeated, egregious violations of this regulation within a 24 month period, the Board of Health shall hold a hearing in accordance with subsection 4 of this section and may permanently revoke a Tobacco Product Sales Permit.

2. Refusal to cooperate with inspections pursuant to this regulation shall result in the suspension of the Tobacco Product Sales Permit for thirty (30) consecutive business days.

3. In addition to the monetary fines set above, any permit holder who engages in the sale or distribution of tobacco products while his or her permit is suspended shall be subject to the suspension of all Board of Health issued permits for thirty (30) consecutive business days.

4. The Wellfleet Board of Health shall provide notice of the intent to suspend or revoke a Tobacco Product Sales Permit, which notice shall contain the reasons therefor and establish a time and date for a hearing which date shall be no earlier than seven (7) days after the date of said notice. The permit holder or its business agent shall have an opportunity to be heard at such hearing and shall be notified of the Board of Health's decision and the reasons therefor in writing. After a hearing, the Wellfleet Board of Health may suspend or revoke the Tobacco Product Sales Permit if the Board of Health finds that a violation of this regulation occurred. For purposes of such suspensions or revocations, the Board shall make the determination notwithstanding any separate criminal or non-criminal proceedings brought in court hereunder or under the Massachusetts General Laws for the same offense. All tobacco products, as defined herein, shall be removed from the retail establishment upon suspension or revocation of the Tobacco Product Sales Permit. Failure to remove all tobacco products, as defined herein, shall constitute a separate violation of this regulation.

4018 Non-Criminal Disposition:
Whoever violates any provision of this regulation may be penalized by the non-criminal method of disposition as provided in Massachusetts General Laws, Chapter 40, Section 21D or by filing a criminal complaint at the appropriate venue.

4019 Separate Violations: Each day any violation exists shall be deemed to be a separate offense.

4020 Enforcement:
Enforcement of this regulation shall be by the Wellfleet Board of Health or its designated agent(s).
Any resident who desires to register a complaint pursuant to the regulation may do so by contacting the **Wellfleet** Board of Health or its designated agent(s) and the Board shall investigate.

4021 Severability:
If any provision of this regulation is declared invalid or unenforceable, the other provisions shall not be affected thereby but shall continue in full force and effect.

5000 REGULATIONS OF THE STATE OF MASSACHUSETTS

The following regulations are incorporated into this document:

A. 105 CMR 123.000, Tanning Facilities
B. 105 CMR 410.000, Minimum Standards of Fitness for Human Habitation: State Sanitary Code, Chapter II
C. 310 CMR 22.00, Massachusetts Drinking Water Regulations
D. 310 CMR 15.000, State Environmental Code, Title 5
E. 105 CMR 590.000 – 595.000, Vending Machines and State Sanitary Code for Food Establishments, Article X
F. 105 CMR 435.000, State Sanitary Code, Chapter V, Minimum Standards for Swimming Pools.

6000 TEMPORARY REGULATIONS

6001 (Moratorium adopted 12/16/85 by the Board of Selectmen acting as the Board of Health on approval of well and septic system permits on certain parcels of land.) Regulation rescinded in its entirety.

7000 PROCEDURES

7001 The Board of Health shall establish fees for the activities under its jurisdiction, and maintain, for public inspection, a current schedule of such fees.

7002 Variances

Requests for variance from Title 5 and/or the Wellfleet Board of Health Regulations must be made in writing, and must state the specific variance(s) sought and the reasons therefore. This letter shall be accompanied by a list of all abutters. Abutters are to be notified by the applicant per current Board of Health procedures of the time and place of the hearing during which the request will be heard. (Abutters must be notified 10 days in advance of the hearing by certified mail and proof of notification must be presented at the time of the hearing.) When the applicant wishes to install a septic system, the letter requesting the variance(s) shall be accompanied by (1) an application for a Disposal Works Construction Permit and payment for said permit, (2) engineered plans for the proposed disposal system, (3) floor plans for the building(s) to be served, (4) well water test results, (5) well construction record when a new well is involved. These materials must be in the Health Department at 12:00 PM a minimum of 1 week prior to the meeting date.

7003 Violations

When the Board of Health/Health Agent considers a regulation is being violated penalties will be initiated as follows:

A. Criminal Complaint – Whoever violates any provision of these rules and regulations may be penalized by indictment or on complaint brought in District Court. Except as may otherwise be provided by law, and, as District Court may see

fit to impose, the maximum penalty for any violation of these provisions shall be $300 for each offense.

B. Non-Criminal Disposition – Whoever violates any provision of these rules and regulations may, in the discretion of the Health Agent, be penalized by a non-criminal complaint in District Court pursuant to the provisions of General Laws, Chapter 40, Section 21D. For the purpose of this provision, any person who violates any provision of these regulations, or any condition issued pursuant to it shall be punished by a fine of not more than $200.00. Each day on which a violation exists shall be deemed to be a separate offense.

C. Violation of Board of Health Regulations may result in the suspension, revocation or alteration of local licenses or permits. (Alterations may include restrictions based on occupancy loading, including, but not necessarily limited to the number of bedrooms, restaurant seats or other mechanisms of protecting public health.

7004 Any person aggrieved by a decision of the Board of Health, or by the failure of the Board to act, may appeal to Superior Court, Barnstable County, pursuant to the provisions of Massachusetts General Laws.

8000 FEE SCHEDULE
(revised 8/7/08)

Permit Type	Fee
Commercial Septic Const. Permit - New Construction	$150.00
- Varianced	$250.00
- Upgrade	$100.00
- Simple Repair	$75.00
Residential Septic Const. Permit - New Construction	$125.00
- Varianced	$200.00
- Upgrade	$75.00
- Simple Repair	$50.00
Real Estate Transfer Septic Waiver	$100.00
Real Estate Transfer Oil Tank Waiver	$150.00
Septic Re-Inspection	$50.00
Well Construction/Replacement Permit	$50.00
Soil Evaluation (Perc Test)	$100.00
Installer's Exam	$25.00
Housing Inspection/ Field Determination, Per unit	$60.00
Food Establishment	
0-50 Seats	$100.00
51-100 Seats	$150.00
Over 100 Seats	$200.00
Temporary Food Establishment	$25.00 per calendar day
Frozen Dessert Manufacturer	$25.00
Mobil Food Service Vendor (Prepared Foods)	$100.00
Mobil Food Service Vendor (Packaged Foods)	$75.00
Retail Food	$100.00
Retail Food / Food Service Establishment	$150.00
Septic Installers	$100.00
Septage Haulers	$100.00
Refuse Haulers	$100.00
Motel/Cabin/Trailer Park Permit	$50.00
Recreational Camp For Children	$50.00
Commercial Pool Permit	$100.00
Residential Pool Installation Permit	$50.00
Tobacco	$100.00
Funeral Director	$100.00
Animal Permit, Per animal or per 3 fowl	$3.00
Stable Permit	$25.00
Tanning Facility	$200.00
Body Art Establishment	$600.00
Body Art Practitioner	$400.00 per person

Town of Wellfleet
Board of Health

Schedule of Fees and Conditions for Solid Waste Disposal at the Wellfleet Transfer Station

EFFECTIVE 7/1/2016

Residential Waste Disposal

1. Resident Vehicle Sticker
   - A. 1st vehicle.....$25.00
   - B. 2nd vehicle.....$10.00
   - C. 3rd vehicle.....$35.00

Stickers are to be permanently affixed to the upper part of the exterior of the rearmost side window on the driver's side of the vehicle, and allow unlimited entry for disposal of reasonable quantities of ordinary household waste from a single residence only. All waste must be in Wellfleet designated "Pay as You Throw" bags.

2. Pay As You Throw Bags
   - A. large (about 33 gallons).....$1.50
   - B. medium (about 15 gallons).....$1.00
   - C. small (about 8 gallons).....$ .50

3. One Time User Fee.....$5.00/bag
Pay as You Throw bags not required however, there is a 35 gallon bag limit.

Commercial Waste Disposal

1. Commercial Business Vehicle Sticker
   - A. small vehicle (<1 ton).....$65.00
   - B. large vehicle (>1 ton).....$95.00

Disposal of waste from hotels, motels, cottage colonies, condominiums, restaurants, and commercial businesses requires a commercial business vehicle sticker.

2. Commercial Refuse Fee
   - A. waste in Pay as You Throw bags.....free
   - B. waste not in Pay as You Throw bags.....$120.00/ton

Commercial Refuse Hauler

1. Commercial Refuse Hauler Vehicle Sticker.....$95.00

2. Commercial Refuse Hauler Residential Refuse Fee.....$30.00/ton
If waste is to be disposed of at the Wellfleet Transfer Station it is required to be in Wellfleet designated "Pay as You Throw" bags.

Construction and Demolition Disposal

1. Construction and Demolition Disposal Fee.....$270.00/ton

Construction and demolition includes sheet rock, bricks, asphalt, shingles, windows, doors, and scrap lumber which is cut into six foot lengths.

Bulk Metal

1. Bulk Metal Disposal Fee.....$40.00/ton

Special Fee Items

Appliances.....$10.00 each

Carpets.....$10.00 each

50 Gallon Drums.....$5.00 each

Mattresses and Box Spring.....$20.00 each

Petroleum Tanks-300 Gallons.....$30.00 each

Propane Tanks- 20 lb Capacity.....$3.00 each

Propane Tanks- >20 lb Capacity.....$20.00 each

Sofas and Chairs.....$10.00 each

Televisions and Computer Monitors.....$10.00 each

Car Tires.....$2.00 each

Truck Tires.....$5.00 each

Water Tanks.....$5.00 each

Toilets.....$5.00 each

Fire Extinguishers.....$6.00 each

Other Bulky Items.....$10.00 each

THERE WILL BE NO FEE FOR RECYCLABLE MATERIALS

ATTACHMENT A

RECYCLING

The following items must be separated for recycling and are accepted at the Transfer Station:

PAPER

- Newspapers / inserts
- Corrugated cardboard, flattened
- No soiled paper
- No plastic bags or waxed cardboard

GLASS

- Glass bottles and jars – clear, green and brown
- Rinse clean, remove lids and corks but neck rings, collars & labels may stay on
- No broken glass or other glass items such as window glass, mirrors, dishes, glasses, Pyrex, ceramics, or light bulbs

METAL

- Tin, steel and aluminum cans and lids
- Deposit and non-deposit beverage cans
- No aluminum foil
- Rinse clean, may flatten, labels may stay on
- No cans containing aerosol or paint

PLASTIC

- Plastic containers labeled 1 and 2 (check bottom of container for number)
- Empty and rinse containers clean, flatten
- No plastic bags or unmarked plastic

YARD WASTE

- Grass, leaves and other easily raked material, loose only – no bags
- Christmas trees
- Branches no larger than 6' length and 2" diameter
- No stumps or vines

BULK METAL

- Large metal items, all rubber removed / extra fee applies
- Appliances – remove doors / extra fee applies

AUTOMOTIVE

- Tires – remove rims / extra fee applies
- Car batteries
- Motor oil
- Antifreeze

SCRAP WOOD

- Clean wood only – no paint or nails
- No particle board

PAINT

- ~~Paints accepted for recycling o~~
- Latex and oil based paints and stains

HORSE MANURE

- One ton of residential horse manure per customer per day
- Manure must be produced from horses with a vegetarian diet

SELECTBOARD

AGENDA ACTION REQUEST

Wellfleet Harbor Targeted Watershed Management Plan Final Draft Report

REQUESTED BY:	**Clean Water Advisory Committee**
DESIRED ACTION:	**To Present the Wellfleet Harbor Targeted Watershed Management Plan Final Draft Report**
PROPOSED MOTION:	
SUMMARY (Optional)	
ACTION TAKEN:	Moved By: _____ Seconded By: _____ Condition(s):
VOTED:	Yea _____ Nay_____ Abstain _____

SCOTT HORSLEY
WATER RESOURCES CONSULTANT

WELLFLEET HARBOR TARGETED WATERSHED MANAGEMENT PLAN

DRAFT FINAL REPORT

18 JUNE 2022

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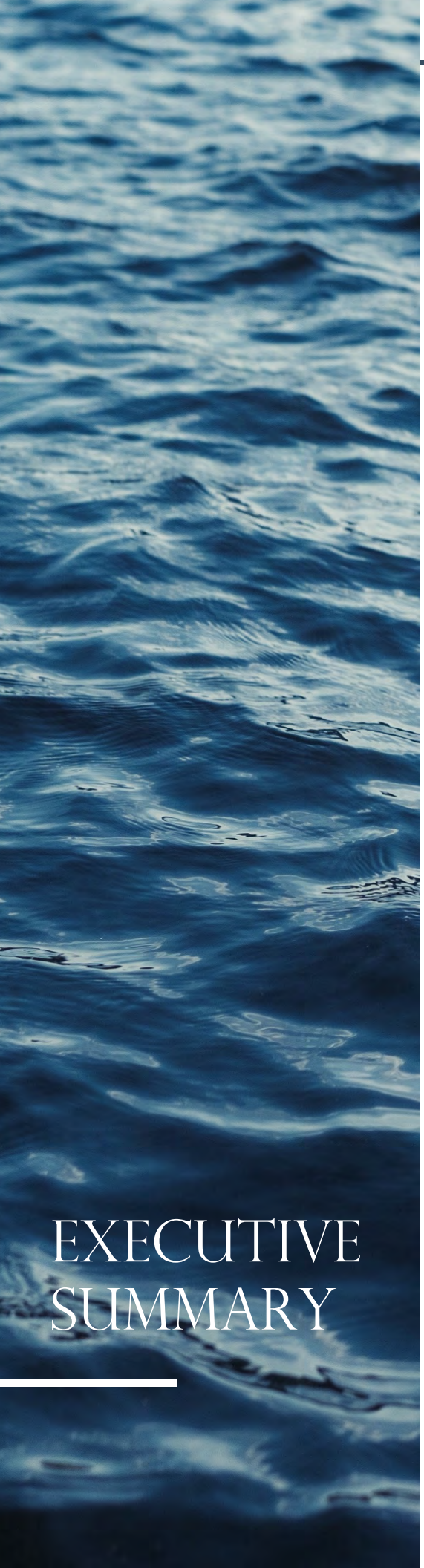


EXECUTIVE SUMMARY

WELLFLEET HARBOR
TARGETED WATERSHED MANAGEMENT PLAN

The goal of this plan is to mitigate water quality impairments, restore marine habitats, and bring the coastal waters associated with Wellfleet Harbor into compliance with the Clean Water Act. The plan is the product of over twenty years of planning and engineering studies and integrates the approaches developed by the Cape Cod 208 Water Quality Plan Update. It is based upon a hybrid approach that integrates both traditional and non-traditional technologies to reduce excessive nitrogen loads. The plan prioritizes those technologies that have lower costs, quicker results, provide local co-benefits (including jobs), and minimize climate impacts. It includes an adaptive management plan that provides for a full evaluation of emergingnature-based technologies backed up with conventional wastewater treatment systems.

The plan includes four phases (five years each) over a 20-year period. The first phase includes a downtown sewer, installation of a new generation of innovative & alternative (I&A) septic systems, the development of a permeable reactive barrier (PRB) pilot project along Commercial Street, salt marsh restoration, the development of a sustainable shellfish habitat program, stormwater retrofits at the Main Street and Route 6 intersection, and the construction of a neighborhood-scale wastewater treatment plant to facilitate an affordable housing project at 95 Lawrence Road that will connect to neighboring municipal facilities.

The second and subsequent phases call for expansion of these strategies based upon performance during the first pilot phase. Contingent upon MADEP's approval of the I&A septic technologies for "general use" these systems could be installed for all upgrades, expansions, new construction, and possibly with real estate transfers. The hybrid plan includes contingencies for the construction of traditional sewers and a wastewater treatment plant to supplement the earlier phases of the plan to meet water quality goals.

1.0 PURPOSE

Water quality in Wellfleet Harbor is impacted by excessive nitrogen inputs from sewage, fertilizers, and stormwater runoff as well as ecosystem losses. This has caused eutrophication of coastal waters and the loss of native eelgrass habitat and an increase in what has been locally termed "black custard" which represents a threat to the shellfish industry. Precipitation and natural sources also contribute nitrogen to the ecosystem. The purpose of this report is to identify and evaluate options to manage the nitrogen inputs and to develop a plan to restore water quality in the Wellfleet coastal waters.

The Targeted Watershed Management Plan is intended as a planning document to assist the town on prioritizing nutrient management strategies and to provide a framework for an adaptive management plan as a guide to developing more site-specific options for the implementation of individual projects. This Plan incorporates both traditional wastewater collection and treatment and non-traditional strategies. It relies upon existing documents and past studies and does not include any new field investigations. The document is intended to guide the need for additional site investigations and engineering designs.

The overall goals of the plan are as follows:

- Restoration of Ecosystems & Water Quality Compliance with Clean Water Act
- Quicker Results Reduced Costs
- Promote Affordable Housing
- Maximize Local Co-Benefits Minimize Climate Impacts

The specific objectives of this Targeted Watershed Management Plan are to:

- Compile prior plans and to update them in accordance with the findings of the recent Massachusetts Estuary Project (MEP) report,
- Compare the proposed nitrogen removals against the required threshold levels for Wellfleet Harbor established by the MEP report,
- Identify gaps and overlaps in the collective plans for nitrogen removal,
- Identify actions that may be helpful in improving the cost-effectiveness of the combined plans, Document consistency with the Cape Cod Commission's 208 Plan Update, and
- Provide the foundation for a Watershed Permit to be issued by the Massachusetts Department of Environmental Protection (DEP).

2.0 DATA SOURCES AND METHODS

This plan is modeled after the approaches and strategies outlined in the Cape Cod Commission's 2015 Cape Cod Area-Wide Water Quality Plan Update (referred to in this report as the 208 Plan). The 208 Plan was certified by the Governor of Massachusetts and approved by the U.S. Environmental Protection Agency.

It is vital to acknowledge that this plan is the result of over 10 years of prior work, novel demonstration projects and local data collection, without which, many alternative options would not have been possible. The plan was developed in coordination with the Wellfleet Clean Water Advisory Committee (including members Curt Felix, Richard Wulsin, Fred Vanderschmidt, and John Cumbler), and with valuable input from Nancy Civetta (Shellfish Constable), Hillary Greenberg-Lemos (Health and Conservation Agent), and Ryan Curley (Selectboard Chair) and in consultation with the public and many relevant boards in Town. It is also important to acknowledge the past efforts of prior Comprehensive Wastewater Management Committee members and town staff, the pioneering work of George Heufelder of the Barnstable County Department of Health and Environment and founder of the Massachusetts Alternative Septic System Test Center, and the cooperative assistance provided by the Massachusetts Department of Environmental Protection, Provincetown Center for Coastal Studies, UMass Boston, USDA and NOAA.

Valuable technical assistance including GIS analyses, Watershed Decision Support Tool (MVP) modeling, and advising was provided by the Cape Cod Commission and the Massachusetts Alternative Septic System Test Center (MASSTC). The nitrogen loading analyses and estimated reductions are based upon the Cape Cod Commission's Technology Matrix that was developed and peer reviewed by representatives of USEPA, MADEP, Cape Cod Water Protection Collaborative, The Nature Conservancy, Woods Hole Oceanographic Institution, Marine Biological Laboratory, Massachusetts Alternative Septic System Test Center, Barnstable County Department of Health and Environment, Buzzards Bay Coalition, Cape Cod Commission, and others.

The Town of Wellfleet prepared a Comprehensive Wastewater Management Plan – Interim Needs Assessment and Alternatives Analysis Report (2001) and a Draft Comprehensive Wastewater Management Plan; Phase II – Alternatives Analysis (2014). The Town of Eastham has completed a Needs Assessment (2012). The Town of Truro undertook an Integrated Water Resources Management Plan (2012). The Massachusetts Estuary Project (MEP) completed a linked model for Wellfleet Harbor including an assessment of existing and threshold nitrogen loading rates (2017). Additionally, the Cape Cod Commission formulated a Watershed Report for Wellfleet Harbor and the three towns that incorporates the findings of the MEP report. Both the Draft Comprehensive Plan and Cape Cod Commission Report contain potential traditional and non-traditional strategies for reducing the nitrogen loads that are the primary cause for water quality problems. Most recently the Town of Wellfleet

commissioned GHD to conduct a hydrogeologic evaluation of the town's transfer site as a potential wastewater treatment and disposal site (2020).

This analysis incorporates information from the Wellfleet Harbor portion of each town's wastewater management and planning reports and more recent watershed plans prepared by the Cape Cod Commission. The nutrient loading and load reduction information is based on the analyses generated by the Massachusetts Estuaries Project (MEP) and analyzed by the Cape Cod Commission as part of the 208 Plan Update efforts. The MEP report is based upon water quality data collected during the period 2003 – 2011 and land use analysis as of 2010.

This report also incorporates the results and findings of several recent and on-going studies on Cape Cod and Long Island, New York. These include evaluations of various shellfish propagation and permeable reactive barriers (PRBs) by the towns of Wellfleet, Orleans, Eastham, Mashpee, and Falmouth and performance data on a new generation of enhanced innovative & alternative (I&A) septic systems by the Barnstable County Department of Health and Environment, the Massachusetts Alternative Septic System Test Center (MASSTC) and the Center for Clean Water Technology at Stony Brook University, New York.

Recent performance data and costs associated with the traditional and non-traditional technologies were derived from pilot projects in the towns of Wellfleet, Orleans, Eastham, Barnstable, and Falmouth as well as Long Island, New York.

3.0 BACKGROUND

Wellfleet Harbor is the largest coastal embayment on Cape Cod. It is a state-designated Outstanding Resource Water (ORW) associated with the Cape Cod National Seashore. It has also been designated as an Area of Critical Environmental Concern (ACEC) by the Commonwealth of Massachusetts. According to the Cape Cod Commission, the water surface of the Bay covers nearly 11,647 acres and approximately 12,322 acres of land surface are within the watershed.

According to the 2018 Watershed Report prepared by the Cape Cod Commission the watershed is comprised of 5009 parcels, 75% of which are residential. The average density is 2.5 acres/parcel. For modeling purposes, the system has been delineated into seven separate subembayments. The land area contributing groundwater and, thus, nitrogen load to each subembayment is identified as a separate subwatershed.

The MEP study determined that the water quality in most Wellfleet Harbor subembayments is moderately or significantly impaired. So called "controllable" or anthropogenic nitrogen has been identified as the principal contaminant from the following sources: septic systems (78%) stormwater runoff (9%) lawn and golf fertilization (9%) landfill (2%), and farm animals (2%).

It is also interesting to note that when considering all sources of nitrogen (controllable and non-controllable) to the estuary, wastewater comprises 42% and direct precipitation 40% of the total nitrogen loads to the system. Recent research suggests that nitrogen concentrations (and loads) from precipitation have been declining (see Figure 1). If these reductions in nitrogen loads from precipitation can be maintained via continued enforcement of the Clean Air Act (restricting nitrous oxide emissions) this may assist in the restoration efforts.

In another study by Agnes Mittameyer from the Provincetown Center for Coastal Studies, the nitrogen content of "black custard" sediments, a eutrophic by-product, contained 85% nitrogen from phytoplankton and 15% nitrogen from marine vegetation. Therefore, it is clear the Plan must include and does include options for in-estuary nutrient reduction strategies to achieve compliance. This further supports the Plan's balanced approach using a variety of options so that the monitoring results drive the process, ensuring protection of taxpayer resources and ensuring that Plan options ultimately resolve the problem in the most cost-effective manner.

Overall, the MEP determined that 31.2% of the nitrogen loads in 2010 (when the MEP analysis was conducted) must be removed to restore water quality. When considering future buildout conditions as much as 50% of the future nitrogen load must be removed. Individual sub-embayments have variable nitrogen removal needs.

Each of the three towns in the Wellfleet watershed actively participated in the Cape Cod Commission's 208 planning process and contributed to the development of various watershed plans for nitrogen removal for Wellfleet Harbor. These plans were incorporated into the Cape Cod Commission's Watershed Report (2017).

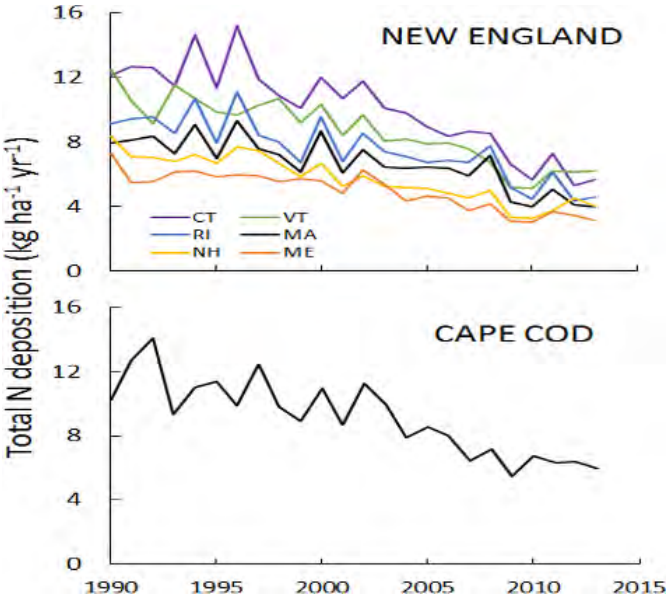


Figure 1 - Declining nitrogen concentrations in precipitation (Lloret and Valiela, 2016)

4.0 NITROGEN LOADS, THRESHOLDS, AND REMOVAL REQUIREMENTS

The existing, buildout, and threshold (target) nitrogen loads are identified in the Massachusetts Estuaries Project (MEP) report (2017). Table VIII-3 of the MEP report identifies "present" daily loads as of 2008-2010 when the land use and water quality analyses were conducted. Converting these values to annual loads indicates that controllable loads for the entire Wellfleet Bay system total 29,105 kg/year.

To update these figures to current (2022) we compiled building permit data from the 2011 – 2020 period and applied the MEP nitrogen loading coefficients. This analysis indicates that 247 additional **or expansions** septic systems (and associated lawns and impervious surfaces) were added during this period resulting in an estimated current nitrogen load of 30,180 kg/year (see Table 1 and Figures 3 and 4).

Table 1 - Nitrogen Thresholds and Required Reductions (kg/year)

	Herring River	Duck Creek	The Cove	Drummer/ Blackfish	Hatches	Wellfleet Harbor	Loagy Bay	Total
Current Watershed Loads (2022)	10421	2047	3736	2798	3605	6636	937	30180
Projected Loads 2042 (20 years)	10901	2166	3976	2975	3845	7010	1005	31878
Buildout Loads	13184	2683	5406	3989	5409	8439	1529	40639
MEP thresholds/Targets	9902	657	1110	1675	3453	3154	434	20385
Reduction Required from Current (2022)	519	1390	2626	1123	152	3482	503	9795
Reduction Required (2042)	999	1509	2866	1300	392	3856	571	11493
Reduction Required from Buildout	3282	2026	4296	2314	1956	5285	1095	20254

An additional nitrogen loading analysis was prepared for the twenty-year planning period (2022 – 2042) as part of this project. This analysis is based upon a projection of building permits and presented in Section 9 of this report. It indicates that the projected future nitrogen load in 2042 is estimated at 31,878 kg/year requiring a reduction of 11,493 kg/year or 39%.

The buildout analysis conducted by MEP indicates the potential addition of 1517 new residential homes within the watershed and a total controllable load of 40,639 kg/year. Controllable loads include wastewater (septic systems), stormwater, and fertilizers. The annual total threshold (target) load is 20385 kg/year. Thus, the required reduction from future potential buildout conditions is 20,254 kg/year or 50%. This underscores the fact that the watershed plan should focus on managing growth to prevent some of the increased loads associated with future development.

It is important to remember that in addition to meeting the overall (total) nitrogen reduction requirements that individual reductions for each subembayment must also be met to restore the whole ecosystem. The individual "threshold changes" indicate the degree of reduction for each subembayment. Table 1 and Figures 2 and 3 provide summaries of loading reductions required to meet MEP thresholds for each subembayment under present (2021), 2042, and buildout conditions.

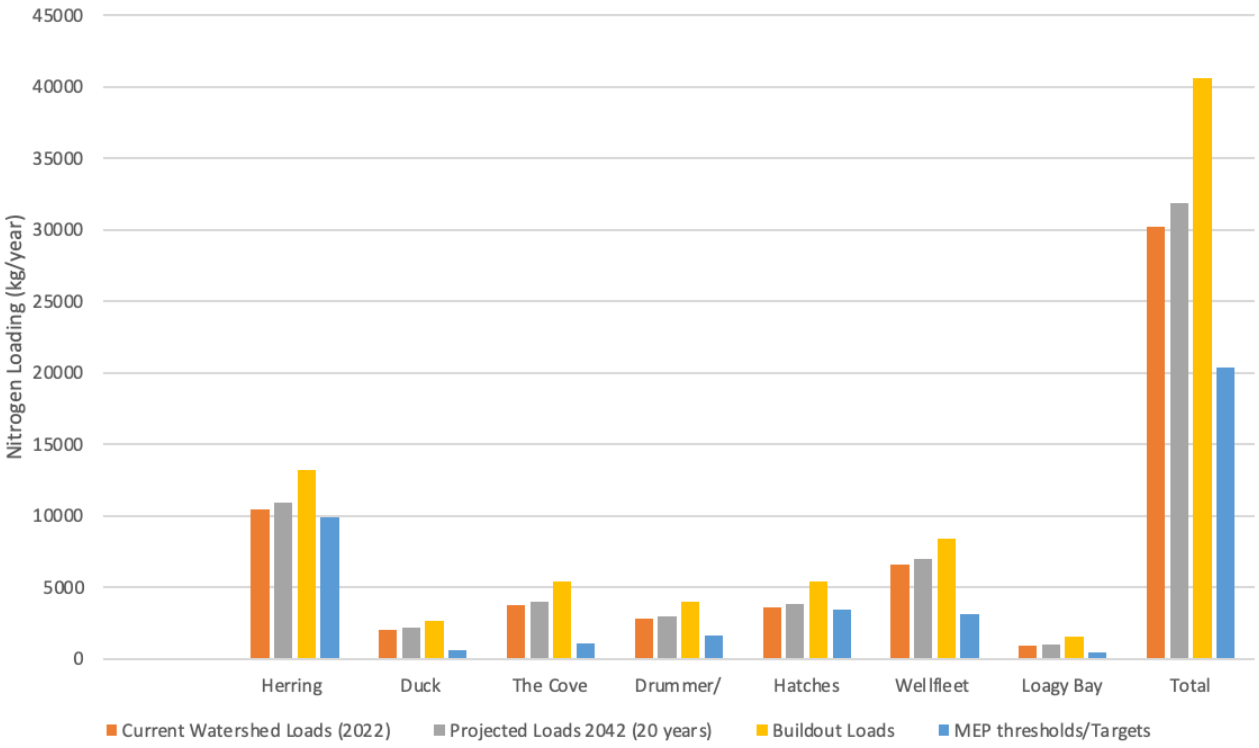


Figure 2 - Required Nitrogen Loads and MEP Thresholds

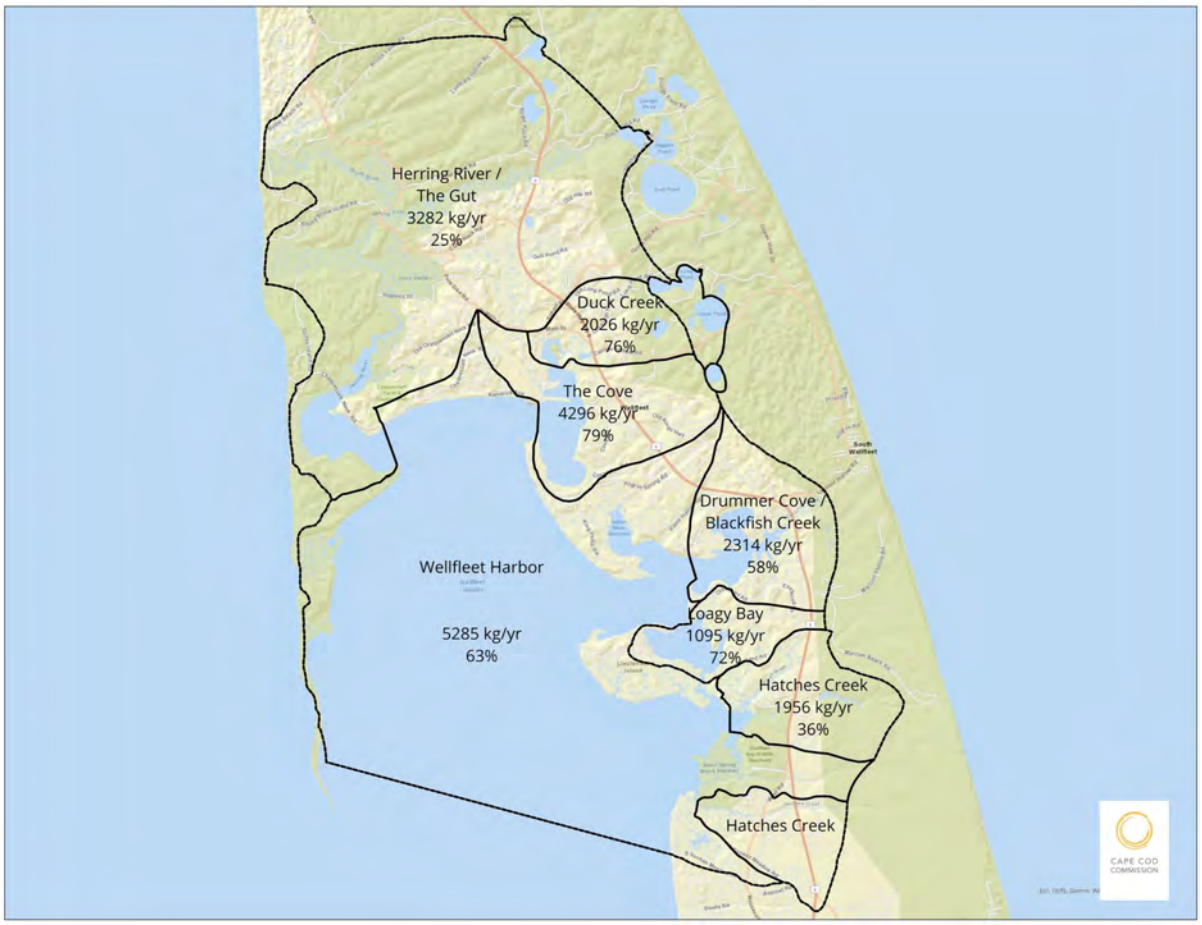


Figure 3 - MEP subwatersheds and required nitrogen loading reductions (at buildout)

5.0 ALLOCATION OF RESPONSIBILITY FOR NITROGEN LOAD REMOVALS

Nitrogen load allocations were calculated as part of the 208-planning process. The approach for calculating allocation of responsibility is documented in chapter 8 of the 208 Plan and a complete breakdown of nitrogen load responsibility by town is provided in appendix 8C of the 208 Plan. According to the 2018 Cape Cod Commission's Watershed Report for Wellfleet Harbor the allocated loads are as follows: Wellfleet 87%, Eastham 11% and Truro 2%. Memoranda of Understanding currently exist between the three towns. Every indication is that they have an excellent working relationship and that we can be optimistic that there will be a cooperative effort and agreement in participating in the implementation of this plan.

6.0 DESCRIPTION OF TOWN PLANS FOR WELLFLEET HARBOR

The Town of Wellfleet has undertaken or participated in three prior projects in the last twenty years to study wastewater needs and potential solutions including downtown wastewater collection options (see figures 4 and 5).

In 2001 Woodard and Curran conducted a comprehensive analysis of water supply and wastewater needs throughout the town. This project analyzed water quality in private wells, evaluated Title 5 compliance, provided a detailed analysis of four study areas. This analysis provided a lot-by-lot analysis within these study areas and identified locations of high nitrates in wells and limitations for compliance with minimum setbacks from wetlands and/or wells. A public water supply system was recommended (and ultimately constructed) to service the downtown area and resolve drinking water quality issues in private wells (see figure 6). The project also identified potential wastewater sewer collection areas in the downtown area and evaluated treatment and disposal sites. As a result a public water system was recommended to alleviate private well water quality issues in the downtown area of Wellfleet. This system was constructed and currently serves the downtown area (see figure 6).

In 2014 Environmental Partners (EP) conducted an updated analysis of potential methods to reduce nitrogen loading. It evaluated a range of technologies including aquaculture, shellfish, I&A septic systems, and central wastewater collection and treatment options. The EP report provided comparative cost estimates for these various technologies on a cost per nitrogen reduction basis ($/kilogram). This analysis suggested that several non-traditional technologies were likely to be most cost effective at reducing nitrogen loads.

In 2014-2015, Cape Cod Commission staff undertook a two-year study of potential nutrient management solutions and identified a broader range of potential solutions including both traditional and non-traditional technologies. More recently the Massachusetts Estuaries Project (MEP) published a detailed assessment of Wellfleet Harbor and has identified specific nutrient reduction targets throughout the town.

7.0 COMPARISON OF PRIOR TOWN PLANS WITH REMOVAL REQUIREMENTS

The prior wastewater engineering studies by Woodard and Curran and Environmental Partners were conducted before the completion of the Massachusetts Estuaries Project (MEP) published in 2017. Thesestudies were undertaken without specific nitrogen load reductions as goals. Instead, they focused on lotsizes, private well water quality data, and Title 5 siting requirements as criteria for identifying potential sewer collection areas.

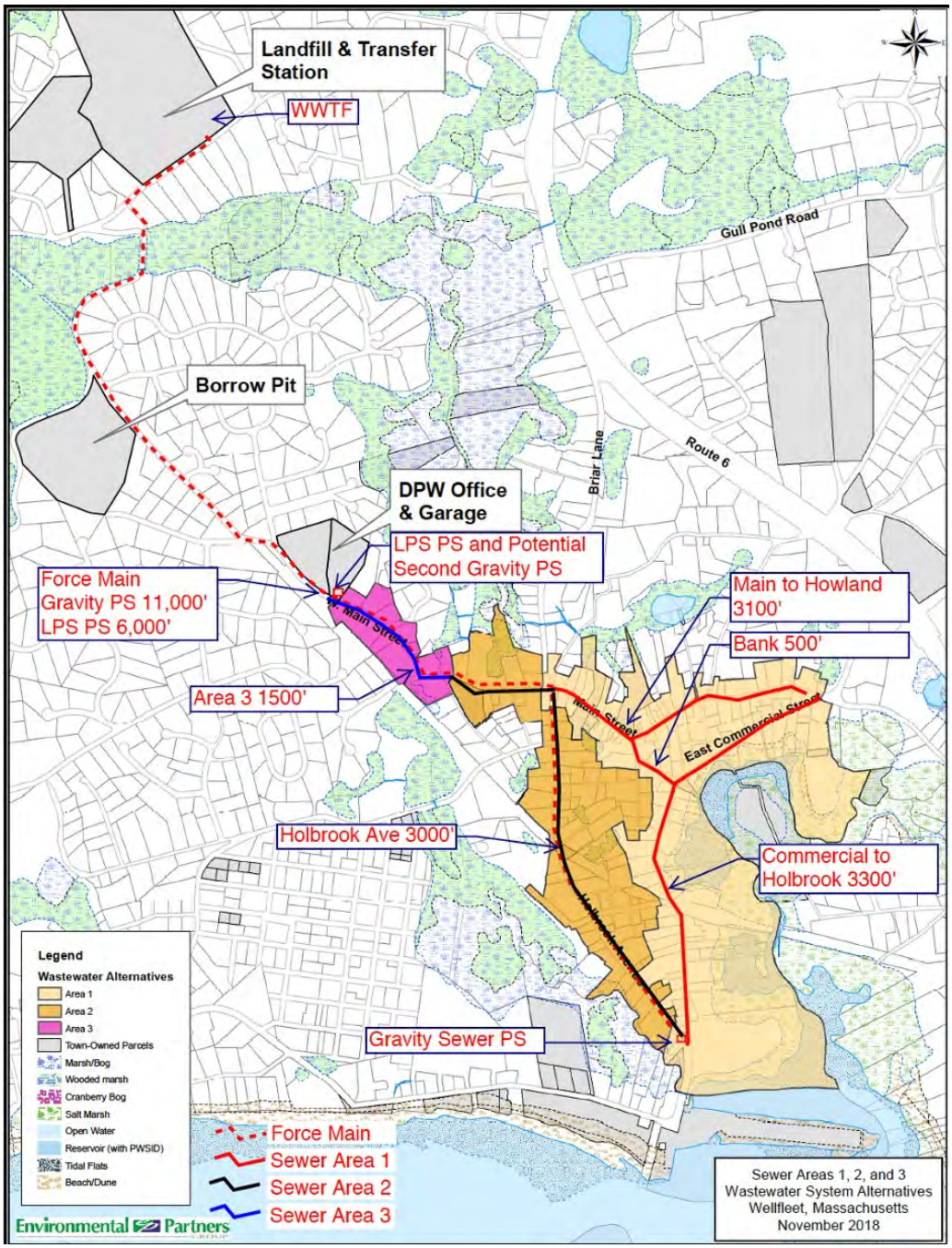


Figure 4 - Potential Sewer Collection Areas (Environmental Partners, 2018)

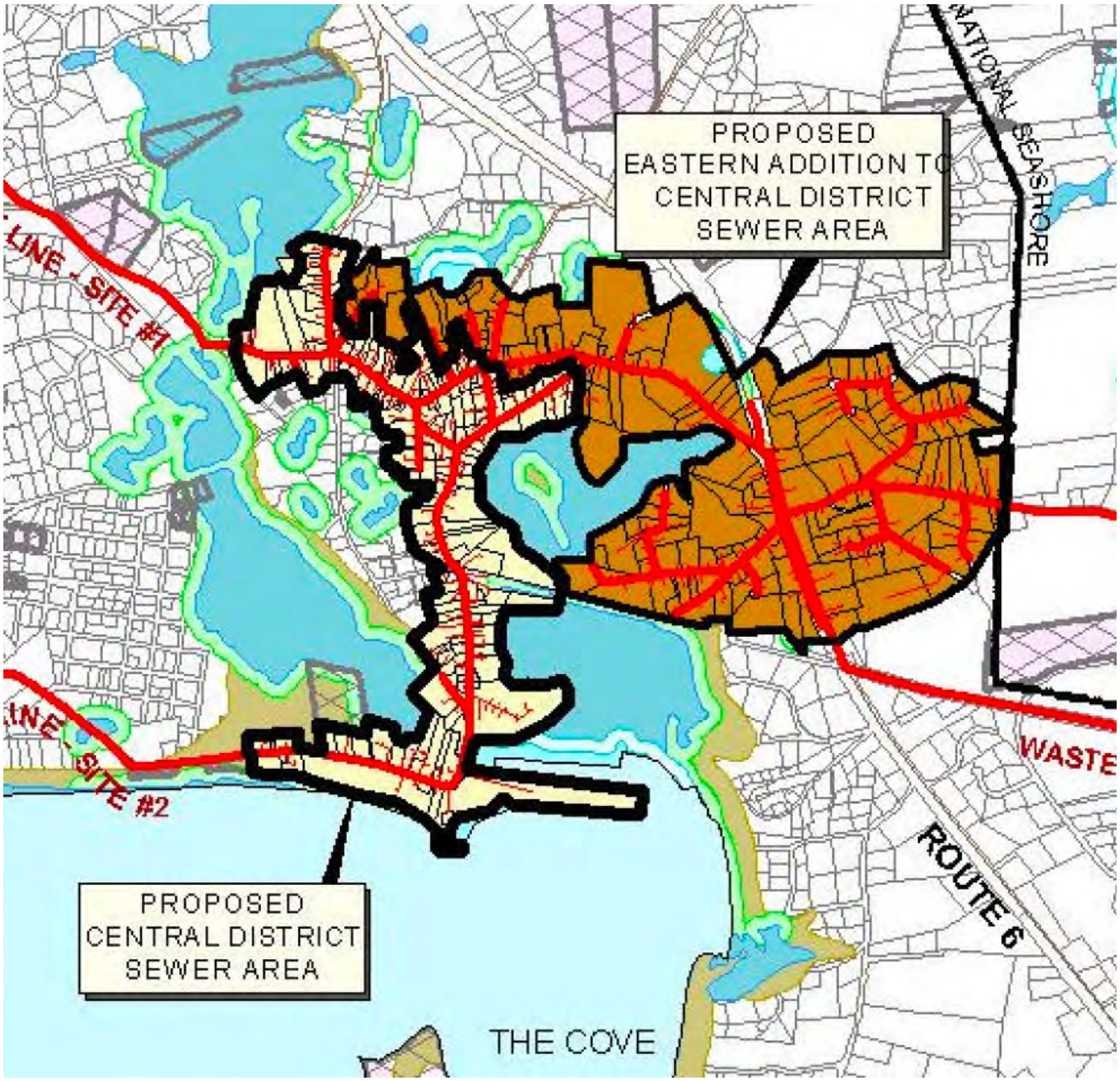


Figure 5 - Potential Sewer Collection Areas (Woodard and Curran, 2001

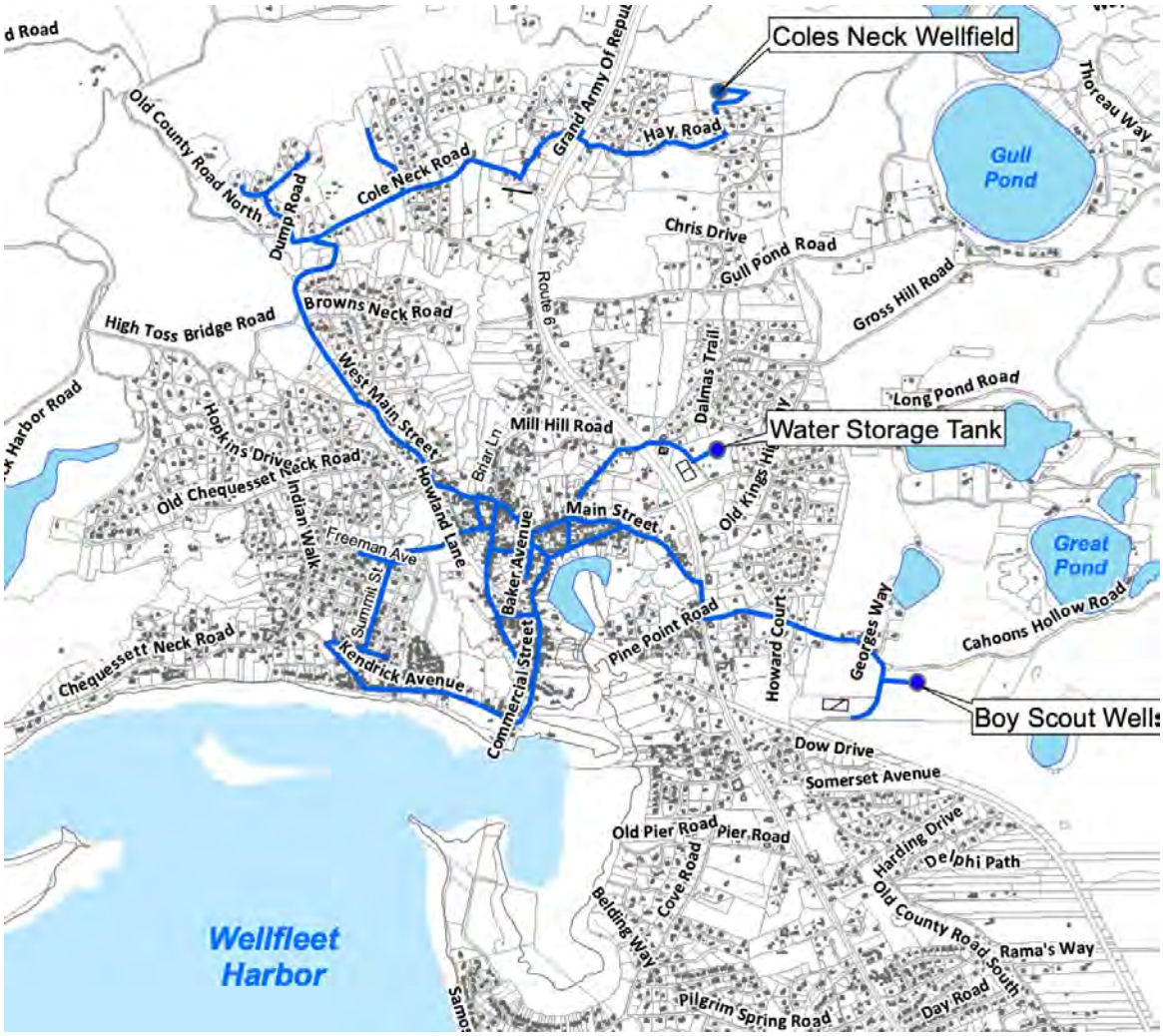


Figure 6 - Public Water Supply Distribution System

8.0 CHOICE OF TECHNOLOGIES

Preliminary traditional and non-traditional plans to reduce nitrogen loads to Wellfleet Harbor were developed as part of the Cape Cod 208 Water Quality Plan Update using the Cape Cod Commission's (CCC) MVP tool, CCC Technologies Matrix and incorporating prior work completed by the Town of Wellfleet. Several public meetings were held during 2014 – 2015 as part of the 208 process to discuss a broad range of 43 nitrogen reduction strategies and to incorporate input from residents and local officials. Additional public meetings were conducted as part of this study to evaluate technology options.

This report incorporates findings from recent in-field studies and reports regarding a new generation of innovative and alternative (I&A) septic systems, permeable reactive barriers and shellfish restoration pilot projects conducted by the towns of Barnstable, Eastham, Falmouth, and Orleans and on-going studies of enhanced I&A septic technologies by the Coalition for Buzzards Bay, Barnstable County Department of Health and Environment, Town of Barnstable, the Barnstable Clean Water Coalition, U.S. Environmental Protection Agency Office of Research & Development, The Nature Conservancy and the Massachusetts Septic System Technology Center.

As part of this study three possible approaches to compliance with the MEP thresholds were considered: 1) a traditional approach relying on conventional wastewater collection systems and treatment plants, and 2) a non-traditional approach relying on a range of nature-based solutions including a new generation of enhanced innovative and alternative (I&A) septic systems, permeable reactive barriers, shellfish, ecosystem restoration, stormwater management, and fertilizer reductions and, 3) a hybrid plan incorporating both traditional and non-traditional technologies.

8.1. TRADITIONAL TECHNOLOGIES

Centralized Wastewater Collection and Treatment: The traditional technologies include sewer collection areas, treatment plant and disposal site. The town's prior reports prepared by Woodard and Curran and Environmental Partners. identified potential sewer service areas and treatment plant/wastewater disposal locations. The current Transfer Station was identified as the recommended wastewater disposal area by Environmental Partners in their March 2014 Comprehensive Wastewater Management Plan, Phase II, Alternatives Analysis (see figure 1). The Town of Wellfleet Transfer station is a 28.1- acre parcel located at 266 Coles Neck Road. The parcel is currently used as a landfill and transfer station.

To determine the required capacity of the disposal site to accept treated wastewater, an analysis

was performed by the Cape Cod Commission staff. This analysis translated the required nitrogen reductions to wastewater flows to meet the MEP thresholds. It also incorporated collection and treatment of a portion of the Herring River watershed as an offset for the potential addition of nitrogen from the wastewater treatment plant effluent. This analysis suggests that the design flow capacity for the wastewater treatment plant at this location would be approximately 340,000 gallons per day (based upon nitrogen loads existing at the time of the MEP report) and 780,000 gallons per day according to the MEP buildout.

In 2020 GHD was retained by the Town of Wellfleet to conduct a hydrologic evaluation of the Transfer Station as a potential wastewater treatment and disposal location. The evaluation included the installation of a monitoring well, determination of depth to water table, percolation tests and a hydraulic loading test. The results of this evaluation indicate that the site can assimilate 780,000 gallons per day. A leaching area of 133,000 square feet was identified at a hydraulic loading rate of 7 gallons/square foot-day.

Neighborhood/Cluster Wastewater Systems: Another traditional treatment option is multiple smaller-scale wastewater treatment systems that can be targeted to specific neighborhoods. These can include smaller shared Title 5 systems that service multiple properties using enhanced innovative & alternative (EIA) technologies (up to 10,000 gallons/day) or small-scale wastewater treatment plants (10,000 gallons/day and greater).

An affordable housing project located at 95 Lawrence Road has been identified as a location for a neighborhood-scale wastewater treatment plant. The site is located within the Duck Creek watershed where a significant nitrogen reduction is required. Utilizing funding provided by the Commonwealth of Massachusetts Department of Housing and Community Development's District Local Technical Assistance program through the Cape Cod Commission, On-Site Engineering evaluated wastewater options for the site. This evaluation considered three options: 1) an innovative and alternative septic system for the housing project alone, 2) a wastewater treatment plant to service the housing development and the three adjacent municipal buildings, and 3) a larger wastewater treatment plant to service the housing development, the municipal buildings and a number of residential homes in the neighborhood. The results of the evaluation indicated that option 3 would provide the most significant nitrogen reduction benefit to Duck Creek and would provide a cost-effective solution (see Figure 7A). This approach was supported at Wellfleet Town Meeting 2021 at which funding was appropriated for the design and permitting of the wastewater treatment facility. A second alternative approach would include only the housing project and the municipal buildings (see Figure 7B). Ultimately this second option was selected for the plan as it was deemed that a downtown collection system would be more cost effective.

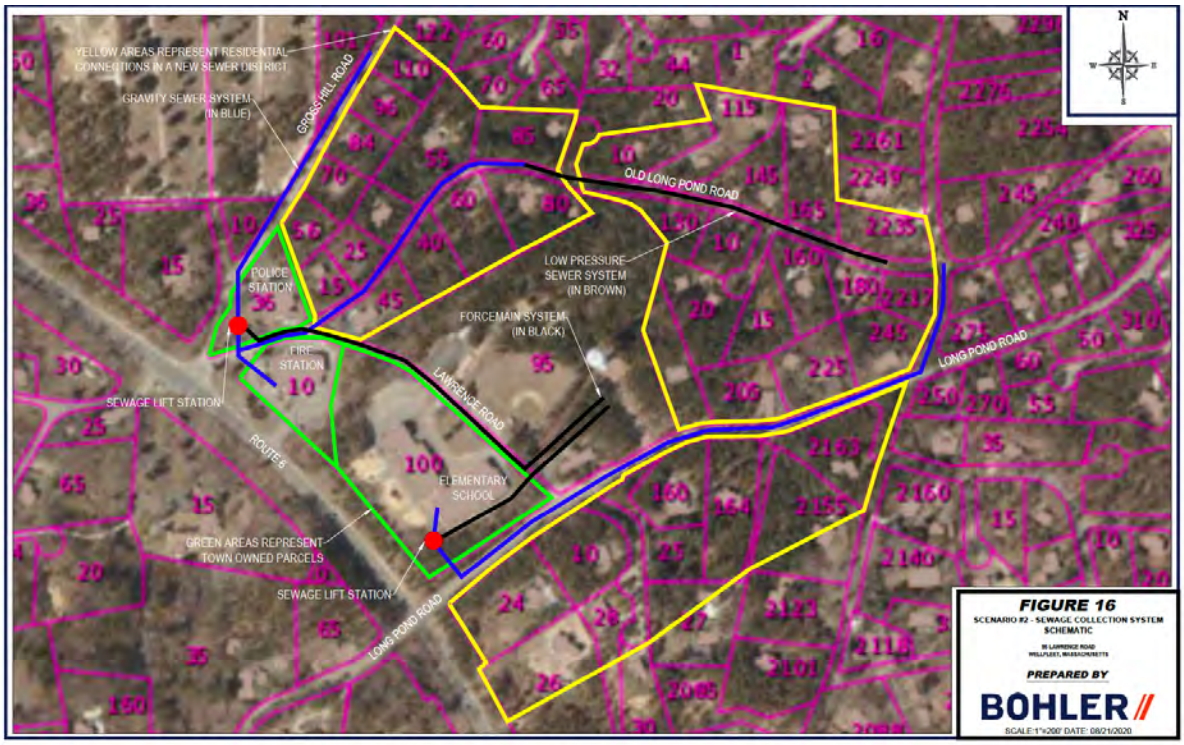


Figure 7A - 95 Lawrence Road project - Neighborhood Wastewater Sewershed A

Figure 7B - 95 Lawrence Road project – Muncipal Buildings Wastewater Sewershed B

Additional neighborhood/cluster systems could be utilized in other higher-density areas throughout the town. The 2001 Woodard and Curran report identified several study areas where limitations for on-site septic systems were analyzed. These include the Wellfleet Center downtown, South Wellfleet, and South of Wellfleet Center areas (see figure 8). These areas included elevated nitrate concentrations in private wells and small lot areas where Title 5 setback variances were required.

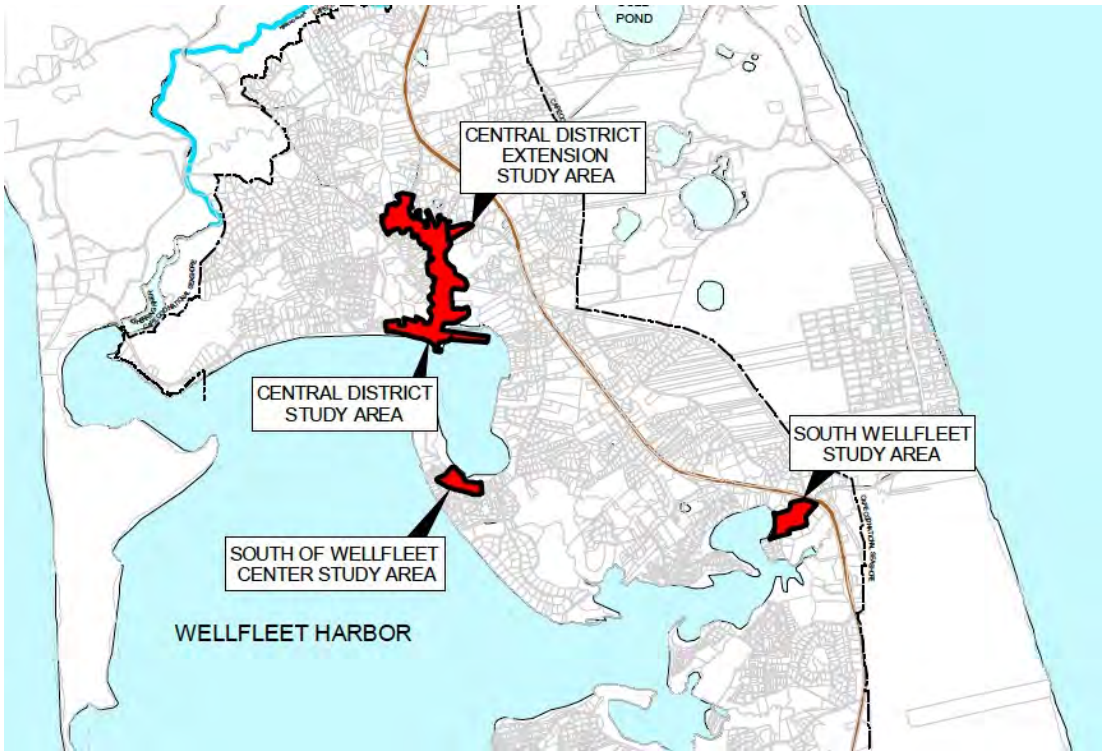


Figure 8- Wastewater Study Areas (Woodard & Curran, 2001)

8.2 NON-TRADITIONAL TECHNOLOGIES

A broad range of non-traditional technologies were identified and evaluated as viable nitrogen reduction tools as part of the Cape Cod Commission's Cape Cod 208 Water Quality Update (2015). These technologies were presented to Wellfleet stakeholders and residents as part of the 208-planning process at a series of public meetings.

The non-traditional strategies discussed at the public meeting included shellfish restoration, aquaculture, permeable reactive barriers, innovative and alternative (I&A) septic systems, stormwater management, fertilizer management, inlet widening, and coastal ecosystem restoration. These technologies have been vetted by two independent technical review panels as part of the 208 Plan development and more recently by The Nature Conservancy and a panel of experts convened by the Cape Cod Commission (CCC). Performance data on each technology is documented and referenced in the CCC Technology Matrix (2020), Barnstable County Department of Health and Environment (2019), and an on-going research project conducted by the U.S. Environmental Protection Agency, Office of Research and Development (USEPA ORD), The United States Geological Survey (USGS), Barnstable Clean Water Coalition, and The Nature Conservancy (TNC) in the Town of Barnstable. The Town of Orleans has provided performance results from several pilot projects including an aquaculture project in Lonnie's Pond and a permeable reactive barrier. The Town of Eastham has also installed a permeable reactive barrier and is currently evaluating the performance of that system.

Enhanced Innovative & Alternative (I&A) Septic Systems: Like most Cape Cod towns, Wellfleet has relied upon on-site wastewater disposal systems throughout its history. Over the last twenty years 158 innovative and alternative (I&A) septic systems have been installed to reduce nitrogen impacts. However, these I&A systems have provided only marginal benefits. According to research conducted by the Barnstable County Department of Health and Environment (BCDHE) these I&A systems reduce the nitrogen load on average by approximately 27% - not enough to address the required nitrogen loading reductions to the embayments.

However, a new generation of I&A technologies have been developed and are providing significantly better results (see figures 9, 10, and 11). These systems were identified as "enhanced" I&A (EIA) systems in the Cape Cod Commission's Cape Cod 208 Water Quality Plan Update. They include both proprietary and non-proprietary systems. Recent test data provided by third-party organizations (including MASSTC and NYS Stony Brook) indicate the current performance of the wood chip-based septic technologies is in the range of 5 - 8 mg/liter (75 – 90% removal).

According to a recent report by BCDHE (2019) a series of non-proprietary woodchip-based

systems have been producing average removal rates of 75% or more with effluent concentrations at less than 8 mg/liter. Additional advantages of these new designs are that they are more passive, requiring less pumps and mechanical systems and they are easily maintained with accessible ports to replace the reactive media on a periodic basis (once every ten years is estimated).

The woodchips provide a carbon source for naturally-occurring bacteria to break down the nitrogen to harmless nitrogen gas (a process called denitrification). At least two proprietary technologies (Nitrex and NitROE) also utilize a woodchip-based system and have gained both pilot and provisional approvals from MADEP as part of their I&A permitting program. Both of these systems have tested at the Massachusetts Alternative Septic System Test Center (MASSTC) and been installed at multiple locations on Cape Cod and are currently available for installation in Wellfleet.

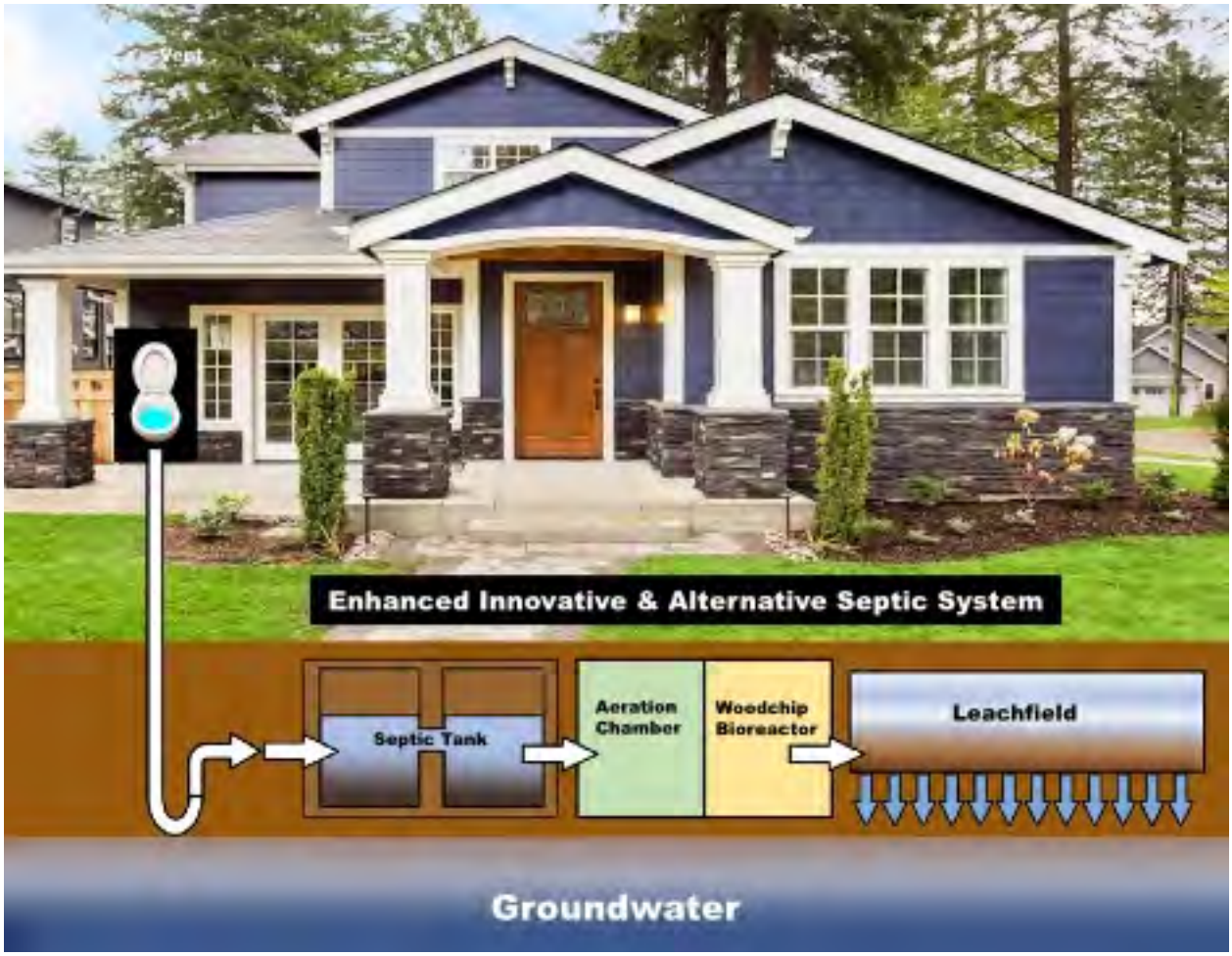


Figure 9 - Enhanced I&A Septic System

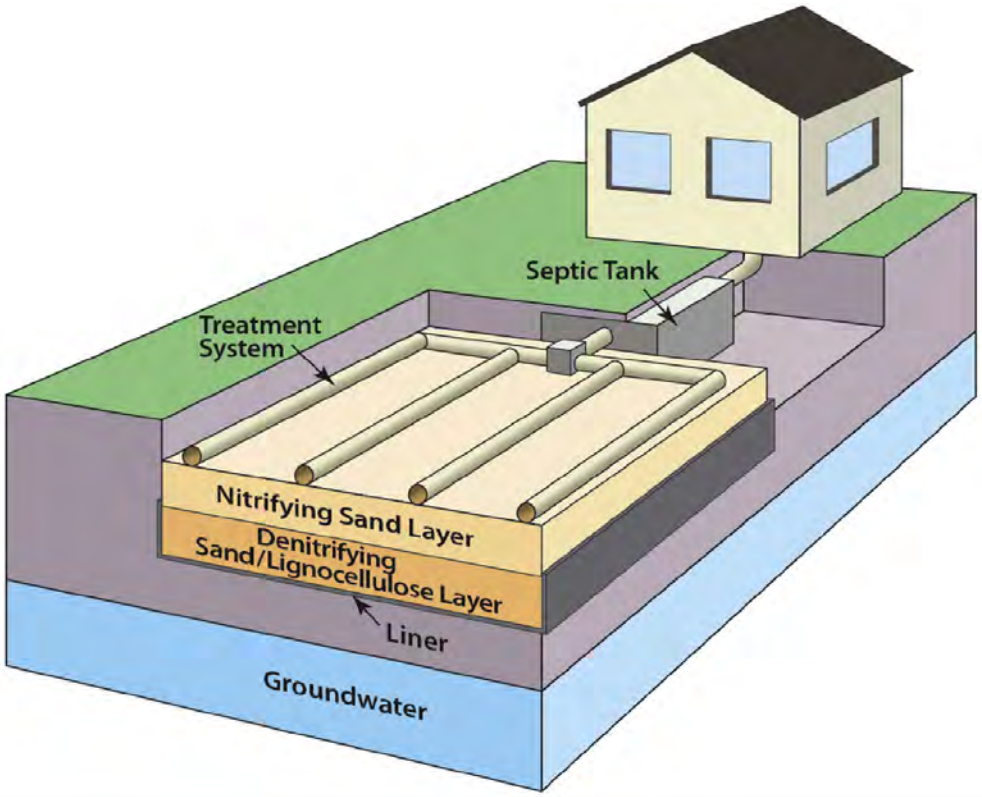


Figure 10 – Non-proprietary woodchip "layer cake" septic system design (MASSTC)

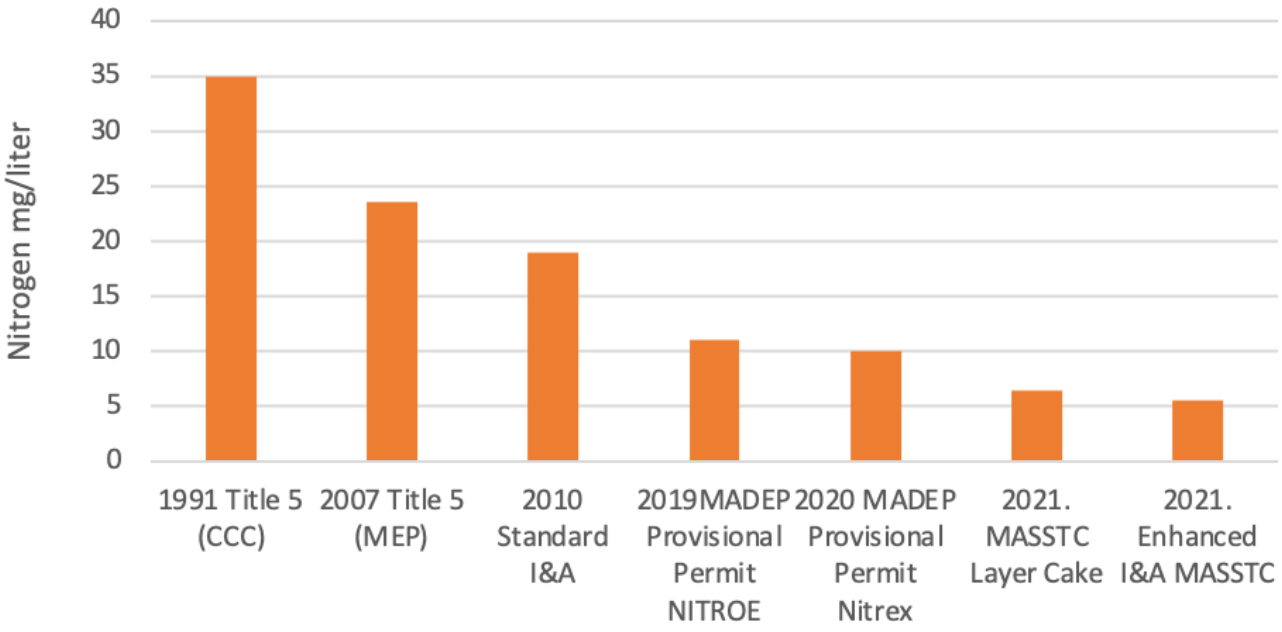


Figure 11 - On-Site Septic System Nitrogen Removal Performance Trend

Additionally, several non-proprietary I&A septic systems using the woodchip bioreactor technology have been developed by the Massachusetts Septic System Test Center (MASSTC) on Cape Cod and the Center for Clean Water at Stony Brook University on Long Island, NY. These include a system referred to as the "layer cake" technology that introduces a layer of woodchips beneath the septic leaching field. Several modifications of this system have been developed by MASSTC and are producing excellent results (Heufelder, 2019).

These technologies are also being researched in Long Island, New York. Stony Brook University has published a study that demonstrates 80 – 90% removal of nitrogen using three non-proprietary designs similar to those developed at the Massachusetts Septic System Test Center (MASSTC). This study also demonstrated greater than 90% removal efficiencies for organic chemicals including pharmaceuticals, personal care products, DEET, and other compounds that are being identified in wastewater (Gobler, et al., 2021). Gobler also indicates that these woodchip-based systems have higher removal rates than traditional wastewater treatment plants for some of these organic compounds due to their higher hydraulic retention time with the reactive media (days instead of hours.)

Another study of these enhanced I&A septic systems is underway in the Town of Barnstable and has completed a detailed review of available performance data. Project partners include U.S. Environmental Protection Agency, Office of Research & Development, The Massachusetts Septic System Technology Center, The Nature Conservancy, and the Barnstable Clean Water Coalition. Approximately twenty of these systems are being installed in a high-density neighborhood near Shubael's Pond. Extensive monitoring of influent, effluent, and

groundwater quality is being conducted by USEPA. These systems will also be testing the use of remote sensors to monitor both their operation (pumps) and performance (nitrogen tests). The success of these remote monitoring devices may lead to reduce operation, maintenance, and monitoring costs associated with these systems in the future.

This new generation of I&A systems may reduce the required footprint (area) required for installation. Test data on these systems indicate that in addition to nitrogen reductions the total suspended solids (TSS) is substantially less. MADEP allows for smaller leaching facilities associated with wastewater treatment systems that have lower solids loading. Therefore, it may be possible for some of these new I&A systems to qualify for reduced size leaching facilities. This would further reduce their cost and would ease siting requirements on smaller parcels.

Another important component of an enhanced I&A septic system program is the development of a Responsible Management Entity (RME). The RME will be responsible for compiling and reporting the monitoring data to determine the overall effectiveness of these systems in removing nitrogen. They may also be responsible for oversight of operation and maintenance to ensure that they systems are property functioning. Currently the Barnstable County Health and Environment Department is evaluating the possibility of providing some of these RME services. The Cape Cod Commission has organized an RME working group and is in the process of developing options for communities looking to establish an RME. It is likely that an RME can reduce annual operation and maintenance costs by integrating remote sensing of air pump operations and economies of scale in providing coordinating sampling services.

Permeable Reactive Barriers: Permeable Reactive Barriers (PRBs) are subsurface filters that intercept and treat nitrogen-enriched groundwater before it discharges to coastal waters. PRBs may provide a cost-effective solution for Wellfleet Harbor. Recent pilot project results in the towns of Orleans and Eastham suggest that high attenuation rates (90%) are achievable. A PRB installed adjacent to Waquoit Bay has also demonstrated high removal rates. This project is also providing some indication of the probable lifespan of the woodchip bioreactor. The project has been in place for over 15 years with little appreciable decay of the bioreactor materials (Ken Foreman, Woods Hole Marine Biological Laboratory).

According to the Cape Cod 208 Plan there are two types of PRBs available to communities. These include the trench method where woodchips are backfilled into an excavation to intercept groundwater and the use of injection wells to introduce a carbon-based fluid to provide the carbon source for the native soil bacteria (see figures 12 and 13).

A third option bulkhead PRB that incorporates the woodchip bioreactor into a coastal engineering structure such as a bulkhead. A bulkhead PRB was installed on Long Island and was studied by the Center for Clean Water at Stony Brook University (see figures 12-16). Preliminary monitoring of this system has shown a nitrogen attenuation rate of greater than

80%. This approach has the potential benefit of cost sharing the installations for multiple purposes including shoreline stabilization restoration and nitrogen attenuation. Installations could be coordinated and timed with on-going shoreline stabilization projects, significantly reducing costs.

To evaluate the potential nitrogen reduction associated with the installation of PRBs the Cape Cod Commission's MVP model was utilized to delineate contributing areas and associated nitrogen loads for a PRB project along Commercial Street within the Duck Creek and Cove sub watersheds. An estimated nitrogen removal rate of 75% was applied to these loads.

A town-owned parcel (111 East Commercial Street) at the corner of Bank Street and Commercial Street provides a possible pilot location for a PRB (see figure 17). Commercial Street is oriented perpendicular to groundwater flow directions and could intercept groundwater and attenuate nitrogen loads from the high-density downtown center. Its location near the shoreline discharge area provides an optimal location to capture upgradient nitrogen loads and a relatively thin groundwater lens that may enable a trench-method PRB at reduced costs. Funding of $50,000 was appropriated at the 2021 Wellfleet Town Meeting to conduct a preliminary hydrological and engineering evaluation of a pilot project. However, because the town is currently considering a downtown collection system that would treat this same area the pilot PRB project is on hold. Alternative locations are being considered.

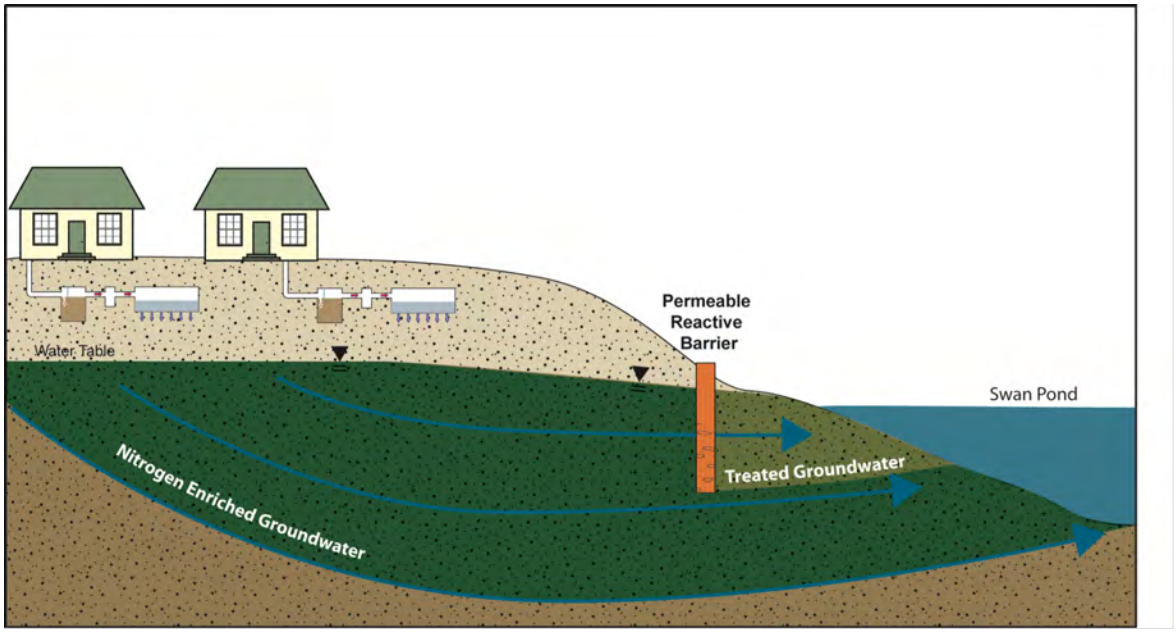


Figure 12 - Permeable Reactive Barrier (Trench Method)

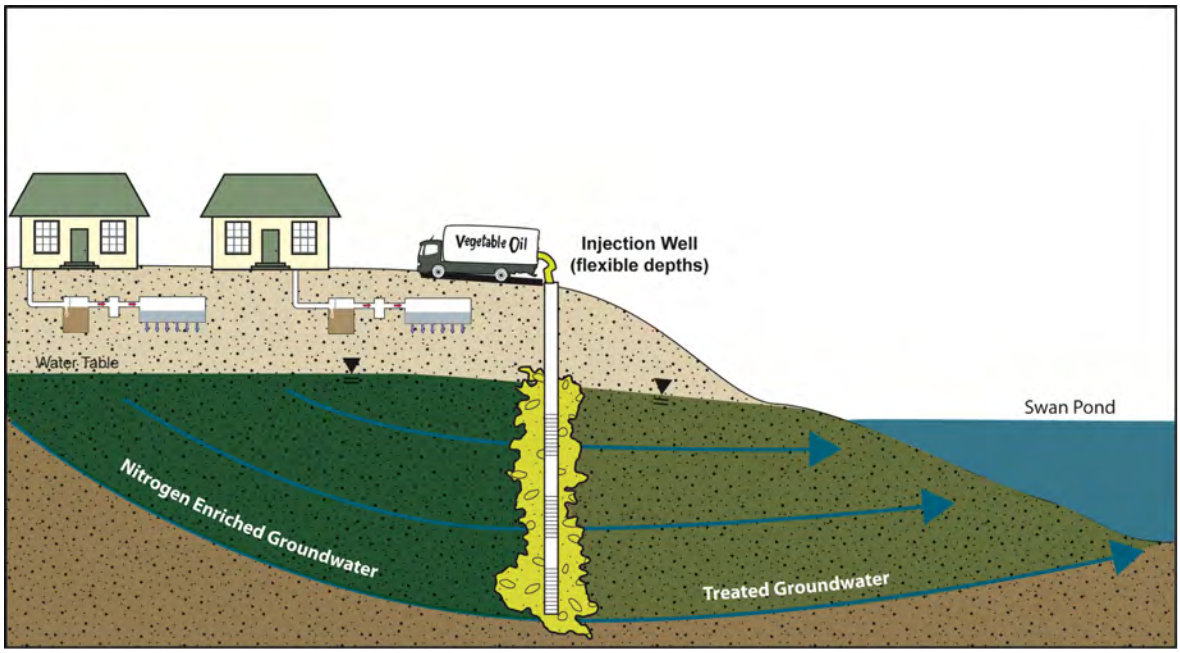


Figure 13 - Permeable Reactive Barrier (Injection Well Method)

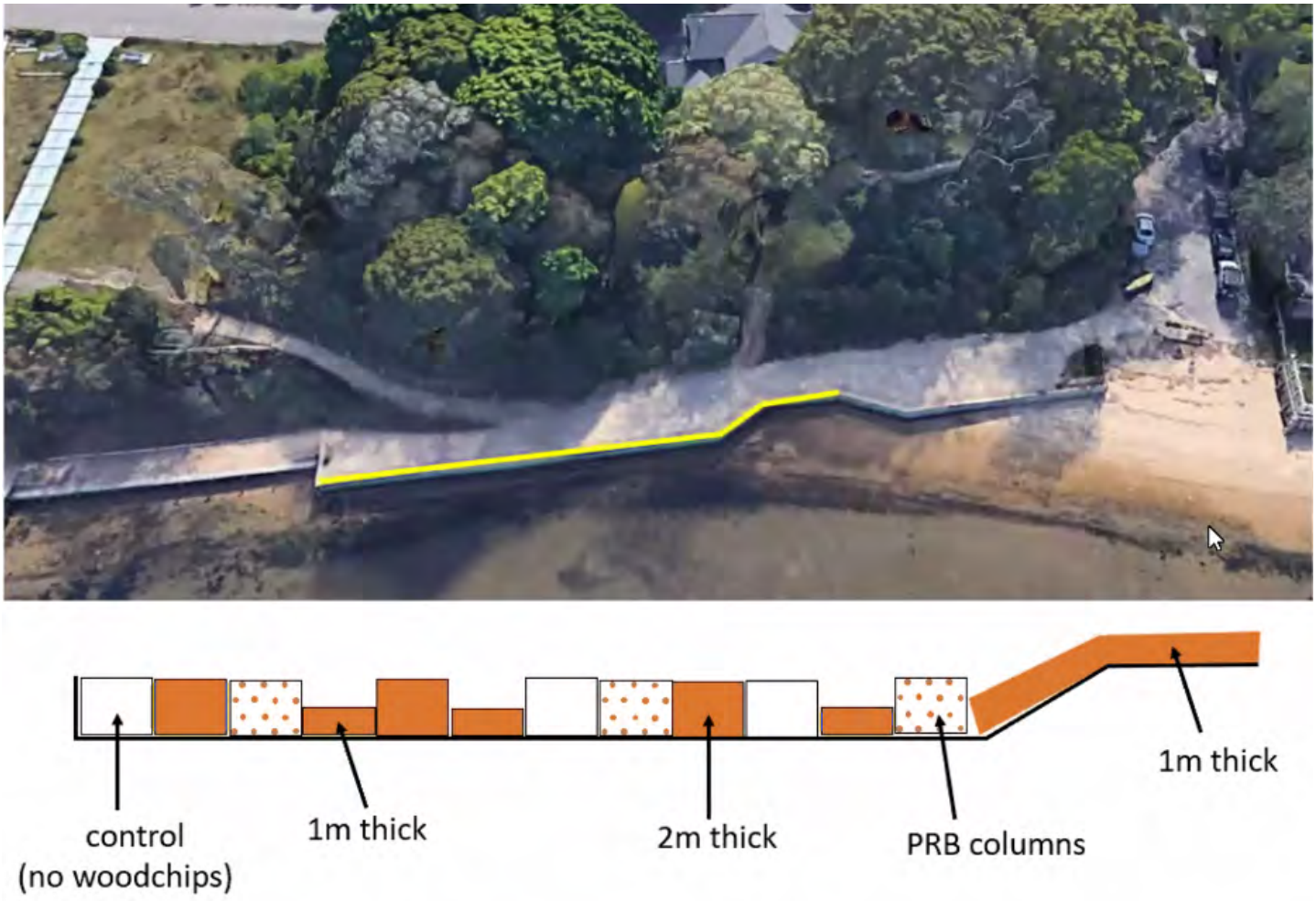


Figure 14 - Permeable Reactive Barrier (Bulkhead Method)

Figure 15 - Permeable Reactive Barrier (bulkhead under construction)

Figure 16 - Completed Bulkhead PRB

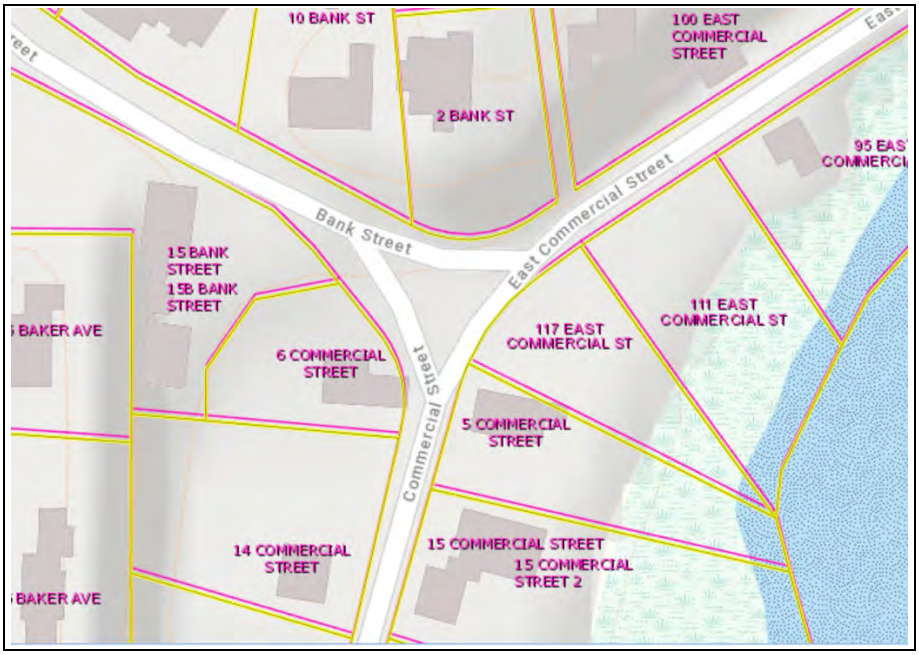


Figure 17 – Potential PRB Pilot Project Location (117 East Commercial Street)

Shellfish/Aquaculture: Shellfish are filter feeders and naturally assimilate nitrogen in the water column as a food source. Shellfish productivity is an effective means of mitigating excess nitrogen loading. It provides quick/immediate results, provides local jobs, and local food.

The Town of Wellfleet has focused on shellfish restoration and aquaculture research over the past several decades. Inherent in this approach is a belief that the marine ecosystem must be restored to enable it to metabolize and assimilate both natural and anthropogenic nutrient loads. The Cape Cod Commission's 208 Plan Update identified shellfish productivity as one of the most cost-effective methods to attenuate nitrogen loading. It also provides significant local jobs. A pilot project conducted by the town in conjunction with University of Massachusetts and the Center for Coastal Studies reported significant water quality improvement in the inner harbor area.

Recent updates to the Cape Cod Commission's Technology Matrix (2017) indicate a range of potential nitrogen mitigation associated with shellfish and aquaculture ranging from 52 – 300 kg/acre-year for these projects (see Table 2). These analyses are based upon harvesting of shellfish and removal of the nitrogen-laden tissue. They are also based upon assumed shellfish densities.

Table 2 - Nitrogen Uptake Rates – Shellfish (Source: Cape Cod Commission, Technology Matrix, 2017)

Cape Cod Commission, Technology Matrix Update (2017)
Shellfish/Aquaculture

Type of Shellfish Grown and Method	Shellfish Initial Weight[1]	Shellfish Final Harvest Weight (HW)[1]	Increase in Weight[2]	Nitrogen Content[3]	Grow-Out Time[1]	Shellfish Nitrogen Uptake[3]	Deployment Density[4]	Shellfish Deployed[5]	Mortality Estimate	Harvest Density	Harvest Target[6]	Annual Nitrogen Uptake[6]
	grams	grams	grams	% of HW	years	grams/year	shellfish/sq.ft.	#/acre	%	shellfish/sq.ft.	#/acre	kilograms/acre/year
Year 1 Oysters Nursery Culture[7] (low density)	0.20	30	30	0.43%	1	0.13	19	820,000	15%	16	700,000	90
Year 1 Oysters Nursery Culture[7] (high density)	0.20	30	30	0.43%	1	0.13	73	3,180,000	15%	62	2,700,000	350
Year 2 Oysters Cultured to Harvest (low density)	30	60	30	0.43%	1	0.13	11	470,000	15%	9.2	400,000	52
Year 2 Oysters Cultured to Harvest (high density)	30	60	30	0.43%	1	0.13	22	940,000	15%	18	800,000	100
Wild Oyster Bed Maintenance	0	71	71	0.50%	3	0.118				10	440,000	52
Quahogs Under Net (Year 1, Year 2)	1.0	40	39	0.43%	2	0.084	50	2,180,000	40%	30	1,310,000	70
Quahogs Broadcast for Harvest	40	57	17	0.43%	1	0.073	6.0	260,000	20%	4.8	210,000	15

According to data reported by the Massachusetts Department of Marine Fisheries (DMF) shellfish harvests (landings) have increased over the past decade since the MEP study was conducted (see figures 18 and 19). The growth in shellfish landings over the 2010 – 2019 period increased from 1.5 million pounds to 2.5 pounds. Converting this to nitrogen attenuation this represents an increase from 3050 kg/year (2010) to 5000 kg/year (2019) for a net increase of 1950 kg/year over the ten-year period.

The DMF data is reported by shellfish classification areas. There are four designated classification areas in Wellfleet (see figure 20. According to these data most of the growth in landings over the last ten years has occurred in CB14. This growing area includes Loagy Bay, Blackfish Creek/Drummer Cove, and a portion of Wellfleet Harbor. The increased landings in CB14 translate to a net reduction in nitrogen load of 1350 kg/year over the ten-year period. Growing area CB11 has also demonstrated significant growth in landings with an associated load reduction of 600 kg/year.

These data are conservative representations for several reasons. First, they do not include recreational shellfish landings that are estimated at approximately 10 - 25% of the commercial landings (personal communications Ryan Curley, Nancy Civetta and John Mankevetch). Secondly, they represent only two species (oyster and hard clam) for which DMF data is available in the growing areas. It is known that additional harvests for blue mussels, scallops, and blood arc clams exist but these are not accounted for in these data. Thirdly, there are additional harvest areas beyond the four DMF-designated classification areas within Wellfleet.

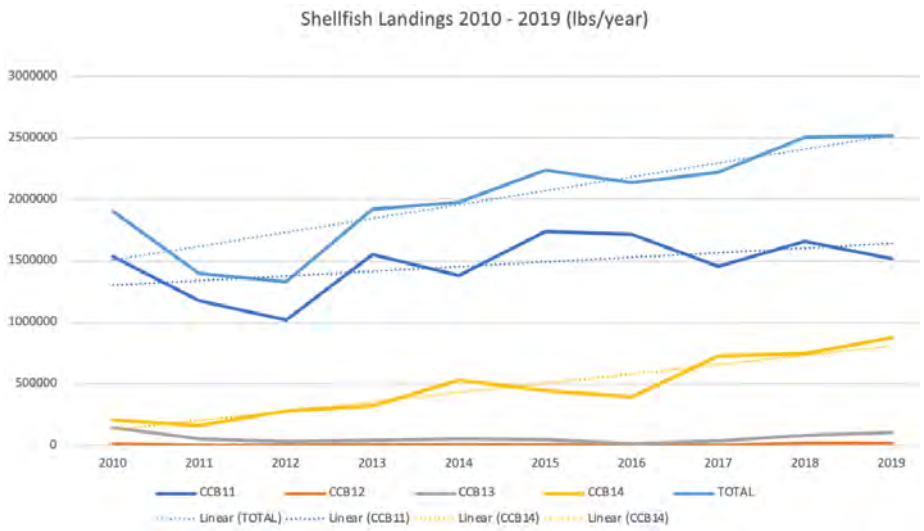


Figure 18 – Shellfish Landings 2010 – 2019

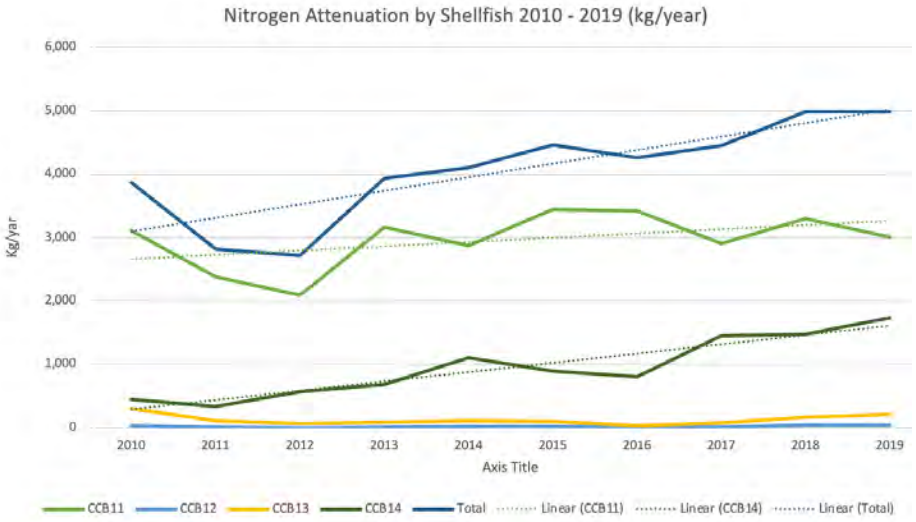


Figure 19 – Nitrogen Attenuation by Shellfish 2010 - 2019

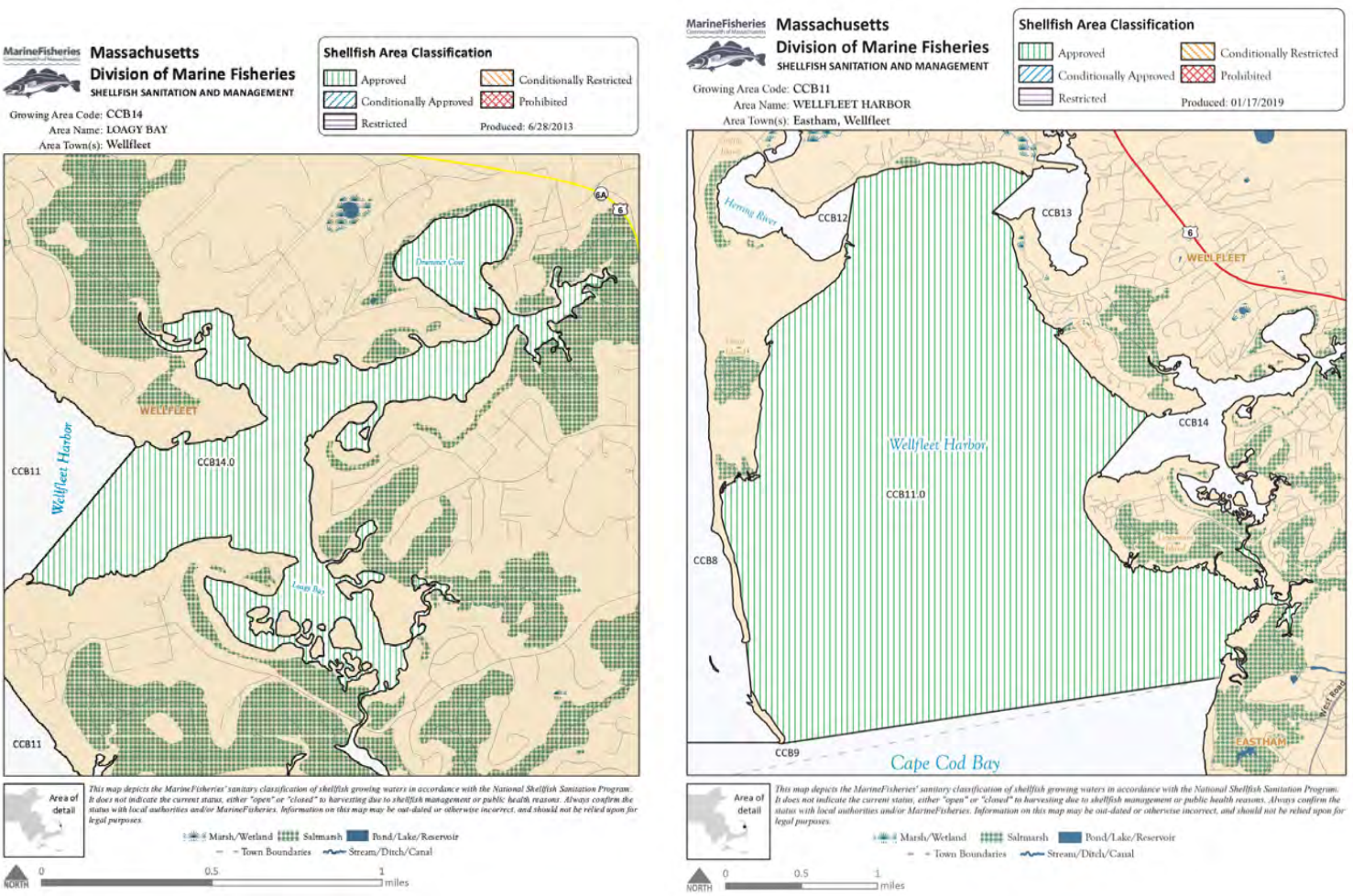
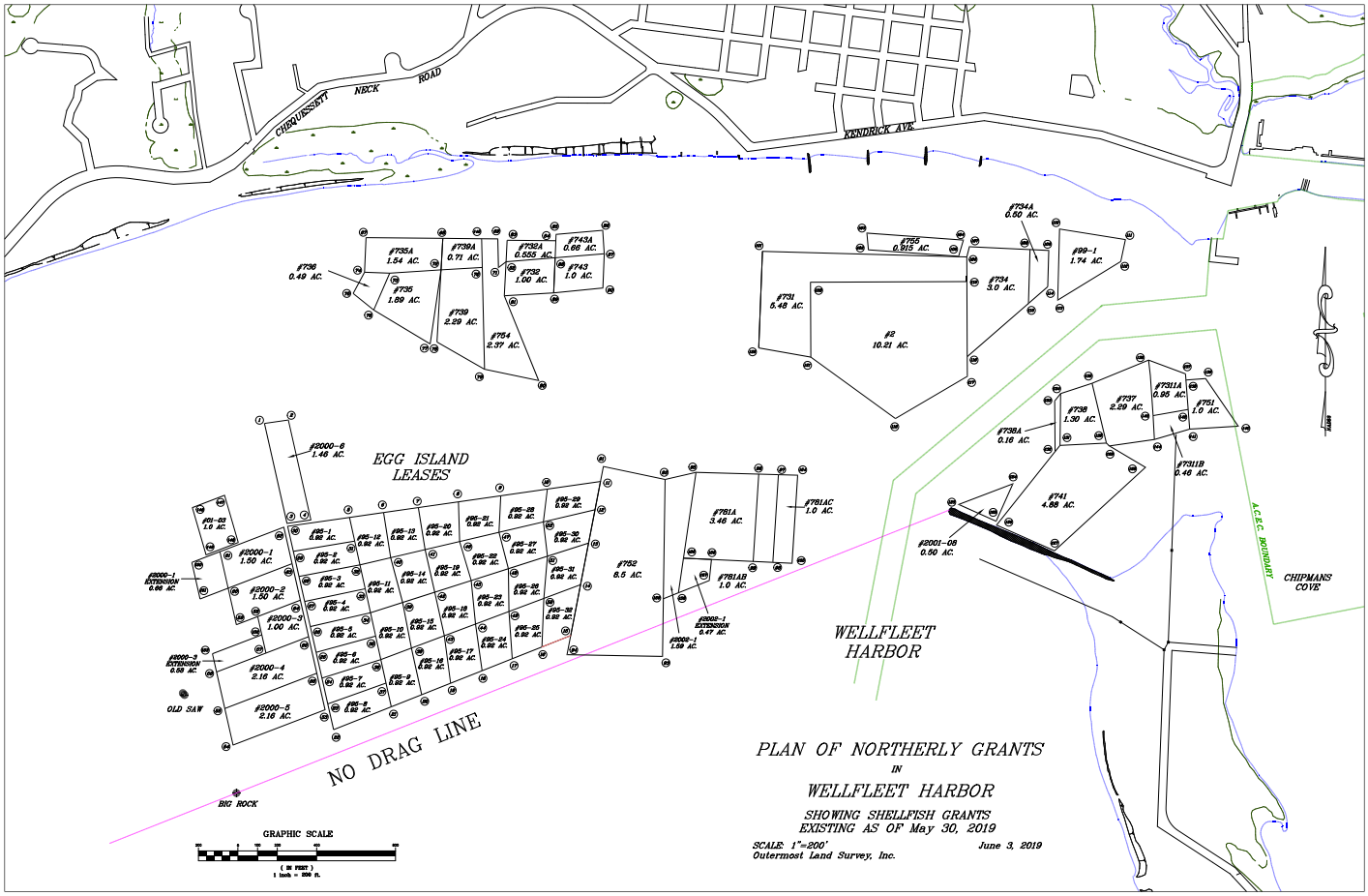
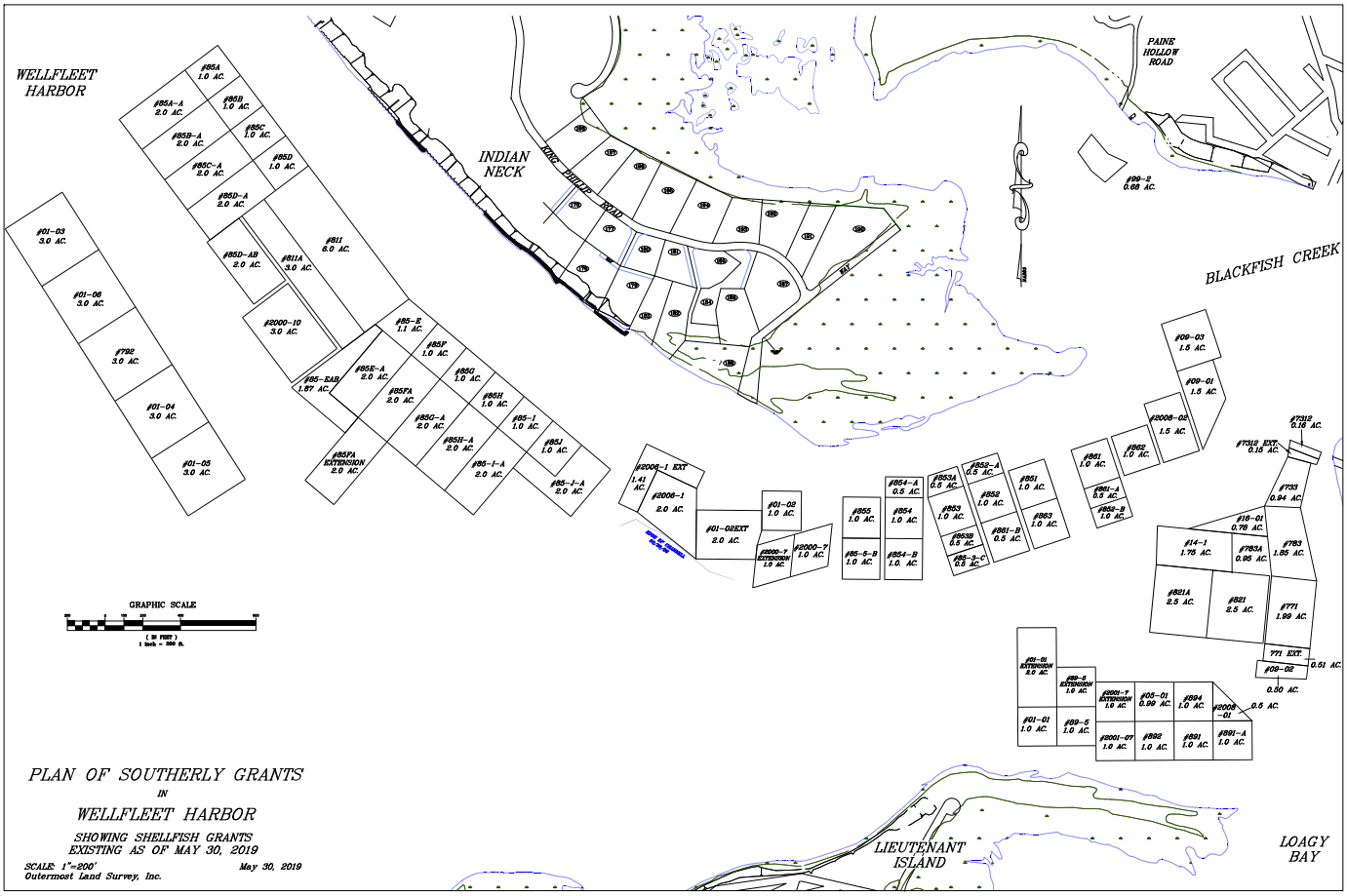


Figure 20 –Shellfish Classification Areas (MADMF)


CHIRQUESSET NECK ROAD
KENDRICK AVE
#735A 1.54 AC.
#739A 0.71 AC.
#732A 0.555 AC.
#743A 0.66 AC.
#736 0.49 AC.
#735 1.69 AC.
#732 1.00 AC.
#743 1.0 AC.
#739 2.29 AC.
#754 2.37 AC.
#734A 0.50 AC.
#755 0.915 AC.
#99-1 1.74 AC.
#731 5.48 AC.
#734 3.0 AC.
#2 10.21 AC.
#731IA 0.95 AC.
#737 2.29 AC.
#738 1.30 AC.
#752 1.0 AC.
#738A 0.16 AC.
#731IB 0.46 AC.
#741 4.68 AC.
#2001-08 0.50 AC.
A.C.B.C. BOUNDARY
CHIPMANS COVE
EGG ISLAND LEASES
#2000-6 1.46 AC.
#21-03 1.0 AC.
#2000-1 1.50 AC.
#2000-1 EXTENSION 0.69 AC.
#2000-2 1.50 AC.
#2000-3 1.00 AC.
#2000-3 EXTENSION 0.53 AC.
#2000-4 2.16 AC.
#2000-5 2.16 AC.
OLD SAW
BIG ROCK
#752 6.5 AC.
#781A 3.46 AC.
#781AC 1.0 AC.
#781AB 1.0 AC.
#2002-1 EXTENSION 0.47 AC.
#2002-1 1.59 AC.
NO DRAG LINE
WELLFLEET HARBOR
GRAPHIC SCALE
PLAN OF NORTHERLY GRANTS
IN
WELLFLEET HARBOR
SHOWING SHELLFISH GRANTS
EXISTING AS OF May 30, 2019
SCALE 1"=200'
June 3, 2019
Outermost Land Survey, Inc.



There is evidence that additional nitrogen attenuation (beyond removal rates associated with uptake and harvest) occur in the benthic zone associated with shellfish ecosystems. This includes research in the Chesapeake Bay region and more recently on Cape Cod in the towns of Wellfleet, Falmouth and Orleans. A study conducted in Wellfleet by the University of Massachusetts identified significant water quality improvements in the Duck Creek embayment (Frankic, 2015). A recent publication prepared by University of Massachusetts SMAST (2019) reports denitrification rates referred to as "oyster effect" of 24 – 36% (as additional attenuation to the harvest removal rates) during the first two years of a study in Lonnies Pond in Orleans associated with the biodeposits. While these additional nitrogen attenuation benefits are not directly accounted for by tracking the harvest data they may contribute to improved water quality conditions at the sentinel monitoring station.

To support sustainable management and the potential for continued growth of the shellfishery several meetings were conducted with the Shellfish Constable and the Shellfish Advisory Committee. As a result, a five-year plan was developed that includes several "no take" propagation areas and moderate increases in seed purchase and distribution (see Appendix).

Coastal Ecological Restoration: Coastal ecological restoration includes restoring natural flow (including tidal flushing) conditions and ecological functions that support nutrient recycling. The Town of Wellfleet has identified numerous potential restoration projects that will restore lost large areas of salt marsh. These include Herring River, Mayo Creek and others. Most of these projects are intended to restore tidal flow into areas that have been historically blocked by water control structures such as dams, dikes, clapper valves, culverts, etc. Salt marshes have been well documented to provide nitrogen attenuation processes.

The two habitat restoration projects that are underway in Wellfleet (Mayo Creek and Herring River) will likely result in significant water quality and habitat improvements. However, these projects are very site-specific and the resulting nitrogen reductions are difficult to estimate. We recommend that they are included in the overall strategy and that their corresponding nitrogen reduction credits be established through monitoring as part of the adaptive management program.

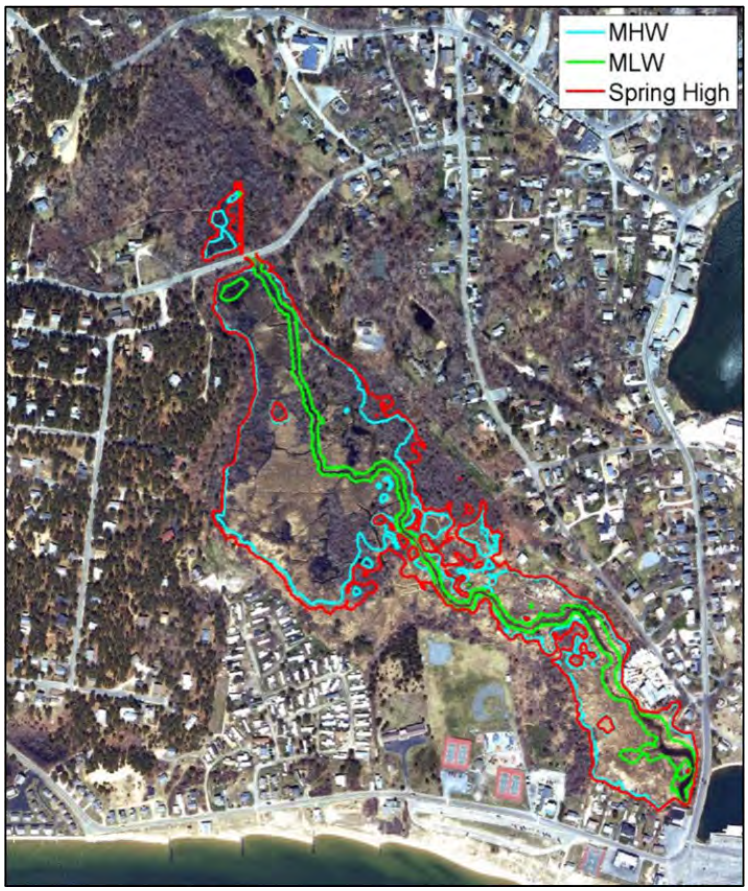


Figure 21 - Mayo Creek Restoration Project (Woods Hole Group, 2016)

To estimate the nitrogen attenuation benefits of the Mayo Creek project flow data was obtained from a Woods Hole Group report (2011) and water quality data (2017 – 2018) was provided by the Center for Coastal Studies (see Figure 19). Existing nitrogen loading data for the Mayo Creek watershed was obtained from the Cape Cod Commission's MVP model. Based upon this data and applying the MEP default value of 40% nitrogen removal associated with salt marsh an estimated nitrogen attenuation of 317 kg/year was derived.

Several other potential restoration projects have been identified and can provide additional nitrogen mitigation (Curley, 2019). The Herring River restoration project is the largest example. These supplemental projects can be monitored and credits can be provided as part of the adaptive management approach.

Stormwater Management: Nitrogen reductions can also be achieved through the implementation of stormwater retrofit projects (including mitigation of the Route 6 drainage) and fertilizer reductions. Credits of 25% reductions are allowed on an interim basis as part of the 208 Plan. These reductions will be required to be documented as part of the monitoring and adaptive management program.

The Town of Wellfleet constructed a stormwater infiltration project along Commercial Street in 2012 (see figure 22). The project was funded with a grant provided by the USDA Natural Resources Conservation Service and included a series of infiltration structures beneath the roadway. This project provides significant water quality benefits with expected reductions in both pathogens and nutrients.

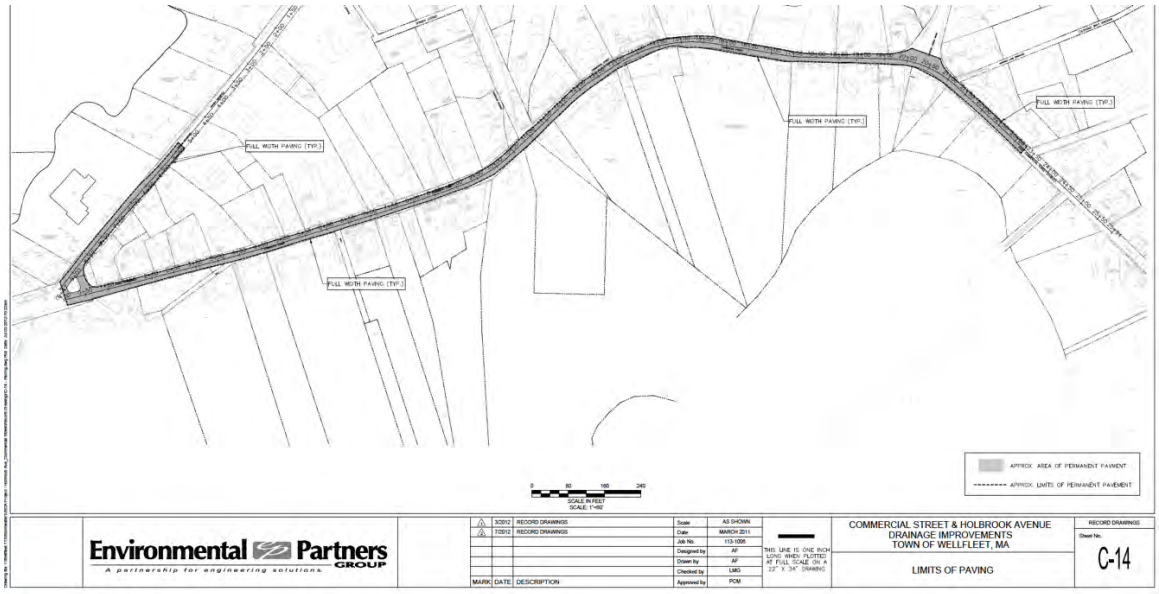


Figure 22 – Stormwater Infiltration Project – Commercial Street

A current stormwater project is under study by the MADOT at the intersection of Route 6 and Main Street (Figure 23). Two meetings were conducted with town officials and MADOT staff. We provided recommendations to eliminate direct discharges and to integrate green infrastructure practices into the project and are awaiting a response from MADOT to discuss these in more detail. During discussions with MADOT about the project the the use of stormater infiltration systems was favored. We also discussed the possibility of modifying infiltration structures by adding woodchip media to encourage enhanced denitrification. According to a report prepared by Offshoots and Horsley Witten Group, Inc. infiltration practices may provide total nitrogen (TN) attenuation in the range of 40 – 65% (see Table 3). Figure 24 shows subsurface infiltration chambers that are widely used in stormwater projects throughout Massachusetts.

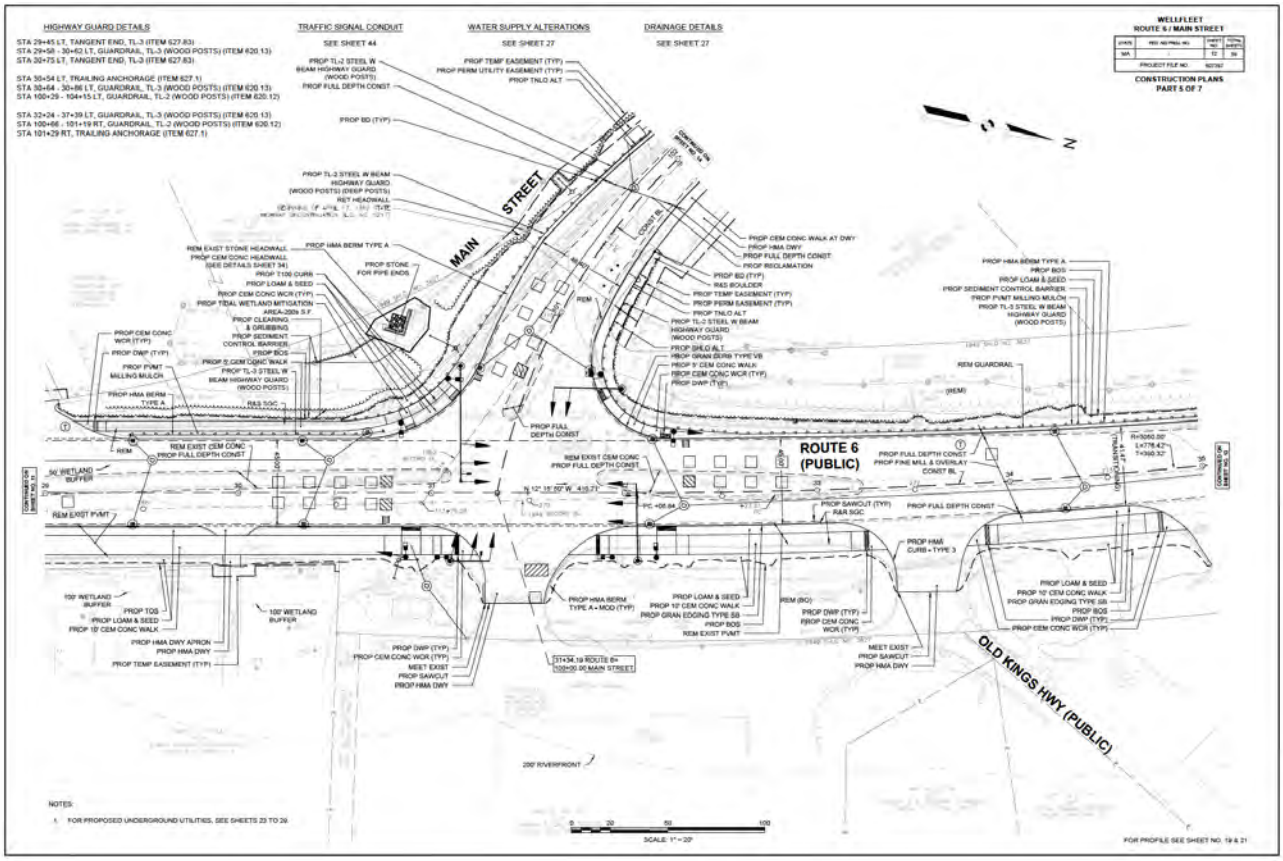


Figure 23 – Stormwater Retrofits – Route 6/Main Street (MADOT)

Another stormwater improvement is planned at the bridge crossing the Herring River project. This will include infiltration chambers and biotention planters. Nitrogen attenuation rates are estimated at approximately 30 – 55% according to the designer (Fuss & O'Neill).

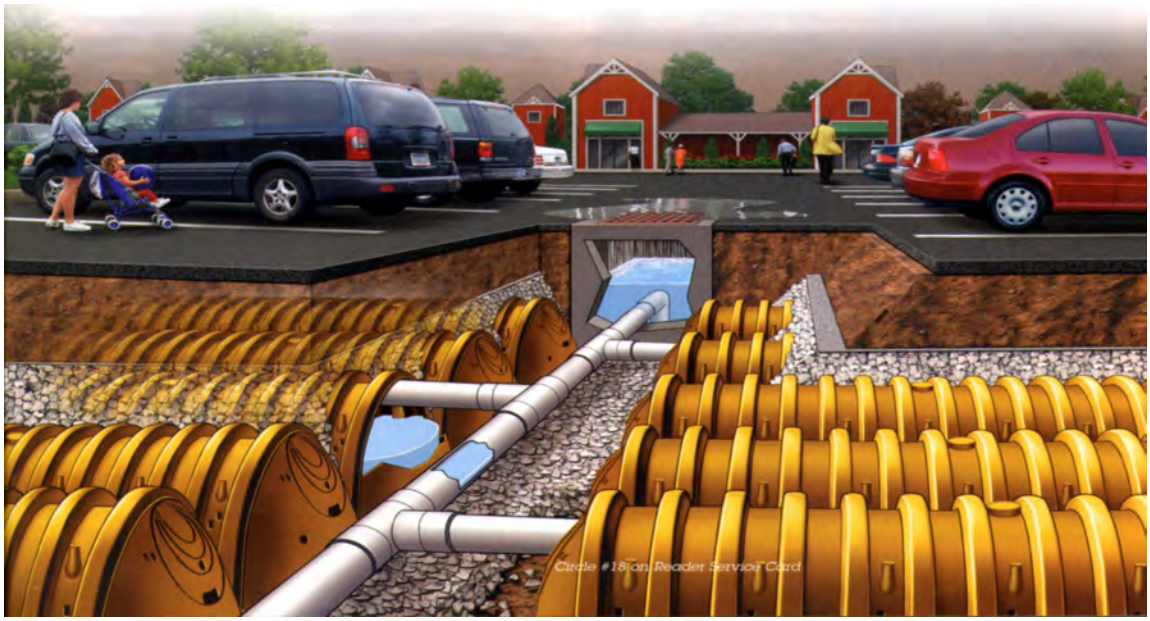


Figure 24 – Stormwater Infiltration with Subsurface Chambers

Table 3 – Pollutant Attenuation – Stormwater Management Practices

GROUP	PRACTICE	MEDIAN POLLUTANT REMOVAL EFFICIENCY (%)			
		TSS	TP	TN	Bacteria
EXISTING LANDFORMS	Depression	See Infiltration Basin			
WET PRACTICE	Shallow Wetland	85%[1]	48%[3]	30%[2]	60%[2]
	Gravel Wetland	86%[3]	53%[1]	55%[3]	85%[2]
	Wet Swale	85%[3]	48%[3]	30%[2]	60%[2]
DRY PRACTICE	Infiltration Basin	90%[2]	65%[3]	65%[2]	95%[2]
	Infiltration Trench	90%[2]	65%[3]	65%[2]	95%[2]
	Subsurface Chambers	90%[2]	55%[2]	40%[2]	90%[2]
	Recharge Basin	90%[2]	55%[2]	40%[2]	90%[2]
FILTRATION PRACTICE	Sand Filter	86%[3]	59%[3]	32%[3]	70%[2]
	Bioretention	90%[1]	30%[2]	55%[2]	70%[2]
	Bioswale	90%[1]	30%[2]	55%[2]	70%[2,6]

Source: Offshoots and Horsley Witten Group (2016)

Fertilizer Reduction/Fertigation Wells: The MEP model assumes that approximately half of the lawns are fertilized with a weighted loading rate of 1.08 pounds (0.5 kg) N/year-lawn. MEP also assumes that 20% of the applied fertilizer load leaches to groundwater and ultimately contributes to coastal waters. Overall, the report indicates that fertilizers represent approximately 9% of the controllable nitrogen load to the embayments.

As part of the 208 Plan Update towns are allowed to propose a 25% nitrogen load reduction for fertilizer management as part of a watershed plan. Management measures can include a local bylaw restricting use and/or public education programs designed to reduce fertilization.

Whereas the majority of Wellfleet residents have on-lot private wells for water supply this represents an opportunity to recycle nitrogen entrained in groundwater as a fertilizer source for lawns along with irrigaiton. This process was identified in the Cape Cod Commission's 208 Plan and is referred to as "fertigation wells" (see Figure 25). The MEP model assumes that eighty percent of the applied fertilizers are assimilated by the lawn.

The Woodard & Curran report identified areas throughout the town with elevated nitrogen concentrations in the range of 2 – 4 mg/liter. Assuming a 12-week irrigation period, an application rate of one inch/week, and nitrate-nitrogen concentrations in the range of 2 - 4 mg/liter a fertigation well could achieve 0.25 - 0.5 kg/year reduction per home. This would require a public education program to utilize existing wells as a source of both irrigation and fertilization (fertigation) and reduce the amount of supplemental commercial fertilizers. The

public education plan could be coupled with on-site water quality measurements of the nitrate concentrations of the fertigation water applied.

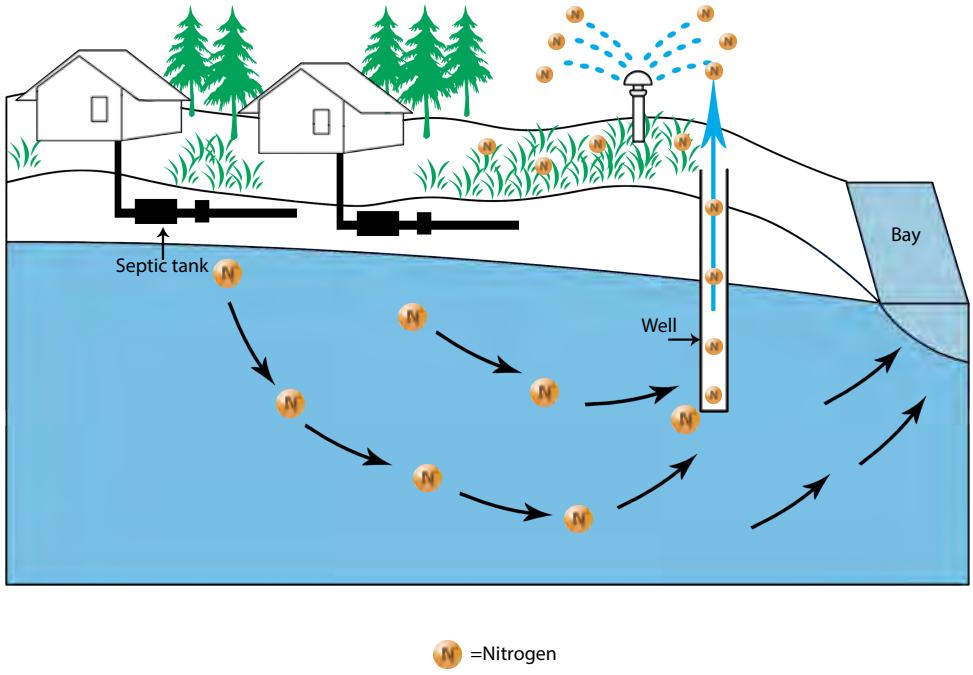


Figure 25 - Irrigation (Fertigation) Well Recycling Nitrates in Groundwater

8.3. HYBRID PLAN

To integrate both traditional and non-traditional approaches to nitrogen reductions we have prepared a hybrid plan and a conventional contingency plan (see Tables 4 and 5). The hybrid plan prioritizes those technologies that have lower costs, quicker results, provide local co-benefits (including jobs), and minimize climate impacts. The hybrid plan provides flexibility and choices for the town. It includes an adaptive management plan to provide for a full evaluation and pilot testing of emerging technologies that were identified in the Cape Cod Commission's 208 Plan with traditional technologies provided as a contingency/backup plan.

As discussed earlier in this report the continued use of conventional Title 5 systems for on-going, future development and redevelopment poses significant challenges to meeting the MEP thresholds. The proposed plan recommends the use of currently available enhanced I&A septic systems to minimize and mitigate these increasing impacts. This recommendation is consistent with the recent lawsuit filed by the Conservation Law Foundation against other Cape Cod towns.

The plan includes four phases (five years each) over a 20-year period. The first phase includes both traditional and non-traditional technologies. It includes the construction of a downtown wastewater collection and treatment system that would service approximately 200 properties. It also contains the installation of enhanced I&A septic systems, the development of a permeable reactive barrier pilot project, and a shellfish propagation management program.

The second and subsequent phases call for expansion of these strategies based upon performance during the first phase and choices made by the town. Depending upon the test results, subsequent phases could include the construction of a full-scale permeable reactive barrier. The PRB's proximity to the shoreline will result in immediate improvements in coastal water quality.

Contingent upon the test results of the enhanced I&A systems during the first phase and MADEP's approval of them for "general use" these systems could be required in all upgrades, expansions, new construction, and possibly real estate transfers. By timing the implementation of these systems with individual property owners needs this will provide for improved social acceptability and minimizes construction costs. System upgrades can be made based upon the property owners' proposed construction schedules and/or property transfers. Costs are minimized by timing the installation of the treatment unit coincident with the construction of a new or larger septic system.

Recent data provided by the Wellfleet Board of Health (2017-2019) shows the number of new and upgraded (expanded) septic systems has averaged 52 per year. According to a recent

housing analysis by the town approximately half of these systems are associated with "tear downs" and expansions of existing homes (Town of Wellfleet, 2017). The Board of Health is currently considering a regulation that would require additional upgrades where cesspools are still in use. Upgrades could also be triggered by real estate transactions. It is anticipated that these drivers would result in a sufficient number of upgraded (enhanced) I&A systems to meet the MEP target reductions over the planning period.

Figure 26 illustrates the components of the hybrid plan. It shows the locations for downtown sewers, the 95 Lawrence Road wastewater treatment system, a permeable reactive barrier, ecological restoration projects at Mayo Creek and Herring River, and the Route 6 stormwater restoration project. The plan also shows enhanced I&A septic systems and shellfish throughout the town.

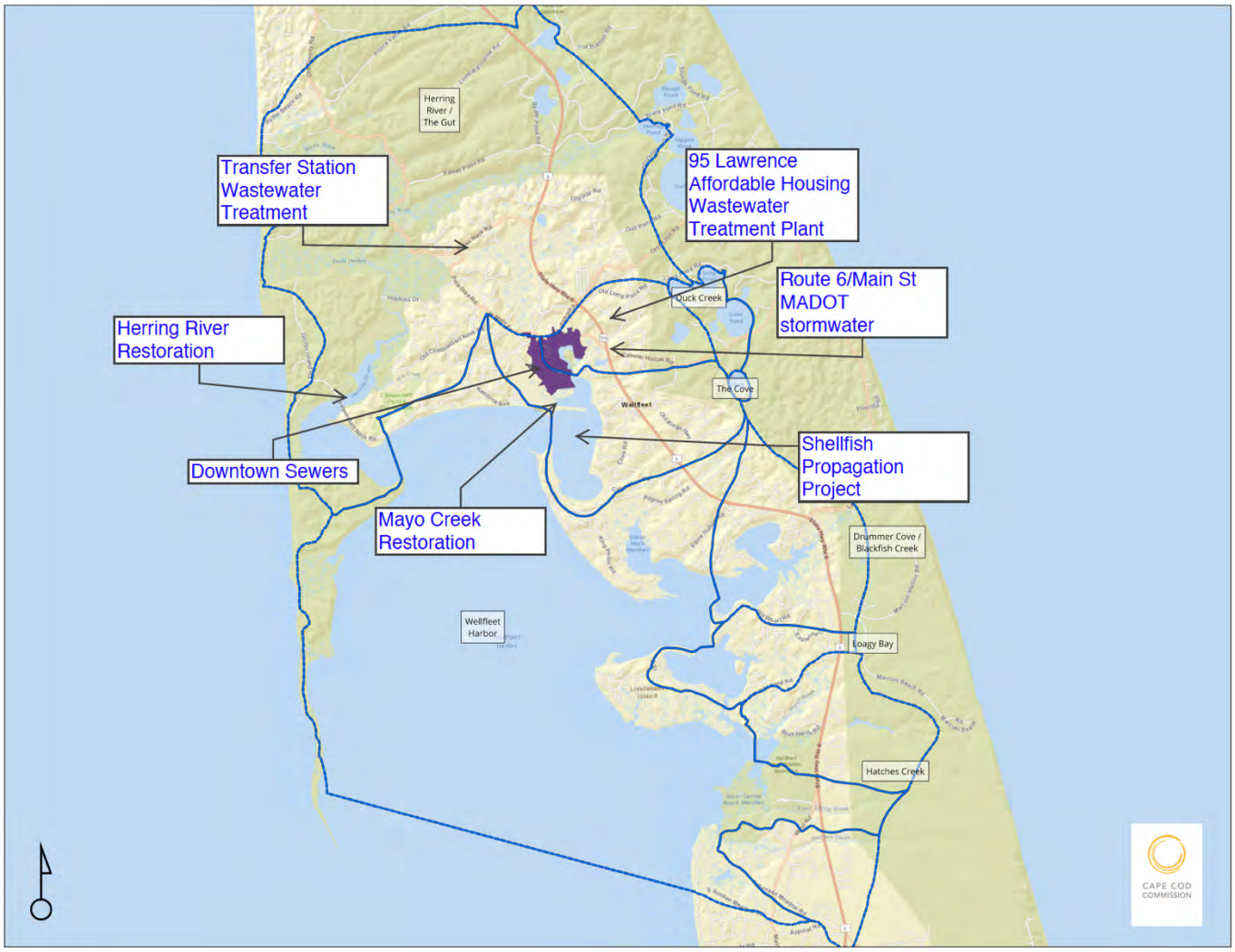


Figure 26 -Watershed Strategy Overview

GHD has prepared alternative sewer collection areas based upon the MEP nitrogen thresholds and required reductions. Two "bookend" plans were prepared (see Figures 27 and 28). Scenario A includes a targeted downtown sewer collection area within the Duck Creek and Cove watersheds. This plan was designed as part of a hybrid approach that utilizes both traditional and non-traditional technologies to achieve the MEP targets. It also includes a potential alternative location for a smaller scale treatment plant at the town hall parcel. According to available site data provided by the Wellfleet Health Department this site may have adequate capacity for the smaller downtown sewer service area. Additional test pits and

groundwater mounding analysis is required to verify the capacity of this site.

Scenario B identifies a contingency plan with a more extensive sewer collection area that would meet these same MEP targets without the non-traditional technologies. It is supplemented only with those innovative & alternative (I&A) septic systems that currently have General Approval and have a nitrogen effluent concentration of 19 mg/liter. Scenario B would utilize the town transfer station as the wastewater treatment and disposal location.

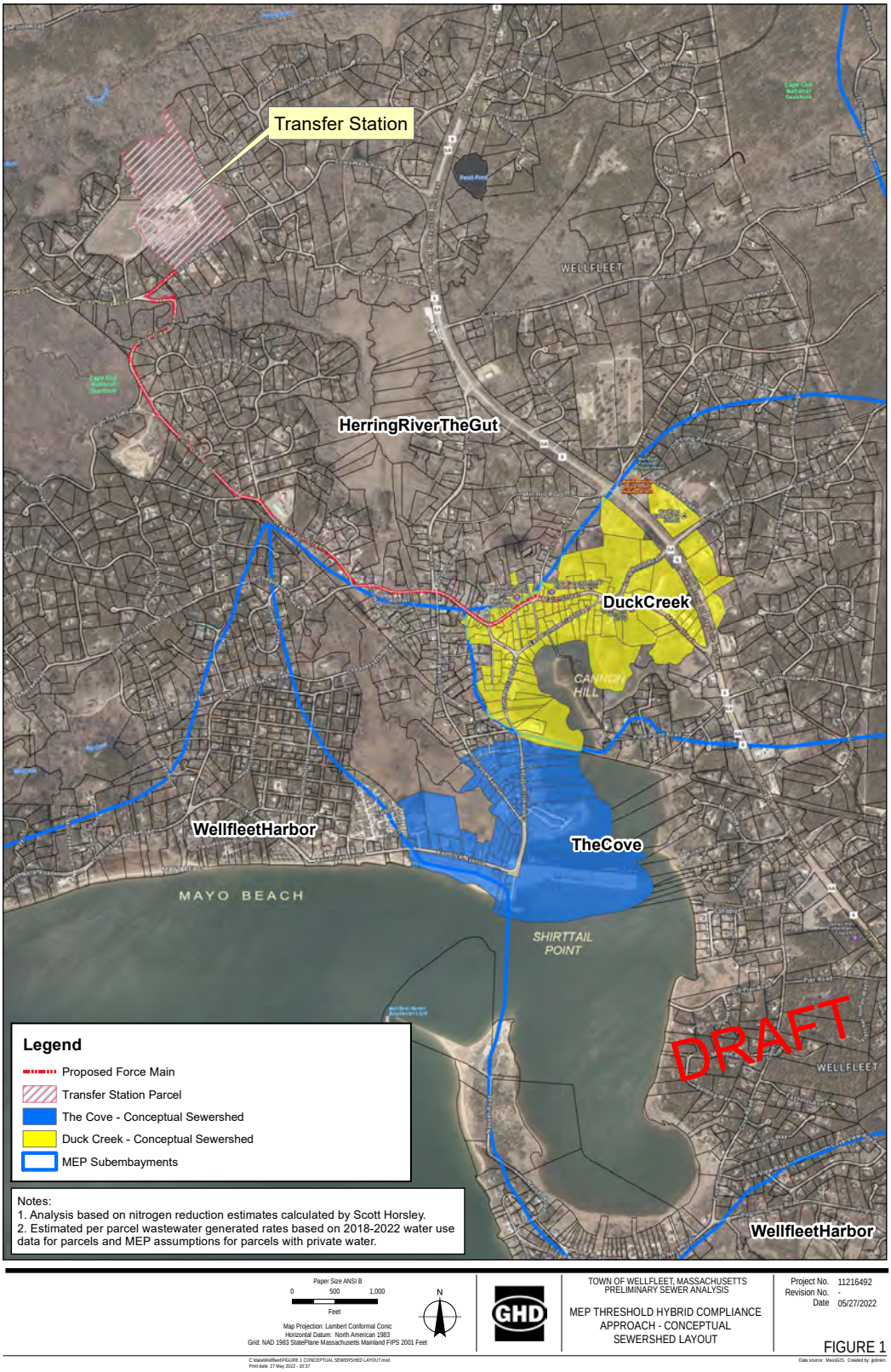


Figure 27 – Downtown Sewer Areas for Hybrid Plan (Scenario A)

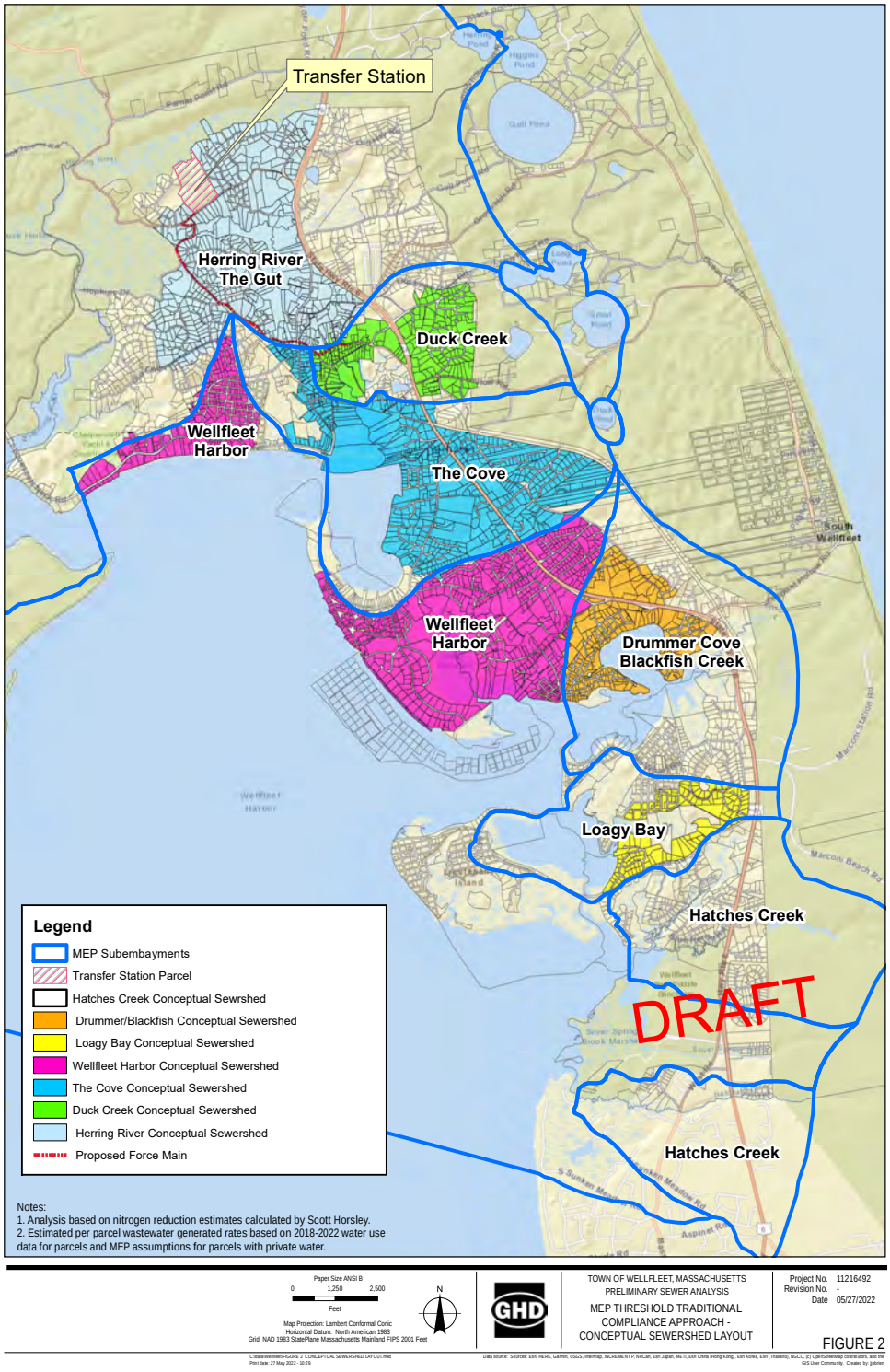


Figure 28 – Town-Wide Sewer Areas for Conventional Contingency Plan (Scenario B)

Scenario A - Hybrid Plan (I&A @ 8 mg/liter)	Herring River	Duck Creek	The Cove	Drummer/ Blackfish	Hatches	Wellfleet Harbor	Loagy Bay	
Health Regulation Require IA Future Development	307	65	147	113	153	239	43	1069
Existing Systems Upgraded Enhanced I&A Upgrades	632	397	1729	0	147	2634	221	5760
percentage load upgraded	20%	35%	81%	0%	8%	73%	43%	41%
Fertilizer Mitigation 25%	151	37	107	54	47	133	20	549
Stormwater Reductions 25%	164	42	108	55	45	104	16	534
Aquaculture/Shellfish/Harvest				1080		600	270	1950
Ecological Restoration			317					317
Permeable Reactive Barrier								0
percentage of load flowing to PRB		0%	0%					
Collection & Treatment	0	967	458	0	0	146	0	1571
95 Lawrence	0	88	0	0	0	0	0	
Harborside Trailer Park (Upgrade 2012)			0	0		146	0	
Downtown Sewers - Existing Load		864	449					
Downtown Sewers - Future Load (Redevelopment Only)	0	15	9	0	0	0	0	
percentage of load sewered	0%	50%	14%	0%	0%	0%	0%	
Treated Effluent Nitrogen Load to Watershed @ 5 mg/L	-255							-255
Total Load Reduced	999	1509	2866	1302	392	3856	571	11495
Remaining Load	0	0	0	-2	0	0	0	11495

Scenario B - Conventional Contingency Plan (I&A @ 19 mg/liter and No Non-Traditional Technologies)	Herring River	Duck Creek	The Cove	Drummer/ Blackfish	Hatches	Wellfleet Harbor	Loagy Bay	
Health Regulation Require IA Future Development	106	24	47	40	61	80	14	371
Existing Systems Upgraded Enhanced I&A Upgrades	625	0	1	241	331	374	1	1573
percentage load upgraded	49%	0%	0%	39%	42%	26%	0%	28%
Fertilizer Mitigation 25%								
Stormwater Reductions 25%								
Aquaculture/Shellfish/Harvest								
Ecological Restoration								
Permeable Reactive Barrier								
percentage of load flowing to PRB								
Collection & Treatment	2460	1485	2819	1019	0	3402	556	11741
95 Lawrence	0	88	0	0	0	0	0	
Harborside Trailer Park (Upgrade 2012)			0	0		146	0	
Municipal Sewers - Existing Load	2400	1372	2766	1000		3200	544	
Municipal Sewers - Future Load (Redevelopment Only)	60	25	53	19	0	56	12	
percentage of load sewered	48%	80%	85%	42%	0%	58%	68%	
Treated Effluent Nitrogen Load to Watershed @ 5 mg/L	-2192							-2192
Total Load Reduced	999	1509	2866	1300	392	3856	571	11493
Remaining Load	0	0	0	0	0	0	0	11493

Tables 4 and 5 – Hybrid and Conventional Contingency Plans

Sensitivity Analysis: To evaluate the potential outcomes of this hybrid approach we have conducted sensitivity analyses for several possible scenarios. These analyses included a range of potential performance for enhanced I&A septics and a range of sustainable growth of the shellfish industry.

The first sensitivity analysis included a range of three possible performance scenarios associated with the treatment performance of the enhanced innovative and alternative (I&A) septic system. The effectiveness of the enhanced I&A systems to meet the identified MEP thresholds were evaluated at 5 mg/liter, 8 mg/liter, and 11 mg/liter performance levels (see Figure 29). These scenarios also include conservative estimates of nitrogen attenuation performance of the other associated technologies including the 95 Lawrence Road wastewater treatment facility, limited downtown sewers, stormwater management, and ecological salt marsh restoration). No future nitrogen reduction credits were assumed for shellfish/aquaculture or permeable reactive barriers.

Actual performance data for these systems is provided by the Massachusetts Alternative Septic System Test Center (MASSTC). According to their recent report the non-proprietary I&A systems are achieving an average effluent concentration of 6.5 mg/liter (Heufelder, 2019). MASSTC also provides performance data on proprietary I&A septic systems. Two of these systems (NITROE and NITREX) have reported median effluent concentrations of 5.1 and 6.2 mg/liter respectively.

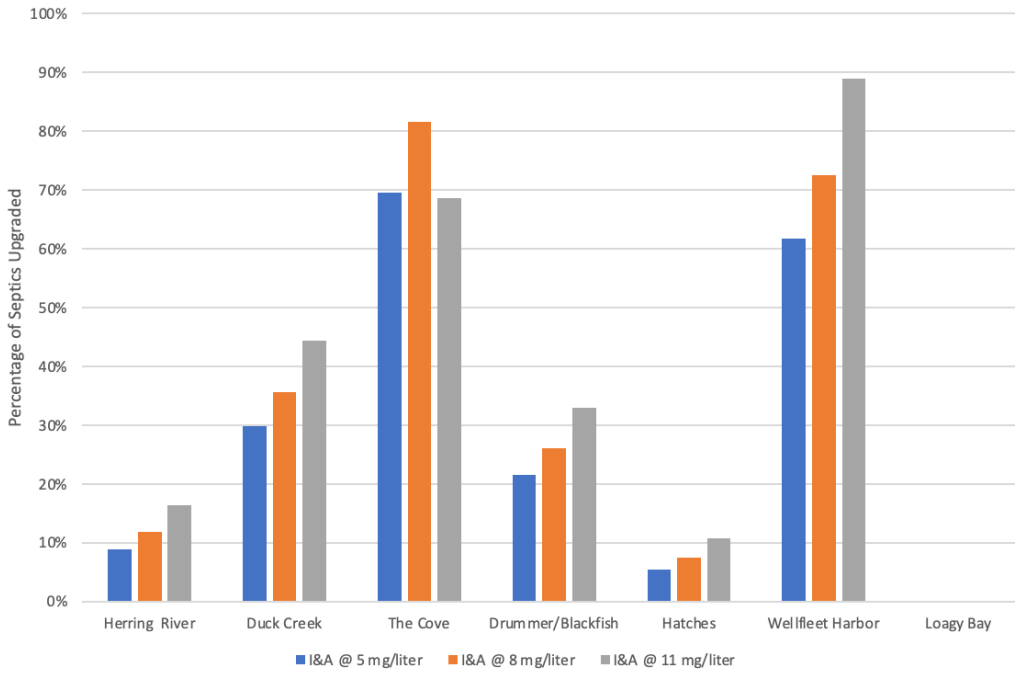


Figure 29 – Sensitivity Analysis for Enhanced I&A Septic Systems

The results of the sensitivity analysis are summarized in Figure 28 and indicate that the MEP thresholds can be achieved in all of the subwatersheds using the enhanced I&A septic systems for the 20-year (2042) planning period with performance at 5 mg/liter, 8 mg/liter levels, and 11 mg/liter.

A second sensitivity analysis was conducted to evaluate a range of potential future scenarios regarding the town's shellfish resources. Recognizing it is difficult to predict future conditions with this resource area and its inherent variability three scenarios were evaluated. These include a continued growth of the resource and industry based upon the last ten-year landings records which demonstrated increased nitrogen reductions of 1950 kg/year. If the shellfish industry continues to grow at this rate the nitrogen reductions would increase by approximately 2000 kg/year above existing conditions. A second scenario assumes that this growth rate is reduced by half of the current rate and would increase by 1000 kg/year over the twenty-year planning period. The third scenario is the most conservative and assumes no growth of the industry over the next thirty years.

To provide an estimate of the potential costs savings associated with these growth scenarios I have calculated the equivalent reduction of innovative I&A septic systems that would be required to achieve the MEP thresholds at lifecycle cost of $667/kilogram removed (see figure 30 and table 6). The results of this analysis suggests that if the shellfish industry continues to grow at the existing rate (scenario 1) until 2042 it may reduce the costs associated with I&A septic conversions by approximately $1.3 million/year ($26 million for the twenty-year planning period). If the industry grows at a rate of half of the existing rate (scenario 2) the costs savings are estimated at approximately $670,000/year ($13 million over twenty years).

The proposed hybrid plan assumes no growth of the shellfish industry. However, actual expansion that may take place over the twenty-year plan period can be accounted for and applied as nitrogen reduction credits through adaptive management as part of the proposed Watershed Permit.

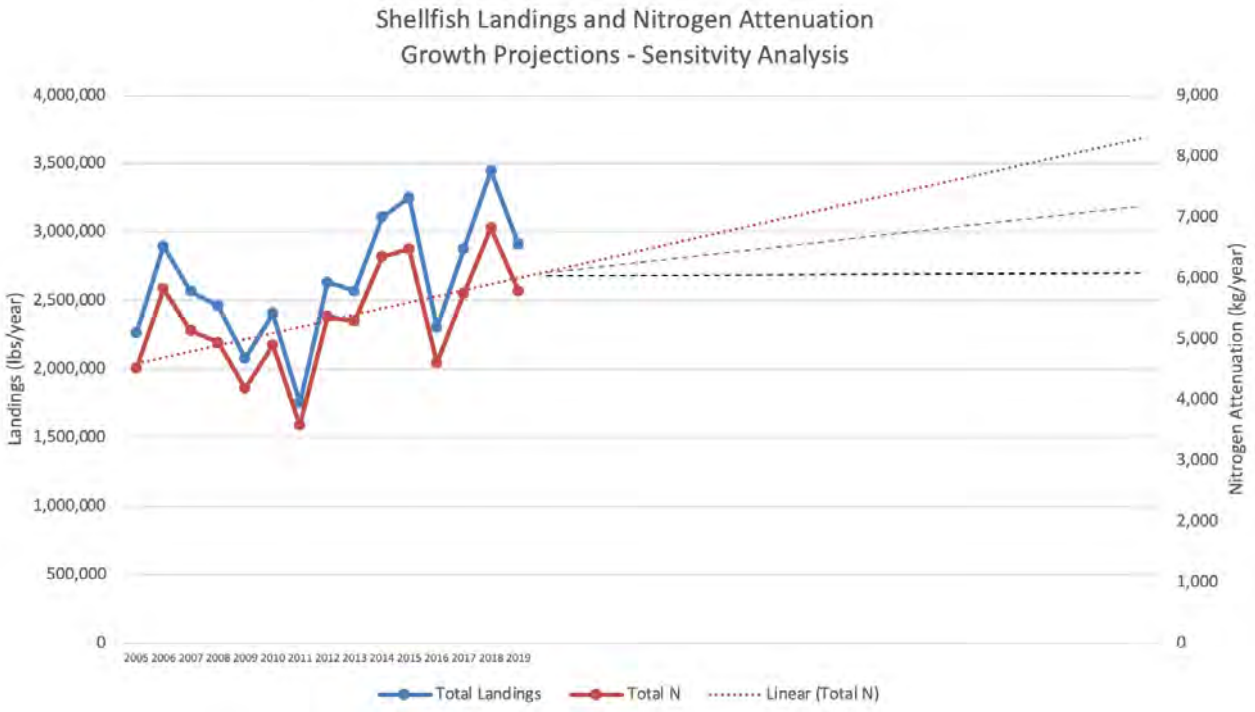


Figure 30 Sensitivity Analysis – Shellfish Projections

Table 6 – Sensitivity Analysis – Shellfish Projections and Cost Benefits

	senario 1	scenario 2	senario 3
growth rate	existing rate	50% growth	0% growth
net N reduction (kg/yr)	2000	1000	0
potential cost savings ($M/yr)	1.33	0.67	0

9.0 MANAGING GROWTH

Like other Cape Cod communities Wellfleet faces continued growth pressures which will exacerbate existing water quality problems if unchecked. The potential growth also presents potential significant cost increases associated with required treatment costs to the town. This report provides options to manage growth under two scenarios: 1) a twenty-year planning period (2022 - 2042) and 2) buildout conditions.

Twenty-Year Growth Projection (2022 – 2042): To provide a projection for future growth during the 30-year planning period building and septic system permits during the last 20 years (2000 – 2019) were reviewed. This data suggests a average annual growth rate of 29.4 new and upgraded septic systems per year (590 new and upgraded septic systems) over the 20-year

planning period. The Wellfleet Housing Needs Assessment and Action Plan (2017) provides construction data during the 2000-2016 period (see figure 31) and indicates that approximately half of these permits represented new homes, the other half were expansions of existing homes.

To estimate future increases in nitrogen loading associated with this growth during the 20-year period 295 new homes were added at nitrogen loading rates of 4.73 kg/year-home. Nitrogen load increases associated with the 295 housing expansions was estimated at one-third of this rate at 1.58 kg/year-home. This assumes an increase of one person per household in addition to the existing occupancy rate of 1.98 persons/household (Wellfleet Housing Study).

Housing Growth

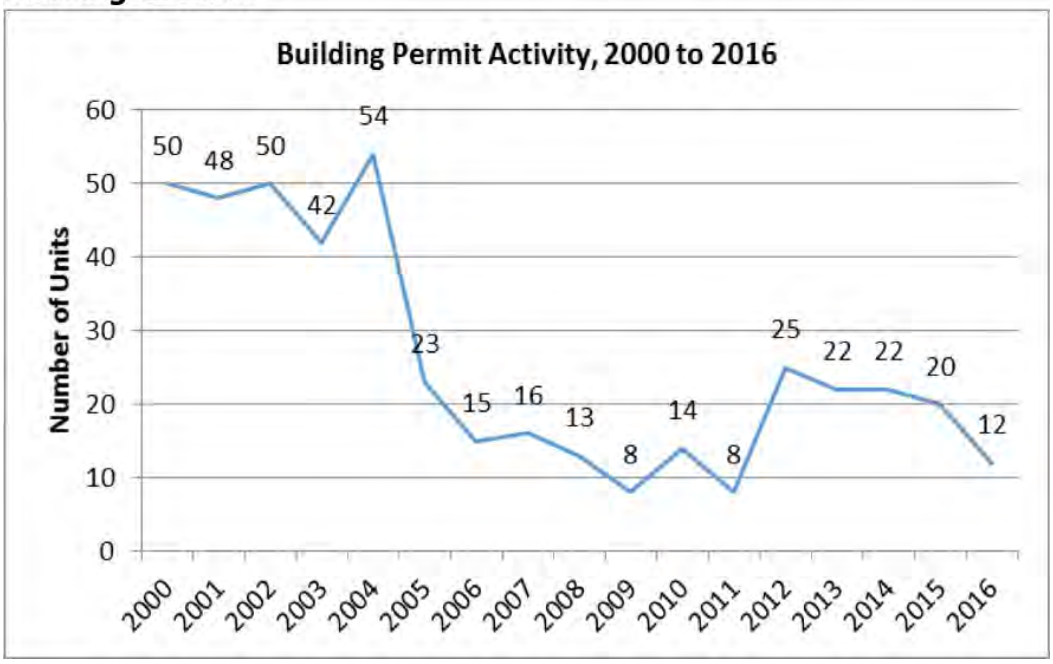


Figure 31 - Housing Growth 2000 - 2016 (Wellfleet Affordable Housing Plan, 2017)

Several other recommendations were made in the Housing Plan that can be integrated into this plan. These include the following:

• Integrate affordable housing into the Cluster Residential Development Bylaw. The Town will investigate amending its zoning to provide mandates and incentives for including affordable housing in its Cluster Residential Development by-law that promotes a smarter way of developing land besides the traditional subdivision and suburban sprawl.

• Allow more diverse housing types in more areas

• The Town should consider where somewhat denser housing development might be added, scrutinizing its zoning districts for opportunities to weave more diverse housing types, including multi-family housing, into neighborhoods.

These affordable housing recommendations could also provide additional benefits regarding cost-effective wastewater treatment options. Clustering and integrating future housing with existing development enable the application of shared or neighborhood wastewater systems including both enhanced I&A septic technologies and neighborhood wastewater treatment plants (such as the 95 Lawrence Road project).

Buildout: A buildout analysis provides a theoretical maximum level of development that could occur based upon the number of existing developable parcels and zoning restrictions. The 2017 MEP report provided an estimated buildout condition assuming that every developable lot was built to its full capacity in accordance with zoning laws. The MEP buildout is relatively straightforward and is generally completed in four steps: 1) each residential parcel classified by the town assessor as developable is identified and divided by minimum lot sizes specified in town zoning and the resulting number of new residential units is rounded down, 2) parcels classified as developable commercial and industrial parcels by the town assessor are identified, 3) residential, commercial and industrial parcels with existing development and areas greater than twice zoning's minimum lot size are identified, divided by the minimum lot size and the resulting number of new units is rounded down, and 4) results are discussed with town staff and/or planning board members and the analysis results are modified based on local knowledge. The MEP report also states that, "it should be noted that the initial MEP buildout approach is relatively simple and does not include any modifications/refinements for lot line setbacks, wetlands, road construction, frontage requirements, parcel shape requirements, or other more detailed zoning provisions". This buildout analysis suggests that anthropogenic nitrogen loads could increase by 40% with individual subwatershed increases of 30% - 71%

Growth Management Options: In general, there are three potential options to manage this future growth from a water quality perspective. They include:

1. Best available technology to accommodate growth
2. Transfer of Development Rights to re-focus growth to less sensitive areas
3. Open space land acquisition to reduce buildout

Best Available Technology at Full Buildout: The first option is to provide adequate wastewater treatment technology to accommodate growth by providing the necessary wastewater infrastructure. This could be achieved by providing state-of-the-art, on-site septic technology (enhanced innovative and alternative systems) and/or connection to the downtown sewer collection and treatment systems.

Transfer of Development Rights (TDR): Another approach to address the water quality implications of the full buildout impact would be to re-direct future growth to those watersheds that have higher assimilative capacity for additional nitrogen. This could be accomplished using a transfer-of-development rights (TDR) regulatory mechanism. TDR is a growth control option that can be adopted as part of the town's zoning bylaw. TDR provides the option (and incentive) to trade or transfer development rights from those watersheds that are most threatened by excessive nitrogen from future development to those areas of town that have more capacity.

Density bonuses can be provided to property owner as incentives. According to the sensiviity analyses TDR could be applied to meet MEP thresholds using enhanced I&A septic systems under buildout conditions by redirecting growth from three sub watersheds (The Cove, Drummer Cove and Blackfish Creek, and Loagy Bay) to the Herring River sub watershed. It is also possible that the Herring River restoration project would provide additional assimilative capacity within that subwatershed.

Open Space & Land Acquisition: A third option is to moderate growth is to reduce the buildout by acquiring developable land as part of an open space/land conservation program. The Wellfleet Conservation Trust has been active in acquiring open space and developing conservation restrictions. The town's 2005 Open Space Plan identified 524 vacant acres which could be protected for conservation/recreation. The Plan identifies Wellfleet Harbor water quality as a key goal. Current and near future land acquisition funding will come largely through Community Preservation Act (CPA) funds. The Plan recommended that, "the town should continue to work in conjunction with land trusts (i.e. the Wellfleet Conservation Trust, The Compact of Cape Cod Conservation Trusts, Inc. etc.) to acquire conservation restrictions on all unprotected municipal lands even if they are currently designated as conservation and recreation land and on any privately owned land that exhibits conservation values including wetland resource areas".

Ideally, a combination of these three approaches may reduce the burden associated with future potential growth and the associated increases in nitrogen loading.

10.0 COSTS

Preliminary cost estimates for sewer collection and treatment systems have been provided by GHD (see Appendix). To estimate costs associated with innovative and alternative (I&A) septic systems. I have compiled actual cost data from two projects on Cape Cod in the towns of Barnstable and Falmouth. These studies were conducted by two third-party organizations – Barnstable Clean Water Coalition and Buzzards Bay Coalition. Assistance was also provided by the Massachusetts Alternative Septic System Test Center (MASSTC) in both projects.

A total of sixteen I&A septic systems (eight in each study) were installed and are being monitored for performance. Reported costs include engineering design and construction (including nitrogen attenuation technologies and installation). Half of the systems (6) required full upgrades including new septic tanks and leaching facilities. The other half (6) were retrofitted by adding the nitrogen attenuation technology and in some cases with partial upgrades including either a new septic tank or leaching facility.

The average costs for construction were reported at $22,372 for retrofits, $27,981 for partial

upgrades, and $34,172 for full replacement upgrades. The overall average construction cost was $27,668. To account for recent inflation costs in my analysis I have increased this to $35,000 per system.

To estimate the overall costs of the hybrid and conventional plans I have applied the cost estimates provided by GHD for the centralized sewering, the costs associated with the 95 Lawrence project provided by Bohler Engineering, and the I&A septics at cost of $35,000 (including engineering design of $5000 per system). Table 7 provides a summary of these costs.

Table 7 – Costs ($ Millions)

	Scenario A Hybrid	Scenario B Traditional
Collection System	$9.4	$80.4
Wastewater Treatment	$10.9	$32.7
Sewer Laterals	$3.2	$27.5
Design	$2.0	$11.3
Construction Services	$5.0	$30.7
Total Municipal Centralized Infrastructure	$30.5	$182.6
Collection System	$0.8	$0.8
Wastewater Treatment	$0.9	$0.9
Leaching System	$0.2	$0.2
Design & Contingencies	$0.6	$0.6
Total 95 Lawrence Capital Costs	$2.5	$2.5
I&A Septics	$63.0	$44.9
Design	$10.6	$7.5
Total I&A Septics	$73.6	$52.4
TOTAL COSTS (millions)	$106.6	$237.5

Cost estimates for other portions of the plan and for operation, maintenance, and monitoring are under preparation. The costs associated with the permeable reactive barrier (PRB) will be estimated associated with the pilot project investigation and design study that has been approved by the recent town meeting. It is interesting to note that these costs could be reduced by as much as $26 million with continued growth of the shellfish industry.

To estimate the cost efficiency of the enhanced I&A septic systems and the centralized sewering options a lifecycle analysis was performed using a project period of twenty years (Table 8). The analysis includes a range of performance (nitrogen removal) for the enhanced I&A septic systems (5 – 11 mg/liter) and the centralized wastewater treatment plant (3 – 5 mg/liter).

Table 8 – Comparative Costs – Enhanced I&A Septics and Conventional Wastewater Collection and Treatment

	Concentration	N load	N reduction		Cost	
	mg/liter	kg/year	kg/year	percentage	capital	$/kg
Title 5 system	23.6	4.73				
I&A @ 5 mg/liter	5	0.90	3.83	81%	$ 35,000	$ 457
I&A @ 8 mg/liter	8	1.44	3.29	69%	$ 35,000	$ 533
I&A @ 11 mg/liter	11	1.98	2.74	58%	$ 35,000	$ 638
I&A @ 19 mg/liter	19	3.43	1.30	28%	$ 35,000	$ 1,344
Town-wide WW @ 3 mg/l	3	0.54	4.19	89%	$ 76,400	$ 912
Town-wide WW @ 5 mg/l	5	0.90	3.83	81%	$ 76,400	$ 998
Downtown WW @ 3 mg/l	3	0.54	4.19	89%	$ 109,800	$ 1,311
Downtown WW @ 5 mg/l	5	0.90	3.83	81%	$ 109,800	$ 1,435
Cluster Treatment A @ 6 mg/l	6	174	511	75%	$ 4,703,300	$ 460
Cluster Treatment A @ 10 mg/l	10	290	395	58%	$ 4,703,300	$ 595
Cluster Treatment B @ 6 mg/l	6	124	365	75%	$ 2,546,210	$ 349
Cluster Treatment B @ 10 mg/l	10	207	282	58%	$ 2,546,210	$ 451

Note: Cluster Treatment is for 95 Lawrence Road project. Option A includes the municipal buildings and the neighborhood. Option B includes the municipal buildings.

11.0 IMPLEMENTATION SCHEDULE

The proposed plan is organized into a 20-year implementation framework, consisting of four, five-year periods (see Table 9). Each phase identifies specific project implementation elements for each subwatershed. As stated earlier in this report Phase 1 includes a downtown sewer collection and treatment system, a neighborhood cluster wastewater treatment system, development of an RME, implementation of enhanced I&A septic systems, and a pilot permeable reactive barrier. Phase 1 also includes the Mayo Creek restoration project, continued growth of the shellfish industry, and stormwater remediation projects.

Subsequent phases include the continued deployment of enhanced I&A septic systems, implementation of stormwater retrofits and fertilizer management. An adaptive management process will be used to guide detailed decision-making in each subsequent phase. Ultimately. the plan is designed to achieve the MEP thresholds and the required nitrogen loading reductions. The plan includes nitrogen loading reductions that have occurred since the MEP analysis in 2010 (including the upgrade of the Harborside Village wastewater treatment plant and increases in shellfish harvest).

The implementation of enhanced I&A systems can be linked to property owner initiatives

including new construction, expansions of buildings, repairs to failing systems, and real estate transactions. A proposed Health Regulation (and possibly a Wetlands Regulation) could provide these triggers that would direct conversion to the more effective septic system technologies over the twenty-year planning timeframe.

Table 9 – Targeted Watershed Plan Implementation Schedule

Phase		Nitrogen Reduction Strategies														
		Wastewater Collection/Treatment		Enhanced I&A Septics		Stormwater		Fertilizer		Permeable Reactive Barrier (PRB)		Shellfish		Ecological Restoration		TOTAL
			kg/yr		kg/yr		kg/yr		kg/yr		kg/yr		kg/yr		kg/yr	kg/yr
0	2010 - 2022	Upgrade Harborside Village Wastewater Treatment Plant	146									Increased Shellfish Landings	1950			2096
	2023 - 2024	Engineering Design of 95 Lawrence - Design & Permit Phase 1 (Housing & Municipal Properties), Evalute Town Hall parce, and Design of Downtown Sewers		Establish Responsible Management Entity (RME) and install 100 EIA systems (50/year)	329	Design & Permitting Rte 6 MADOT project		Develop Fertilzer Controls and Outreach		Pilot Project		Pilot Propagation Project - Cove		Mayo Creek Design & Permitting		329
1	2025 - 2027	Construct Phase 1 95 Lawrence project, Downtown Sewer & Treatment Plant	1425	Establish Responsible Management Entity (RME) and install 300 EIA systems (100/year)	987	Construct Route 6 MADOT project	134	Implement Fertilizer Controls	137	Construct PRB		Harvest Cove Pilot Project		Mayo Creek Construction & Monitoring	317	3000
2	2028 - 2032	Identify & Construct Additional Neighborhood Systems		Install 576 EIAs (115/year)	1895	Identify and Construct additional stormwater mitigation	134	Implement Fertilizer Controls	137			Potential growth		Herring River		2166
3	2033 - 2037	Identify & Construct Additional Neighborhood Systems		Install 576 EIAs (115/year)	1895	Identify and Construct additional stormwater mitigation	134	Implement Fertilizer Controls	137			Potential growth		Sunken Meadow (Hatches Creek)		2166
4	2038 - 2042	Identify & Construct Additional Neighborhood Systems		Install 576 EIAs (115/year)	1895	Identify and Construct additional stormwater mitigation	134	Implement Fertilizer Controls	137			Potential growth		Trout Brook (Upper Basin)		2166
Totals			1571		7001		534		549		0		1950		317	11922

12.0 OPPORTUNITIES FOR NITROGEN TRADING

The towns of Truro and Eastham share smaller portions of the Wellfleet Harbor watershed. Their options to participate in the reduction of nitrogen loads include both source controls and nitrogen trading. Source controls include the conversion of existing septic systems to enhanced I&A systems. Nitrogen trading could include financial contributions towards the implementation of strategies within the Town of Wellfleet at locations closer to receiving waters where the benefits might be realized in a shorter timeframe and for less cost.

Nitrogen trading could also be applied to support potential growth management strategies such as a transfer-of- development-rights (TDR) zoning initiative. Nitrogen credits could be linked to development rights and could be used to calculate incentives to redirect potential growth to areas of the town that are either served by sewers or have the assimilative capacity to accept additional nitrogen loading.

13.0 PUBLIC PARTICIPATION

The Town of Wellfleet has conducted dozens of public meetings regarding wastewater and nutrient management over the last twenty years. These have included meetings during the prior engineering studies (Woodard & Curran and Environmental Partners). The Cape Cod Commission conducted eight public meetings during the Cape Cod 208 Water Quality planning process.

During the last two years the Wellfleet Comprehensive Wastewater Committee has conducted dozens of public meetings, several in conjunction with other local boards including Select Board, Planning Board, Natural Resources Board, Shellfish Advisory Committee, and the Finance Committee. Based upon input from the Shellfish Advisory Committee the name of the Comprehensive Wastewater Committee was changed to the Clean Water Advisory Committee reflecting a broader focus on nutrient management recognizing that nitrogen is a critical food source for coastal ecosystems.

Most recently, three articles were prepared to begin work on the primary elements of the recommended hybrid plan, were presented and discussed at the June 26, 2021 town meeting. These articles included funding for three pilot projects: 1) enhanced I&A septic systems, 2) permeable reactive barrier, and 3) neighborhood wastewater treatment system for the 95 Lawrence affordable housing project. All three of these articles were passed with unanimous or super majority votes and were subsequently endorsed at the town referendum vote on June 30, 2021.

A series of webpages have been developed and are posted on the town's website at https://www.wellfleet-ma.gov/clean-water-advisory-committee. This website provides

descriptions of the plan and the recommended technologies. Background reports and other relevant documents are also provided at this location

14.0 MONITORING

Water quality monitoring will be conducted in the receiving waters (at the MEP sentinel station) and within each subwatershed at the locations of the nitrogen reduction strategies. Monitoring protocols will be developed based upon Cape Cod Commission's "Preliminary Guidance for Piloting, Monitoring, and Evaluating Non-Traditional Water Quality Improvement Technologies on Cape Cod" (2016) and MADEP protocols.

Effluent water quality and flow will be measured at the wastewater treatment facilities (including the 95 Lawrence Road project). Enhanced I&A septic systems will be monitored in accordance with MADEP requirements. Permeable reactive barriers will be evaluated using upgradient and downgradient wells. Shellfish landings will be tracked in accordance with MA Division of Marine Fisheries protocols. Ecological restoration projects (including Mayo Creek) will be evaluated using pre- and post-project water quality monitoring data. Stormwater retrofit projects (including Route 6) will be documented.

Water quality monitoring will also be conducted at the Sentinel Station in Wellfleet Harbor to assess ecosystem health improvements over time.

15.0 ADAPTIVE MANAGEMENT

The hybrid plan is designed based upon the Cape Cod Commission's 208 approach to be implemented using an adaptive management approach (see figure 32). The first phase of the plan includes several pilot projects including installation of enhanced I&A septics, a permeable reactive barrier, and construction of a wastewater collection and treatment system.
At the end of each five-year phase the effectiveness of the plan at achieving nitrogen loading reductions will be evaluated. Accordingly, adjustments will be made to the plan as needed.

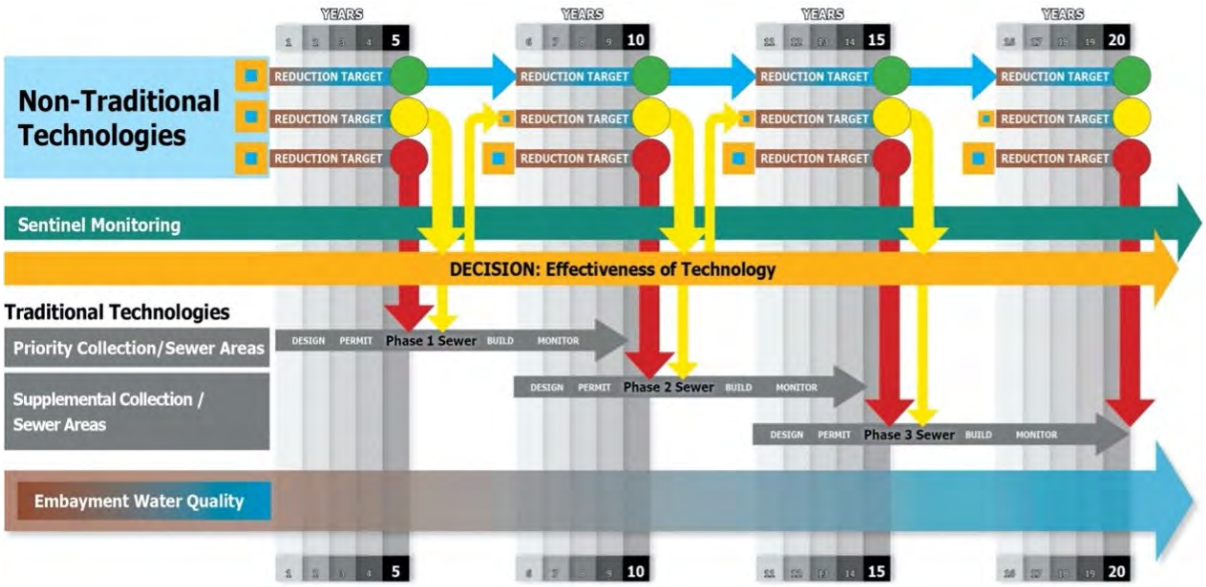


Figure 32: Adaptive Management

16.0 CONSISTENCY WITH 208 PLAN UPDATE (CAPE COD COMMISSION)

Wellfleet Harbor has been identified by the Cape Cod Commission as a priority watershed for the development of a Targeted Watershed Nutrient Management Plan (TWMP). Among the purposes of the TWMP is to demonstrate consistency with the 208 Plan Update and provide a basis for watershed permitting that includes both traditional and non-traditional technologies. Specific guidance on the requirements for 208 Plan Update consistency has been provided by the Cape Cod Commission in Appendix G of the 2017 Addendum to the Water Quality Management Plan.

17.0. FINANCING

17.1 SHORT-TERM RENTAL TAX

Legislation was signed into law in December, 2018 which expands the room occupancy excise, G.L. c. 64G, to short-term rentals of property for more than 14 days in a calendar year, starting July 1, 2019 for which a rental contract was entered into on or after January 1, 2019. The town of Wellfleet recently raised this tax rate from 4% to 6% at 2021 town meeting. It is estimated that the additional rooms tax generated from this category of rental property will provide an additional $1 million per year. Over the next 30 years it is estimated this fund could generate in excess of $30 million.

17.2 CAPE COD & ISLANDS WATER PROTECTION FUND

Preliminary projections for revenue to be generated by the Cape Cod & Islands Water Protection Fund (CCIWPF) amount to $18 million annually. A tax rate of 2.75% is applied to stays in hotels, motels, B&B's, other lodging establishments as well as short-term rental properties rented in excess of 14 days in a calendar year. The revenue will be awarded to communities in the form of principal subsidies on loans issued through the State Revolving Loan Program. During the September 2020 – August 2021 period approximately $800,000 was collected in Wellfleet. Over the next 20 years it is estimated this fund could generate in excess of $16 million.

17.3. AMERICAN RESCUE PLAN ACT

In 2022 the United States Congress passed legislation authorizing funding to assist states and local goverments with inftrastructure funding. Current discussions at the Barnstable County Commissioners suggest that these funds will be available to subsidize the Cape & Islands Water Protection Fund and the Barnstable County Septic Loan Program.

17.4 BARNSTABLE COUNTY SEPTIC LOAN PROGRAM

Historically this loan program has been administered by the Barnstable County Department of Health & Environment and assists homeowners to upgrade hydraulically failed septic systems. Recent discussions with the Barnstable County Commissioners indicate that this program is

likely to be expanded to include upgrades to enhanced I&A septic systems with lower interest rates and potentially loan forgiveness.

17.5 STABILIZATION FUND

A new Stabilization Fund could be established to dedicate a portion of this new revenue stream to the comprehensive management of the town's water and wastewater needs and none of the revenue will be credited to the General Fund.

17.6 SEWER ASSESSMENTS

Chapter 83 of the General Laws allows for the issuance of assessments to property abutters for a proportional share of the cost for a common sewer. The town will make every effort to maximize the number of property abutters on a specific sewer project to keep the proportional share of the costs to the least amount possible. The town could set an upper limit on the sewer assessments and subsidize them depending upon the amount of principal subsidies received from the CCIWPF and tax revenue generated from meals and rooms taxes. A reasonable upper limit may be defined as the average cost to replace a septic system.

Property owners have the option to pay the sewer assessment in full or apportion the cost to future tax bills for up to 30 years under Chapter 83 of the General Laws. The interest rate applied to the apportioned assessments is either 5%, or by vote of the Selectboard, can be at a rate up to 2% above the net rate of interest chargeable to the town for the project to which the assessment relates.

17.7 SYSTEM DEVELOPMENT CHARGES

This is a fee in the utility industry that is charged to new customers of a utility system to pay for the investments made into the "backbone" of a system. There are three (3) methods that could be used to calculate the charge:

- Historical buy-in method – typically used when the existing system has sufficient capacity to serve new development now and into the future
- Incremental cost method – typically used when the existing system has limited or no capacity to serve new development and new facilities are needed to serve the next increment of new development
- Combined approach – typically used where some capacity is available in parts of the existing system, but new or incremental capacity will need to be built in other parts to serve new development in the near future

The financing plan includes a system development charge that would be paid at the time of connection to the sewer system

17.8 DEBT ISSUANCE

When debt is necessary to finance capital improvements, the town either issues General Obligation Bonds through the capital markets or obtains loans through state agencies such as

the Department of Environmental Protection's Massachusetts Clean Water Trust (MCWT) that offers municipal infrastructure financing programs at low interest rates, occasional principal subsidies, and with attractive repayment terms.

The MCWT offers 0% loans for projects that contribute to nutrient enrichment reduction; 1.5% loans for Housing Choice Communities and 2% loans as a standard option. The loans can be amortized for up to 30 years provided the asset has a useful life exceeding that time period.

Project costs that are not financed through the MCWT will be financed with a General Obligation Bond issue in the capital market. The town's current bond rating is AAA and should result in 20 year loan rates of approximately in the 4% to 6% range under current market conditions.

17.9 FEDERAL & STATE GRANTS

Most grants available from state and federal agencies for sewer infrastructure require target pilot projects and innovative or "green" projects. Grants are typically not available for standard utility infrastructure needs such as replacing sewer mains or building of pump stations to meet on-going demand. Federal and State assistance has been directed to the MCWT to date which has allowed for the favorable borrowing conditions mentioned previously. This financing plan assumes this method of assistance will continue.

17.10 PROPERTY TAXES

The financial plan can include property taxes as a funding source for the program. They may be in the form of an operating override dedicated for a capital or debt exclusion to cover some or all of a project's cost, or a reprioritization of the existing tax levy for this purpose.

17.11 RESPONSIBLE MANAGEMENT ENTITY (RME)

A significant portion of the proposed watershed plan includes numerous enhanced septic systems throughout the town. These systems will be best managed through a coordinated responsible management entity (RME) that can coordinate operational visits, inspections, and monitoring requirements. The RME can be the organization that calculates the resulting nitrogen reductions and reports to MADEP. It can be supported through a fee structure paid for by property owners and/or the Town of Wellfleet.

The U.S. Environmental Protection Agency (USEPA) has developed guidance on various RME structures and approaches. They include an alternative models that include both private and public (municipal) ownership of septic systems and a range of services (USEPA, 2003). At this point, this plan recommends EPA model 4 in which private ownership of septic systems and on-site treatment technologies supported by a town-wide RME that would provide the operation, maintenance, and monitoring services. These services would be paid for by a fee to property owners.

18.0 REFERENCES

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Technical Memorandum

June 14, 2022

To	Town of Wellfleet, MA	**Contact No.**	774-470-1637
Copy to		**Email**	anastasia.rudenko@ghd.com
From	Anastasia Rudenko, PE, BCEE, ENV SP	**Project No.**	11216492
Project Name	Town of Wellfleet TWMP – Preliminary Sewer Analysis		
Subject	Preliminary Sewer Analysis – DRAFT Rev1		

1. Introduction

The Town of Wellfleet, Massachusetts (Town) is undertaking a Targeted Wastewater Management Planning (TWMP) process to develop strategies for addressing wastewater needs and nutrient impacts to the Town's coastal estuaries.

This memorandum summarizes the evaluation that was completed to assess the approximate extent of centralized sewer infrastructure required to meet the Town's nitrogen reduction strategies under two scenarios—the Massachusetts Estuaries Project (MEP) Hybrid Threshold Compliance Plan and MEP Traditional Threshold Compliance Plan.

2. References, Datasets, and Design Guidelines

The references, datasets, and guidelines listed below were used to develop this memorandum. Documents are referred to by the abbreviation indicated in parenthesis for the remainder of the memorandum.

References:

- 'Wellfleet Harbor Targeted Watershed Management Plan – Draft Final Report', prepared by Scott Horsley, Water Resources Consultant and dated June 15, 2022 (2022 Draft Wellfleet TWMP)
- 'Groundwater Modeling Evaluation of Treated Effluent Recharge to Groundwater Wellfleet Transfer Station – Final Technical Memorandum', prepared by GHD and dated April 27, 2021. (2021 GHD Wellfleet Transfer Station Evaluation)
- 'Massachusetts Estuaries Project – Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Wellfleet Harbor Embayment System Town of Wellfleet, Massachusetts Final Report – March 2017', prepared by the University of Massachusetts Dartmouth School of Marin Science and Technology and Massachusetts Department of Environmental Protection. (Wellfleet Harbor MEP Report)
- 'Comprehensive Wastewater Management Plan: Phase II – Alternatives Analysis Draft Report' prepared by Environmental Partners, dated March 2014. (2014 Environmental Partners Alternatives Analysis Draft Report)

– ‘Comparison of Costs for Wastewater Management Systems Applicable to Cape Cod – Guidance to Cape Cod Towns Undertaking Comprehensive Wastewater Management Planning,’ prepared by the Barnstable County Wastewater Cost Task Force, updated by AECOM – April 2010 (Updated April 2014 v2) (2010 CCC Cost Comparison Report)
– ‘Zoning Map Wellfleet, MA – April 2004’
– ‘Water Supply & Wastewater Disposal Study, Wellfleet MA’ prepared by Woodard & Curran & Lombardo Associates, Inc., dated October 2001. (2001 Woodard & Curran & Lombardo Associates Wastewater Study)

Datasets:

– 2018 – 2020 public water system usage data, provide by the Town of Wellfleet.
– Town of Wellfleet standardized assessor’s parcel mapping data set, last edited May 13, 2013.

Guidelines:

– ‘Guidelines for the Design, Construction, Operation and Maintenance of Small Wastewater Treatment Facilities with Land Disposal’, prepared by MassDEP and revised in July 2018 (2018 MassDEP Small WWTF Guidelines).

3. Preliminary Sewer Analysis

3.1 Centralized Sewer Areas

An analysis was conducted to identify potential areas for centralized sewer infrastructure as part of the Town’s MEP Threshold Compliance Approaches development. Areas targeted for sewering were developed based on a review of previous evaluations that have been completed as part of the Town’s nitrogen management planning process (2001 Woodard & Curran & Lombardo Associates Wastewater Study and 2014 Environmental Partners Alternatives Analysis Draft Report).

Previous evaluations identified Wellfleet’s “Central District” for potential sewering due to the density of parcels in this area. The Central District is shown on Wellfleet’s Zoning Map as portions of Kendrick Avenue, Commercial Street, Main Street, Bank Street, and Briar Lane. The Central District is located primarily in the Duck Creek and The Cove sub-watersheds of Wellfleet Harbor.

Centralized wastewater treatment nitrogen reduction targets were established for two MEP Threshold Compliance Approaches by Water Resources Consultant Scott Horsley as part of the 2022 Draft Wellfleet TWMP. Both approaches are outlined in Section 3.4. Centralized sewers areas were identified to meet the established nitrogen reduction targets in each sub-watershed based on a wastewater flow estimate analysis, described in Section 3.3.

3.2 Centralized Wastewater Treatment and Treated Effluent Recharge

During the TWMP process the Wellfleet Transfer Station Parcel (266 Coles Neck Road) was identified as a potential site for the infiltration of treated wastewater effluent from a potential future wastewater treatment facility. This evaluation presumes that centralized wastewater treatment and treated effluent recharge are located on the Wellfleet Transfer Station Parcel.

Field investigations (groundwater monitoring well installation, soil boring and hydraulic load testing) conducted by GHD in 2020 indicate a high infiltration rate at the site for treated effluent recharge. Conceptual layouts, developed during this evaluation, indicate adequate available area for treated effluent recharge up to 0.79 mgd average annual flow (based on a design hydraulic loading rate of 7 gpd/sf during maximum month conditions).

As part of the Transfer Station parcel evaluation, a local-scale groundwater flow model based on the USGS regional groundwater flow model (Masterson, 2004) was developed by GHD for the lower Cape Cod aquifer

system. Effluent recharge simulation results provided by the local-scale model indicate that treated effluent discharge migration in groundwater to surface water is within the Herring River sub-watershed of the Wellfleet watershed.

Due to its location in a sub-watershed with a MEP nitrogen threshold target, this evaluation assumes that centralized treatment at the site will achieve an effluent Total Nitrogen concentration of 5 mg/L in order to minimize the re-introduction of nitrogen to the sub-watershed through treated effluent recharge. Each MEP Threshold Compliance Approach outline in Section 3.4 includes an increased septic nitrogen reduction goal in the Herring River sub-watershed to offset nitrogen re-introduced to this sub-watershed through treated effluent recharge.

3.3 Wastewater Flow Estimate Development

3.3.1 Parcel with Available Water Use Data

Water usage data for 261 parcels for the years 2018 through 2020 within the Town of Wellfleet was provided by the Wellfleet Water District. This data was used to develop estimated wastewater flows for parcels within the Town connected to the Public Water Supply system. Two hundred and twenty (220) of the 261 parcels in the dataset had water usage (values greater than zero). The 41 parcels listed on public water supply with no apparent water usage during the study period were taken out of the dataset and assigned average water usage data based on MEP assumptions, as outlined in Section 3.3.2.

The water use information was joined to the most recent Assessor's data (May 13, 2013) by account numbers using GIS. A 90% conversion factor (which is consistent with the conversion factor used in the MEP reports) was used as an estimate to convert water usage to wastewater flow.

Table 1 summarizes average daily wastewater flows for properties with water use data. The relatively low per property single family residential wastewater flows are indicative of the seasonal nature of these properties, typically trending with higher water usage in the summer and lower water usage in the winter. Three-year average daily wastewater flows were used to calculate average per parcel nitrogen loads for this analysis. Peaking factors from regional wastewater treatment facilities of similar sizes were used to accommodate for the seasonality of the water usage in conceptual wastewater treatment facility sizing.

Table 1 Average Wastewater Flows for Parcels Connected to the Public Water Supply

Type of Parcel	Wastewater Flow[1]
Single Family Residential	82 gpd
Commercial	375 gpd

1. Wastewater flow was calculated using water usage data, provided by the Wellfleet Water District, for the years 2018 through 2020, and a 90% conversion factor from water usage to wastewater flow.

3.3.2 Parcels with No Available Water Use Data

MEP assumptions were used to estimate water usage for parcels not connected to the Public Water Supply. A 90% conversion factor was used to convert water usage to wastewater flow (allowing for an estimated outdoor water usage of 10%). MEP assumptions used in this analysis are summarized in Table 2. Wastewater flow assumptions were joined by land use code to the Town's most current available parcel data (May 13, 2013) through GIS.

Table 2 Wastewater Flow Assumptions for Parcels with No Available Water Use Data

Type of Parcel	Wastewater Flow
Single Family Residential[1]	145 gpd x 0.9 = 131 gpd/property
Multi-Family Residential[2]	290 gpd x 0.9 = 261 gpd/property
Commercial[1]	180 gpd / 1,000 SF of building

Type of Parcel	Wastewater Flow
Industrial[1]	44 gpd / 1,000 SF of building

References:

1. "Massachusetts Estuaries Project – Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Wellfleet Harbor Embayment System Town of Wellfleet, Massachusetts Final Report – March 2017", prepared by the University of Massachusetts Dartmouth School of Marin Scient and Technology and Massachusetts Department of Environmental Protection – Table IV.2
2. "Massachusetts Estuaries Project – Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Wellfleet Harbor Embayment System Town of Wellfleet, Massachusetts Final Report – March 2017", prepared by the University of Massachusetts Dartmouth School of Marin Scient and Technology and Massachusetts Department of Environmental Protection – Section IV.1.2. Multi-family dwellings are classified as land use codes 109 or 111.

3.4 MEP Threshold Compliance Approaches

Two alternate MEP Threshold Compliance Approaches were developed by Water Resources Consultant Scott Horsley as part of the Wellfleet Targeted Watershed Management Plan project to meet the Town's anticipated MEP Nitrogen Thresholds. Both compliance approaches are outlined in this section. Each compliance approach includes growth assumptions, developed by Scott Horsley, for a 20-year planning horizon through 2042.

3.4.1 Wellfleet MEP Hybrid Threshold Compliance Approach

The Wellfleet MEP Hybrid Threshold Compliance Approach (Table 3) incorporates multiple nitrogen management strategies to meet the Town's anticipated MEP Nitrogen Thresholds, including promising pilot technologies that the Town is currently investigating. Conceptual sewer areas for the municipal centralized wastewater collection system included in the Hybrid Approach is outlined in Figure 1.

Table 3 Wellfleet MEP Hybrid Threshold Compliance Approach

Nitrogen Management Strategy	Anticipated Nitrogen Reduction (kg/yr)							
	Herring River	Duck Creek	The Cove	Drummer / Blackfish	Hatches	Wellfleet Harbor	Loagy Bay	Total
I/A Systems Installed for New Construction (Treated Effluent TN = 8 mg/L)[1]	307	65	147	113	153	239	43	**1,069**
Conversion of Existing Title 5 Systems to I/A Systems (Treated Effluent TN = 8 mg/L)[1]	632	397	1,729	403	147	2,634	0	**5,941**
Fertilizer Mitigation (25% of Fertilizer Load)[1]	151	37	107	54	47	133	20	**549**
Stormwater Reductions (25% of Stormwater Loads[1]	164	42	108	55	45	104	16	**534**
Aquaculture / Shellfish Harvest[1]	0	0	0	675	0	600	675	**1,950**
Ecological Restoration[1]	0	0	317	0	0	0	0	**317**
Permeable Reactive Barrier[1]	0	0	0	0	0	0	0	**0**
Centralized Collection and Treatment – Private[1]	0	88	0	0	0	146	0	**234**
Centralized Collection and Treatment – Municipal[1]	0	879	458	0	0	0	0	**1,337**
Treated Effluent Nitrogen Load Recharge to Watershed (Treated Effluent TN = 5 mg/L)[1]	-255	0	0	0	0	0	0	**-255**

Nitrogen Management Strategy	Anticipated Nitrogen Reduction (kg/yr)							
	Herring River	Duck Creek	The Cove	Drummer / Blackfish	Hatches	Wellfleet Harbor	Loagy Bay	Total
Total Anticipated N Reduction (2042)[1]	**999**	**1,509**	**2,866**	**1,300**	**392**	**3,856**	**755**	**11,677**
Anticipated N Reduction Required to Meet MEP Thresholds (2042)[1]	**999**	**1,509**	**2,866**	**1,300**	**392**	**3,856**	**571**	**11,493**

References:

1. 'Wellfleet Harbor Targeted Watershed Management Plan – Draft Final Report', prepared by Scott Horsley, Water Resources Consultant and dated June 15, 2022.

3.4.2 Wellfleet MEP Traditional Threshold Compliance Approach

The Wellfleet MEP Hybrid Threshold Compliance Approach (Table 4) provides a conservative estimate of additional centralized wastewater collection and treatment that would be required if the pilot projects included in MEP Hybrid Threshold Compliance Approach did not perform as anticipated. Conceptual sewer areas for the municipal centralized wastewater collection system outlined in Traditional Approach is outlined in Figure 2.

Table 4 Wellfleet MEP Traditional Threshold Compliance Approach

Nitrogen Management Strategy	Anticipated Nitrogen Reduction (kg/yr)							
	Herring River	Duck Creek	The Cove	Drummer / Blackfish	Hatches	Wellfleet Harbor	Loagy Bay	Total
I/A Systems Installed for New Construction (Treated Effluent TN = 19 mg/L)[1]	106	24	47	40	61	80	14	**371**
Conversion of Existing Title 5 Systems to I/A Systems (Treated Effluent TN = 19 mg/L)[1]	625	0	1	241	331	374	1	**1,573**
Centralized Collection and Treatment – Private[1]	0	88	0	0	0	146	0	**234**
Centralized Collection and Treatment – Municipal[1]	2,460	1,397	2,819	1,019	0	3,256	556	**11,507**
Treated Effluent Nitrogen Load Recharge to Watershed (Treated Effluent TN = 5 mg/L)[1]	-2,192	0	0	0	0	0	0	**-2,192**
Total Anticipated N Reduction (2042)[1]	**999**	**1,509**	**2,866**	**1,300**	**392**	**3,856**	**571**	**11,493**
Anticipated N Reduction Required to Meet Watershed TMDL (2042)[1]	**999**	**1,509**	**2,866**	**1,300**	**392**	**3,856**	**571**	**11,493**

References:

'Wellfleet Harbor Targeted Watershed Management Plan – Draft Final Report', prepared by Scott Horsley, Water Resources Consultant and dated June 15, 2022.

3.5 Conceptual Cost Estimates

3.5.1 Basis of Design – Conceptual

Table 5 outlines the conceptual basis of design that was used to develop conceptual cost estimates for this project.

Table 5 Preliminary Centralized Infrastructure Basis of Design

	MEP Hybrid Threshold Approach	MEP Traditional Threshold Approach
Approximate Number of Properties Connected to Centralized System[1]	278	2,385
Average Annual Raw Wastewater Flow (gpd)[2]	37,000 gpd	318,000 gpd
Maximum Day Raw Wastewater Flow (gpd)[2,3]	59,000 gpd	1,004,700 gpd
Assumed Centralized Treatment Effluent Total Nitrogen Concentration (mg/L)	5 mg/L	5 mg/L
Net Nitrogen Removal (kg/yr)[4]	1,082 kg/yr	9,315 kg/yr

Notes:

1. Approximate number of properties connected to the centralized system was calculated based on removal of an average per parcel nitrogen load of 4.73 kg/yr/property through sewering (equivalent to an average single family residential wastewater generation rate of 131 gpd/property). This number will be refined once a collection system technology is selected and the conceptual layouts outlined in Figures 1 and 2 are refined based on that technology.
2. Flow estimates include only flow from wastewater generation. An estimate for infiltration and inflow (I/I) will need to be incorporated into the flow estimate once a collection system technology is selected and a preliminary layout for that technology is developed.
3. Maximum day flows were estimated using peaking factors of other regional wastewater treatment facilities (WWTFs) of a similar size for each Compliance Approach.
4. Net nitrogen removal = Raw wastewater nitrogen removed from groundwater minus treated effluent nitrogen recharged to groundwater

The following assumptions were used to develop the conceptual cost estimates:

– Centralized Collection System (gravity/low pressure collection system, raw wastewater pump stations, and force main systems)
  - Recent Cape Cod construction bids from Chatham, Barnstable and Falmouth were used to develop an average per parcel construction cost for the collection system. Construction bids used for the analysis included a range of low pressure and gravity main lengths, force main lengths, and number of pump stations in the system, and is intended to estimate an average cost of these types of systems.
  - Anticipated costs to acquire any privately owned land for pump stations was not included in the conceptual cost estimates.
  - The construction cost estimate includes estimated costs for linear infrastructure only within the road right-of-way, not on private property.
  - An allowance of $11,550 (2022$) was carried for sewer lateral installations from the property line to the house for each anticipated connection. The allowance was developed based on regional average costs for single-residential house lateral installations. Lateral installation costs are typically incurred by a property owner (not the Town) – a lateral allowance was included in this analysis to allow for comparison of anticipated costs for centralized treatment versus other nitrogen management strategies.

- Procurement and installation of grinder pumps required for a low-pressure system are not included in the cost estimate.
- Estimated costs assume that no hazardous materials or other materials that require special handling are encountered.

– Centralized Wastewater Treatment and Effluent Recharge
  - Cost estimates assume that raw wastewater is pumped to a centralized wastewater treatment facility at the Wellfleet Transfer Station Parcel for treatment and treated effluent recharge through open sand beds at the same site.
    – Since the Wellfleet Transfer Station Parcel is located within the Herring River sub-watershed, which has an MEP Nitrogen Threshold, a facility capable of meeting a TN effluent concentration of 5 mg/L is the basis for this analysis.
    – Effluent recharge through open sand beds.
  - Wastewater Treatment Facility (WWTF) cost estimates were developed based on the planning values outlined in the 'Comparison of Costs for Wastewater Management Systems Applicable to Cape Cod – Guidance to Cape Cod Towns Undertaking Comprehensive Wastewater Management Planning,' prepared by the Barnstable County Wastewater Cost Task Force – April 2010, updated by AECOM (updated April 2014 v2). These costs were adjusted to 2022 dollars. Once a construction timeframe is known, project costs should be adjusted to the anticipated mid-point of construction for the project. WWTF cost estimates were compared to regional project cost estimates for similarly sized infrastructure to confirm appropriate order of magnitude.
  - Estimated costs assume that no hazardous materials or other materials that require special handling are encountered.

3.5.2 Engineers Opinion of Probable Capital Costs for Centralized Treatment, Collection, and Recharge – Conceptual

The Engineer's opinion of probable capital costs for centralized collection, treatment, and recharge facilities, in 2022 dollars, is outlined in Table 6. The cost estimates represent total estimated project costs with allowances for construction costs for items identified in Section 3.5.1. These costs also include the following:

– 30 percent construction contingency. Because of the conceptual nature of this evaluation, a 30 percent construction contingency is carried for planning purposes since no detailed design and no survey has been performed. As design progresses, a reduced contingency will be carried for variability in bidding climate, project changes before bidding, easements, and change orders due to unforeseen conditions
– 10 percent engineering design allowance.
– A 30 percent allowance for construction phase engineering services, legal/fiscal/permitting/administrative costs, survey and soil borings allowance, and police allowance for linear work (collection system installation) and a 20 percent allowance for construction phase engineering services and legal/fiscal/permitting/administrative costs allowance for wastewater treatment facility work. The allowance for construction phases services for linear work and wastewater treatment facility work are assigned based on the type of infrastructure and are additive in the cost estimate.

  A sewer lateral allowance to allow for comparison to the costs of other nitrogen management strategies (sewer lateral costs from a property line to an individual house are typically incurred by a property owner, not the Town).

Project costs are presented in 2022 dollars. Once a construction timeframe is known, project costs should be adjusted to the anticipated mid-point of construction.

Table 6 Engineers Opinion of Probable Capital Costs (2022$)[1,2]

	MEP Hybrid Threshold Approach	MEP Traditional Threshold Approach
Collection System Construction Total	$9.4 M	$80.4 M
Wastewater Treatment Facility Construction Total	$10.9 M	$32.7 M
Municipal Centralized Infrastructure Construction Total (ENR March 2022 = 12791)	**$20.3 M**	**$113.2 M**
Design Allowance	$2.0 M	$11.3 M
Construction Phase Services, Legal, Fiscal & Engineering allowance, soil borings, survey, and police allowance for linear work plus Construction Phase Services, Legal, Fiscal & Engineering allowance for Wastewater Treatment Facility work[3]	$5.0 M	$30.7 M
Sewer Lateral Allowance[4]	$3.2 M	$27.5 M
Total Municipal Centralized Infrastructure Capital Costs (ENR March 2022 = 12791)	**$30.5 M**	**$182.7 M**

Notes:

1. Total Capital Costs include allowances for construction costs such as: a 30% construction contingency; 10% engineering design allowance; 30% allowance for construction phase services, legal/fiscal/permitting/administrative costs, survey, soil borings, and police allowance for linear work; and a 20% allowance for construction phase services and legal/fiscal/permitting/administrative costs allowance for wastewater treatment facility work.
2. GHD has prepared the preliminary cost estimate outlined in this memorandum using information reasonably available to the GHD employee(s) who prepared this report; and based on assumptions and judgments made by GHD based on previous Cape Cod bidding prices. The cost estimate has been prepared for the purpose of a preliminary evaluation of alternatives and must not be used for any other purposes. The cost estimate is a preliminary estimate only. Any effect on prices, costs, and other variables arising from the effects of the spread of COVID-19 and its impacts on the supply chain have not been factored into the cost estimate.
3. A 30 percent allowance was included for construction phase engineering services, legal/fiscal/permitting/administrative costs, survey and soil borings allowance, and police allowance for linear work (collection system installation), and a 20 percent allowance was included for construction phase engineering services and legal/fiscal/permitting/administrative costs allowance for wastewater treatment facility work.
4. An allowance of $11,550 (2022$) was carried for lateral installations from the property line to the house for each anticipated connection. The allowance was developed based on regional average costs for single-residential house lateral installations. Lateral installation costs are typically incurred by a property owner (not the Town) – a lateral allowance was included in this analysis to allow for comparison of anticipated costs for centralized treatment versus other nitrogen management strategies.

4. Next Steps

Once an MEP Threshold Compliance Approach is selected as part of the TWMP process, the following steps are recommended to refine the analysis presented in this memorandum:

– Initiate design of the collection system in the identified proposed sewer areas. Conduct an analysis to identify potential pump station sites in the identified proposed sewer areas, and develop a SewerCAD model to evaluate the extent to which gravity sewer is feasible within each sewer area. Refine conceptual cost estimates based on selected technology.

– Initiate design and permitting for a future centralized wastewater treatment facility.

5. Scope and Limitations

This technical memorandum has been prepared by GHD for the Town of Wellfleet, MA. The matters discussed in this memorandum are limited to those specifically detailed in the memorandum and are subject to any limitations or assumptions specially set out.

Regards

Anastasia Rudenko PE, BCEE, ENV SP
Project Manager

Transfer Station

HerringRiverTheGut

DuckCreek

WellfleetHarbor

TheCove

DRAFT

Legend

- Proposed Force Main
- Transfer Station Parcel
- The Cove - Conceptual Sewershed
- Duck Creek - Conceptual Sewershed
- MEP Subembayments

Notes:
1. Analysis based on nitrogen reduction estimates calculated by Scott Horsley.
2. Estimated per parcel wastewater generated rates based on 2018-2022 water use data for parcels and MEP assumptions for parcels with private water.

Paper Size ANSI B

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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001 Feet

GHD

TOWN OF WELLFLEET, MASSACHUSETTS
PRELIMINARY SEWER ANALYSIS

MEP THRESHOLD HYBRID COMPLIANCE APPROACH - CONCEPTUAL SEWERSHED LAYOUT

Project No. 11216492
Revision No. -
Date 05/27/2022

FIGURE 1

C:\data\Wellfleet\FIGURE 1 CONCEPTUAL SEWERSHED LAYOUT.mxd
Print date: 27 May 2022 - 10:37

Data source: MassGIS. Created by: jjobrien

Transfer Station

Herring River
The Gut

Duck Creek

Wellfleet
Harbor

The Cove

Wellfleet
Harbor

Drummer Cove
Blackfish Creek

Loagy Bay

Hatches Creek

Hatches Creek

DRAFT

Legend

- MEP Subembayments
- Transfer Station Parcel
- Hatches Creek Conceptual Sewrshed
- Drummer/Blackfish Conceptual Sewershed
- Loagy Bay Conceptual Sewershed
- Wellfleet Harbor Conceptual Sewershed
- The Cove Conceptual Sewershed
- Duck Creek Conceptual Sewershed
- Herring River Conceptual Sewershed
- Proposed Force Main

Notes:
1. Analysis based on nitrogen reduction estimates calculated by Scott Horsley.
2. Estimated per parcel wastewater generated rates based on 2018-2022 water use data for parcels and MEP assumptions for parcels with private water.

Paper Size ANSI B
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Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001 Feet

GHD

TOWN OF WELLFLEET, MASSACHUSETTS
PRELIMINARY SEWER ANALYSIS
MEP THRESHOLD TRADITIONAL COMPLIANCE APPROACH - CONCEPTUAL SEWERSHED LAYOUT

Project No. 11216492
Revision No. -
Date 05/27/2022

FIGURE 2

C:\data\Wellfleet\FIGURE 2 CONCEPTUAL SEWERSHED LAYOUT.mxd
Print date: 27 May 2022 - 10:29

SELECTBOARD

AGENDA ACTION REQUEST

Proposed Board of Health Regulations on Septic Systems

REQUESTED BY:	**Clean Water Advisory Committee/BOH/Health Director Hillary Greenberg-Lemos**
DESIRED ACTION:	**To Present the BOH's proposed regs on Septic Systems**
PROPOSED MOTION:	
SUMMARY (Optional)	
ACTION TAKEN:	Moved By: _____ Seconded By: _____ Condition(s):
VOTED:	Yea _____ Nay_____ Abstain _____

- Procurement and installation of grinder pumps required for a low-pressure system are not included in the cost estimate.
- Estimated costs assume that no hazardous materials or other materials that require special handling are encountered.

– Centralized Wastewater Treatment and Effluent Recharge
  - Cost estimates assume that raw wastewater is pumped to a centralized wastewater treatment facility at the Wellfleet Transfer Station Parcel for treatment and treated effluent recharge through open sand beds at the same site.
    – Since the Wellfleet Transfer Station Parcel is located within the Herring River sub-watershed, which has an MEP Nitrogen Threshold, a facility capable of meeting a TN effluent concentration of 5 mg/L is the basis for this analysis.
    – Effluent recharge through open sand beds.
  - Wastewater Treatment Facility (WWTF) cost estimates were developed based on the planning values outlined in the 'Comparison of Costs for Wastewater Management Systems Applicable to Cape Cod – Guidance to Cape Cod Towns Undertaking Comprehensive Wastewater Management Planning,' prepared by the Barnstable County Wastewater Cost Task Force – April 2010, updated by AECOM (updated April 2014 v2). These costs were adjusted to 2022 dollars. Once a construction timeframe is known, project costs should be adjusted to the anticipated mid-point of construction for the project. WWTF cost estimates were compared to regional project cost estimates for similarly sized infrastructure to confirm appropriate order of magnitude.
  - Estimated costs assume that no hazardous materials or other materials that require special handling are encountered.

3.5.2 Engineers Opinion of Probable Capital Costs for Centralized Treatment, Collection, and Recharge – Conceptual

The Engineer's opinion of probable capital costs for centralized collection, treatment, and recharge facilities, in 2022 dollars, is outlined in Table 6. The cost estimates represent total estimated project costs with allowances for construction costs for items identified in Section 3.5.1. These costs also include the following:

– 30 percent construction contingency. Because of the conceptual nature of this evaluation, a 30 percent construction contingency is carried for planning purposes since no detailed design and no survey has been performed. As design progresses, a reduced contingency will be carried for variability in bidding climate, project changes before bidding, easements, and change orders due to unforeseen conditions
– 10 percent engineering design allowance.
– A 30 percent allowance for construction phase engineering services, legal/fiscal/permitting/administrative costs, survey and soil borings allowance, and police allowance for linear work (collection system installation) and a 20 percent allowance for construction phase engineering services and legal/fiscal/permitting/administrative costs allowance for wastewater treatment facility work. The allowance for construction phases services for linear work and wastewater treatment facility work are assigned based on the type of infrastructure and are additive in the cost estimate.

  A sewer lateral allowance to allow for comparison to the costs of other nitrogen management strategies (sewer lateral costs from a property line to an individual house are typically incurred by a property owner, not the Town).

Project costs are presented in 2022 dollars. Once a construction timeframe is known, project costs should be adjusted to the anticipated mid-point of construction.

Technical Memorandum

June 14, 2022

To	Town of Wellfleet, MA	**Contact No.**	774-470-1637
Copy to		**Email**	anastasia.rudenko@ghd.com
From	Anastasia Rudenko, PE, BCEE, ENV SP	**Project No.**	11216492
Project Name	Town of Wellfleet TWMP – Preliminary Sewer Analysis		
Subject	Preliminary Sewer Analysis – DRAFT Rev1		

1. Introduction

The Town of Wellfleet, Massachusetts (Town) is undertaking a Targeted Wastewater Management Planning (TWMP) process to develop strategies for addressing wastewater needs and nutrient impacts to the Town's coastal estuaries.

This memorandum summarizes the evaluation that was completed to assess the approximate extent of centralized sewer infrastructure required to meet the Town's nitrogen reduction strategies under two scenarios—the Massachusetts Estuaries Project (MEP) Hybrid Threshold Compliance Plan and MEP Traditional Threshold Compliance Plan.

2. References, Datasets, and Design Guidelines

The references, datasets, and guidelines listed below were used to develop this memorandum. Documents are referred to by the abbreviation indicated in parenthesis for the remainder of the memorandum.

References:

- 'Wellfleet Harbor Targeted Watershed Management Plan – Draft Final Report', prepared by Scott Horsley, Water Resources Consultant and dated June 15, 2022 (2022 Draft Wellfleet TWMP)
- 'Groundwater Modeling Evaluation of Treated Effluent Recharge to Groundwater Wellfleet Transfer Station – Final Technical Memorandum', prepared by GHD and dated April 27, 2021. (2021 GHD Wellfleet Transfer Station Evaluation)
- 'Massachusetts Estuaries Project – Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Wellfleet Harbor Embayment System Town of Wellfleet, Massachusetts Final Report – March 2017', prepared by the University of Massachusetts Dartmouth School of Marin Science and Technology and Massachusetts Department of Environmental Protection. (Wellfleet Harbor MEP Report)
- 'Comprehensive Wastewater Management Plan: Phase II – Alternatives Analysis Draft Report' prepared by Environmental Partners, dated March 2014. (2014 Environmental Partners Alternatives Analysis Draft Report)

– ‘Comparison of Costs for Wastewater Management Systems Applicable to Cape Cod – Guidance to Cape Cod Towns Undertaking Comprehensive Wastewater Management Planning,’ prepared by the Barnstable County Wastewater Cost Task Force, updated by AECOM – April 2010 (Updated April 2014 v2) (2010 CCC Cost Comparison Report)
– ‘Zoning Map Wellfleet, MA – April 2004’
– ‘Water Supply & Wastewater Disposal Study, Wellfleet MA’ prepared by Woodard & Curran & Lombardo Associates, Inc., dated October 2001. (2001 Woodard & Curran & Lombardo Associates Wastewater Study)

Datasets:

– 2018 – 2020 public water system usage data, provide by the Town of Wellfleet.
– Town of Wellfleet standardized assessor’s parcel mapping data set, last edited May 13, 2013.

Guidelines:

– ‘Guidelines for the Design, Construction, Operation and Maintenance of Small Wastewater Treatment Facilities with Land Disposal’, prepared by MassDEP and revised in July 2018 (2018 MassDEP Small WWTF Guidelines).

3. Preliminary Sewer Analysis

3.1 Centralized Sewer Areas

An analysis was conducted to identify potential areas for centralized sewer infrastructure as part of the Town’s MEP Threshold Compliance Approaches development. Areas targeted for sewering were developed based on a review of previous evaluations that have been completed as part of the Town’s nitrogen management planning process (2001 Woodard & Curran & Lombardo Associates Wastewater Study and 2014 Environmental Partners Alternatives Analysis Draft Report).

Previous evaluations identified Wellfleet’s “Central District” for potential sewering due to the density of parcels in this area. The Central District is shown on Wellfleet’s Zoning Map as portions of Kendrick Avenue, Commercial Street, Main Street, Bank Street, and Briar Lane. The Central District is located primarily in the Duck Creek and The Cove sub-watersheds of Wellfleet Harbor.

Centralized wastewater treatment nitrogen reduction targets were established for two MEP Threshold Compliance Approaches by Water Resources Consultant Scott Horsley as part of the 2022 Draft Wellfleet TWMP. Both approaches are outlined in Section 3.4. Centralized sewers areas were identified to meet the established nitrogen reduction targets in each sub-watershed based on a wastewater flow estimate analysis, described in Section 3.3.

3.2 Centralized Wastewater Treatment and Treated Effluent Recharge

During the TWMP process the Wellfleet Transfer Station Parcel (266 Coles Neck Road) was identified as a potential site for the infiltration of treated wastewater effluent from a potential future wastewater treatment facility. This evaluation presumes that centralized wastewater treatment and treated effluent recharge are located on the Wellfleet Transfer Station Parcel.

Field investigations (groundwater monitoring well installation, soil boring and hydraulic load testing) conducted by GHD in 2020 indicate a high infiltration rate at the site for treated effluent recharge. Conceptual layouts, developed during this evaluation, indicate adequate available area for treated effluent recharge up to 0.79 mgd average annual flow (based on a design hydraulic loading rate of 7 gpd/sf during maximum month conditions).

As part of the Transfer Station parcel evaluation, a local-scale groundwater flow model based on the USGS regional groundwater flow model (Masterson, 2004) was developed by GHD for the lower Cape Cod aquifer

system. Effluent recharge simulation results provided by the local-scale model indicate that treated effluent discharge migration in groundwater to surface water is within the Herring River sub-watershed of the Wellfleet watershed.

Due to its location in a sub-watershed with a MEP nitrogen threshold target, this evaluation assumes that centralized treatment at the site will achieve an effluent Total Nitrogen concentration of 5 mg/L in order to minimize the re-introduction of nitrogen to the sub-watershed through treated effluent recharge. Each MEP Threshold Compliance Approach outline in Section 3.4 includes an increased septic nitrogen reduction goal in the Herring River sub-watershed to offset nitrogen re-introduced to this sub-watershed through treated effluent recharge.

3.3 Wastewater Flow Estimate Development

3.3.1 Parcel with Available Water Use Data

Water usage data for 261 parcels for the years 2018 through 2020 within the Town of Wellfleet was provided by the Wellfleet Water District. This data was used to develop estimated wastewater flows for parcels within the Town connected to the Public Water Supply system. Two hundred and twenty (220) of the 261 parcels in the dataset had water usage (values greater than zero). The 41 parcels listed on public water supply with no apparent water usage during the study period were taken out of the dataset and assigned average water usage data based on MEP assumptions, as outlined in Section 3.3.2.

The water use information was joined to the most recent Assessor's data (May 13, 2013) by account numbers using GIS. A 90% conversion factor (which is consistent with the conversion factor used in the MEP reports) was used as an estimate to convert water usage to wastewater flow.

Table 1 summarizes average daily wastewater flows for properties with water use data. The relatively low per property single family residential wastewater flows are indicative of the seasonal nature of these properties, typically trending with higher water usage in the summer and lower water usage in the winter. Three-year average daily wastewater flows were used to calculate average per parcel nitrogen loads for this analysis. Peaking factors from regional wastewater treatment facilities of similar sizes were used to accommodate for the seasonality of the water usage in conceptual wastewater treatment facility sizing.

Table 1 Average Wastewater Flows for Parcels Connected to the Public Water Supply

Type of Parcel	Wastewater Flow[1]
Single Family Residential	82 gpd
Commercial	375 gpd

1. Wastewater flow was calculated using water usage data, provided by the Wellfleet Water District, for the years 2018 through 2020, and a 90% conversion factor from water usage to wastewater flow.

3.3.2 Parcels with No Available Water Use Data

MEP assumptions were used to estimate water usage for parcels not connected to the Public Water Supply. A 90% conversion factor was used to convert water usage to wastewater flow (allowing for an estimated outdoor water usage of 10%). MEP assumptions used in this analysis are summarized in Table 2. Wastewater flow assumptions were joined by land use code to the Town's most current available parcel data (May 13, 2013) through GIS.

Table 2 Wastewater Flow Assumptions for Parcels with No Available Water Use Data

Type of Parcel	Wastewater Flow
Single Family Residential[1]	145 gpd x 0.9 = 131 gpd/property
Multi-Family Residential[2]	290 gpd x 0.9 = 261 gpd/property
Commercial[1]	180 gpd / 1,000 SF of building

Type of Parcel	Wastewater Flow
Industrial[1]	44 gpd / 1,000 SF of building

References:

1. "Massachusetts Estuaries Project – Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Wellfleet Harbor Embayment System Town of Wellfleet, Massachusetts Final Report – March 2017", prepared by the University of Massachusetts Dartmouth School of Marin Scient and Technology and Massachusetts Department of Environmental Protection – Table IV.2
2. "Massachusetts Estuaries Project – Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Wellfleet Harbor Embayment System Town of Wellfleet, Massachusetts Final Report – March 2017", prepared by the University of Massachusetts Dartmouth School of Marin Scient and Technology and Massachusetts Department of Environmental Protection – Section IV.1.2. Multi-family dwellings are classified as land use codes 109 or 111.

3.4 MEP Threshold Compliance Approaches

Two alternate MEP Threshold Compliance Approaches were developed by Water Resources Consultant Scott Horsley as part of the Wellfleet Targeted Watershed Management Plan project to meet the Town's anticipated MEP Nitrogen Thresholds. Both compliance approaches are outlined in this section. Each compliance approach includes growth assumptions, developed by Scott Horsley, for a 20-year planning horizon through 2042.

3.4.1 Wellfleet MEP Hybrid Threshold Compliance Approach

The Wellfleet MEP Hybrid Threshold Compliance Approach (Table 3) incorporates multiple nitrogen management strategies to meet the Town's anticipated MEP Nitrogen Thresholds, including promising pilot technologies that the Town is currently investigating. Conceptual sewer areas for the municipal centralized wastewater collection system included in the Hybrid Approach is outlined in Figure 1.

Table 3 Wellfleet MEP Hybrid Threshold Compliance Approach

Nitrogen Management Strategy	Anticipated Nitrogen Reduction (kg/yr)							
	Herring River	Duck Creek	The Cove	Drummer / Blackfish	Hatches	Wellfleet Harbor	Loagy Bay	Total
I/A Systems Installed for New Construction (Treated Effluent TN = 8 mg/L)[1]	307	65	147	113	153	239	43	**1,069**
Conversion of Existing Title 5 Systems to I/A Systems (Treated Effluent TN = 8 mg/L)[1]	632	397	1,729	403	147	2,634	0	**5,941**
Fertilizer Mitigation (25% of Fertilizer Load)[1]	151	37	107	54	47	133	20	**549**
Stormwater Reductions (25% of Stormwater Loads[1]	164	42	108	55	45	104	16	**534**
Aquaculture / Shellfish Harvest[1]	0	0	0	675	0	600	675	**1,950**
Ecological Restoration[1]	0	0	317	0	0	0	0	**317**
Permeable Reactive Barrier[1]	0	0	0	0	0	0	0	**0**
Centralized Collection and Treatment – Private[1]	0	88	0	0	0	146	0	**234**
Centralized Collection and Treatment – Municipal[1]	0	879	458	0	0	0	0	**1,337**
Treated Effluent Nitrogen Load Recharge to Watershed (Treated Effluent TN = 5 mg/L)[1]	-255	0	0	0	0	0	0	**-255**

Nitrogen Management Strategy	Anticipated Nitrogen Reduction (kg/yr)							
	Herring River	Duck Creek	The Cove	Drummer / Blackfish	Hatches	Wellfleet Harbor	Loagy Bay	Total
Total Anticipated N Reduction (2042)[1]	**999**	**1,509**	**2,866**	**1,300**	**392**	**3,856**	**755**	**11,677**
Anticipated N Reduction Required to Meet MEP Thresholds (2042)[1]	**999**	**1,509**	**2,866**	**1,300**	**392**	**3,856**	**571**	**11,493**

References:

1. 'Wellfleet Harbor Targeted Watershed Management Plan – Draft Final Report', prepared by Scott Horsley, Water Resources Consultant and dated June 15, 2022.

3.4.2 Wellfleet MEP Traditional Threshold Compliance Approach

The Wellfleet MEP Hybrid Threshold Compliance Approach (Table 4) provides a conservative estimate of additional centralized wastewater collection and treatment that would be required if the pilot projects included in MEP Hybrid Threshold Compliance Approach did not perform as anticipated. Conceptual sewer areas for the municipal centralized wastewater collection system outlined in Traditional Approach is outlined in Figure 2.

Table 4 Wellfleet MEP Traditional Threshold Compliance Approach

Nitrogen Management Strategy	Anticipated Nitrogen Reduction (kg/yr)							
	Herring River	Duck Creek	The Cove	Drummer / Blackfish	Hatches	Wellfleet Harbor	Loagy Bay	Total
I/A Systems Installed for New Construction (Treated Effluent TN = 19 mg/L)[1]	106	24	47	40	61	80	14	**371**
Conversion of Existing Title 5 Systems to I/A Systems (Treated Effluent TN = 19 mg/L)[1]	625	0	1	241	331	374	1	**1,573**
Centralized Collection and Treatment – Private[1]	0	88	0	0	0	146	0	**234**
Centralized Collection and Treatment – Municipal[1]	2,460	1,397	2,819	1,019	0	3,256	556	**11,507**
Treated Effluent Nitrogen Load Recharge to Watershed (Treated Effluent TN = 5 mg/L)[1]	-2,192	0	0	0	0	0	0	**-2,192**
Total Anticipated N Reduction (2042)[1]	**999**	**1,509**	**2,866**	**1,300**	**392**	**3,856**	**571**	**11,493**
Anticipated N Reduction Required to Meet Watershed TMDL (2042)[1]	**999**	**1,509**	**2,866**	**1,300**	**392**	**3,856**	**571**	**11,493**

References:

'Wellfleet Harbor Targeted Watershed Management Plan – Draft Final Report', prepared by Scott Horsley, Water Resources Consultant and dated June 15, 2022.

3.5 Conceptual Cost Estimates

3.5.1 Basis of Design – Conceptual

Table 5 outlines the conceptual basis of design that was used to develop conceptual cost estimates for this project.

Table 5 Preliminary Centralized Infrastructure Basis of Design

	MEP Hybrid Threshold Approach	MEP Traditional Threshold Approach
Approximate Number of Properties Connected to Centralized System[1]	278	2,385
Average Annual Raw Wastewater Flow (gpd)[2]	37,000 gpd	318,000 gpd
Maximum Day Raw Wastewater Flow (gpd)[2,3]	59,000 gpd	1,004,700 gpd
Assumed Centralized Treatment Effluent Total Nitrogen Concentration (mg/L)	5 mg/L	5 mg/L
Net Nitrogen Removal (kg/yr)[4]	1,082 kg/yr	9,315 kg/yr

Notes:

1. Approximate number of properties connected to the centralized system was calculated based on removal of an average per parcel nitrogen load of 4.73 kg/yr/property through sewering (equivalent to an average single family residential wastewater generation rate of 131 gpd/property). This number will be refined once a collection system technology is selected and the conceptual layouts outlined in Figures 1 and 2 are refined based on that technology.
2. Flow estimates include only flow from wastewater generation. An estimate for infiltration and inflow (I/I) will need to be incorporated into the flow estimate once a collection system technology is selected and a preliminary layout for that technology is developed.
3. Maximum day flows were estimated using peaking factors of other regional wastewater treatment facilities (WWTFs) of a similar size for each Compliance Approach.
4. Net nitrogen removal = Raw wastewater nitrogen removed from groundwater minus treated effluent nitrogen recharged to groundwater

The following assumptions were used to develop the conceptual cost estimates:

– Centralized Collection System (gravity/low pressure collection system, raw wastewater pump stations, and force main systems)
  - Recent Cape Cod construction bids from Chatham, Barnstable and Falmouth were used to develop an average per parcel construction cost for the collection system. Construction bids used for the analysis included a range of low pressure and gravity main lengths, force main lengths, and number of pump stations in the system, and is intended to estimate an average cost of these types of systems.
  - Anticipated costs to acquire any privately owned land for pump stations was not included in the conceptual cost estimates.
  - The construction cost estimate includes estimated costs for linear infrastructure only within the road right-of-way, not on private property.
  - An allowance of $11,550 (2022$) was carried for sewer lateral installations from the property line to the house for each anticipated connection. The allowance was developed based on regional average costs for single-residential house lateral installations. Lateral installation costs are typically incurred by a property owner (not the Town) – a lateral allowance was included in this analysis to allow for comparison of anticipated costs for centralized treatment versus other nitrogen management strategies.

Table 6 Engineers Opinion of Probable Capital Costs (2022$)[1,2]

	MEP Hybrid Threshold Approach	MEP Traditional Threshold Approach
Collection System Construction Total	$9.4 M	$80.4 M
Wastewater Treatment Facility Construction Total	$10.9 M	$32.7 M
Municipal Centralized Infrastructure Construction Total (ENR March 2022 = 12791)	**$20.3 M**	**$113.2 M**
Design Allowance	$2.0 M	$11.3 M
Construction Phase Services, Legal, Fiscal & Engineering allowance, soil borings, survey, and police allowance for linear work plus Construction Phase Services, Legal, Fiscal & Engineering allowance for Wastewater Treatment Facility work[3]	$5.0 M	$30.7 M
Sewer Lateral Allowance[4]	$3.2 M	$27.5 M
Total Municipal Centralized Infrastructure Capital Costs (ENR March 2022 = 12791)	**$30.5 M**	**$182.7 M**

Notes:

1. Total Capital Costs include allowances for construction costs such as: a 30% construction contingency; 10% engineering design allowance; 30% allowance for construction phase services, legal/fiscal/permitting/administrative costs, survey, soil borings, and police allowance for linear work; and a 20% allowance for construction phase services and legal/fiscal/permitting/administrative costs allowance for wastewater treatment facility work.
2. GHD has prepared the preliminary cost estimate outlined in this memorandum using information reasonably available to the GHD employee(s) who prepared this report; and based on assumptions and judgments made by GHD based on previous Cape Cod bidding prices. The cost estimate has been prepared for the purpose of a preliminary evaluation of alternatives and must not be used for any other purposes. The cost estimate is a preliminary estimate only. Any effect on prices, costs, and other variables arising from the effects of the spread of COVID-19 and its impacts on the supply chain have not been factored into the cost estimate.
3. A 30 percent allowance was included for construction phase engineering services, legal/fiscal/permitting/administrative costs, survey and soil borings allowance, and police allowance for linear work (collection system installation), and a 20 percent allowance was included for construction phase engineering services and legal/fiscal/permitting/administrative costs allowance for wastewater treatment facility work.
4. An allowance of $11,550 (2022$) was carried for lateral installations from the property line to the house for each anticipated connection. The allowance was developed based on regional average costs for single-residential house lateral installations. Lateral installation costs are typically incurred by a property owner (not the Town) – a lateral allowance was included in this analysis to allow for comparison of anticipated costs for centralized treatment versus other nitrogen management strategies.

4. Next Steps

Once an MEP Threshold Compliance Approach is selected as part of the TWMP process, the following steps are recommended to refine the analysis presented in this memorandum:

– Initiate design of the collection system in the identified proposed sewer areas. Conduct an analysis to identify potential pump station sites in the identified proposed sewer areas, and develop a SewerCAD model to evaluate the extent to which gravity sewer is feasible within each sewer area. Refine conceptual cost estimates based on selected technology.
– Initiate design and permitting for a future centralized wastewater treatment facility.

5. Scope and Limitations

This technical memorandum has been prepared by GHD for the Town of Wellfleet, MA. The matters discussed in this memorandum are limited to those specifically detailed in the memorandum and are subject to any limitations or assumptions specially set out.

Regards

Anastasia Rudenko PE, BCEE, ENV SP
Project Manager

Transfer Station

HerringRiverTheGut

DuckCreek

WellfleetHarbor

TheCove

DRAFT

Legend

- Proposed Force Main
- Transfer Station Parcel
- The Cove - Conceptual Sewershed
- Duck Creek - Conceptual Sewershed
- MEP Subembayments

Notes:
1. Analysis based on nitrogen reduction estimates calculated by Scott Horsley.
2. Estimated per parcel wastewater generated rates based on 2018-2022 water use data for parcels and MEP assumptions for parcels with private water.

Paper Size ANSI B

0 500 1,000

Feet

N

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001 Feet

GHD

TOWN OF WELLFLEET, MASSACHUSETTS
PRELIMINARY SEWER ANALYSIS

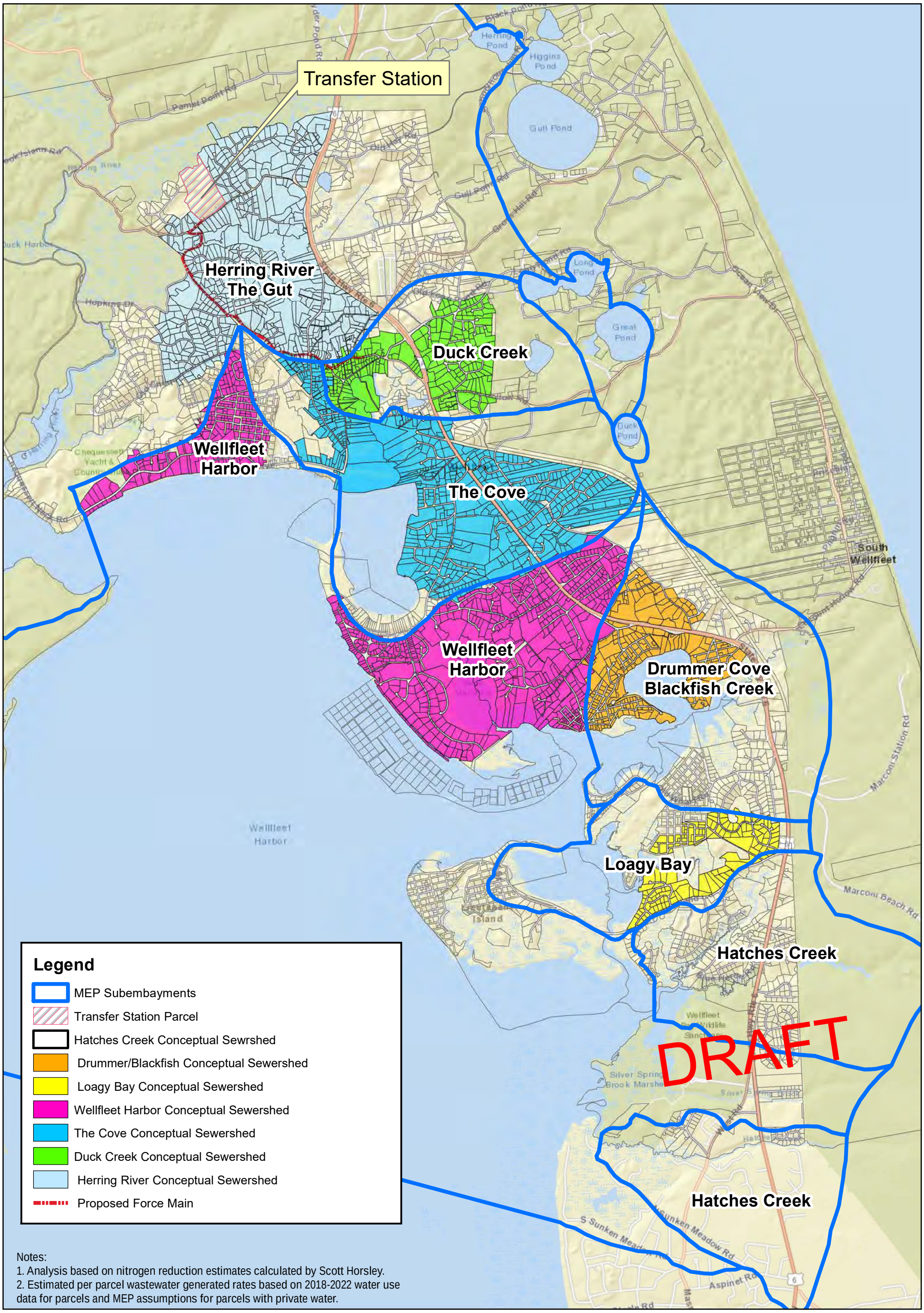
MEP THRESHOLD HYBRID COMPLIANCE APPROACH - CONCEPTUAL SEWERSHED LAYOUT

Project No. 11216492
Revision No. -
Date 05/27/2022

FIGURE 1

C:\data\Wellfleet\FIGURE 1 CONCEPTUAL SEWERSHED LAYOUT.mxd
Print date: 27 May 2022 - 10:37

Data source: MassGIS. Created by: jjobrien



Notes:
1. Analysis based on nitrogen reduction estimates calculated by Scott Horsley.
2. Estimated per parcel wastewater generated rates based on 2018-2022 water use data for parcels and MEP assumptions for parcels with private water.

Paper Size ANSI B
0 1,250 2,500
Feet

Map Projection: Lambert Conformal Conic
Horizontal Datum: North American 1983
Grid: NAD 1983 StatePlane Massachusetts Mainland FIPS 2001 Feet

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GHD

TOWN OF WELLFLEET, MASSACHUSETTS
PRELIMINARY SEWER ANALYSIS

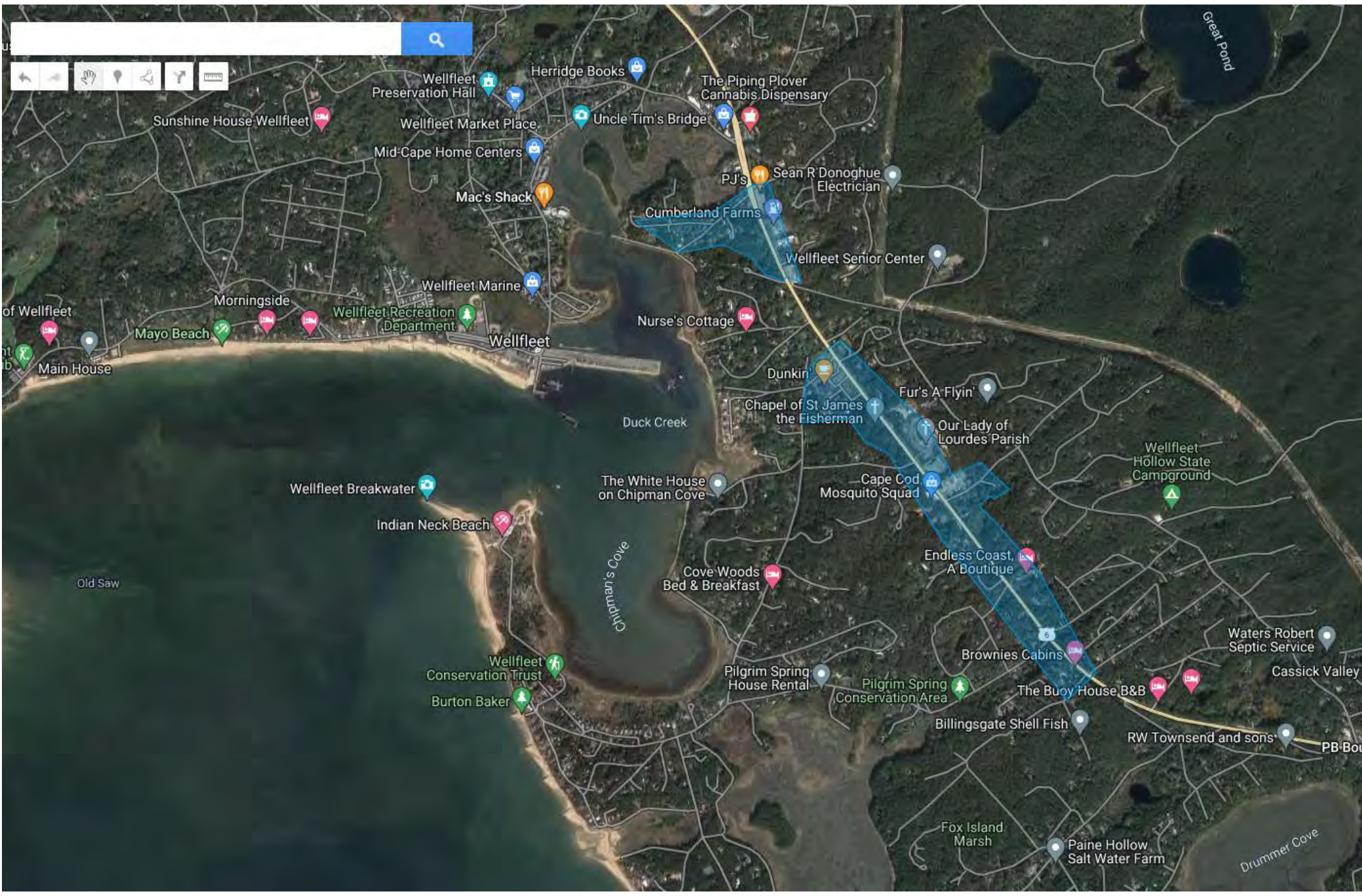
MEP THRESHOLD TRADITIONAL COMPLIANCE APPROACH - CONCEPTUAL SEWERSHED LAYOUT

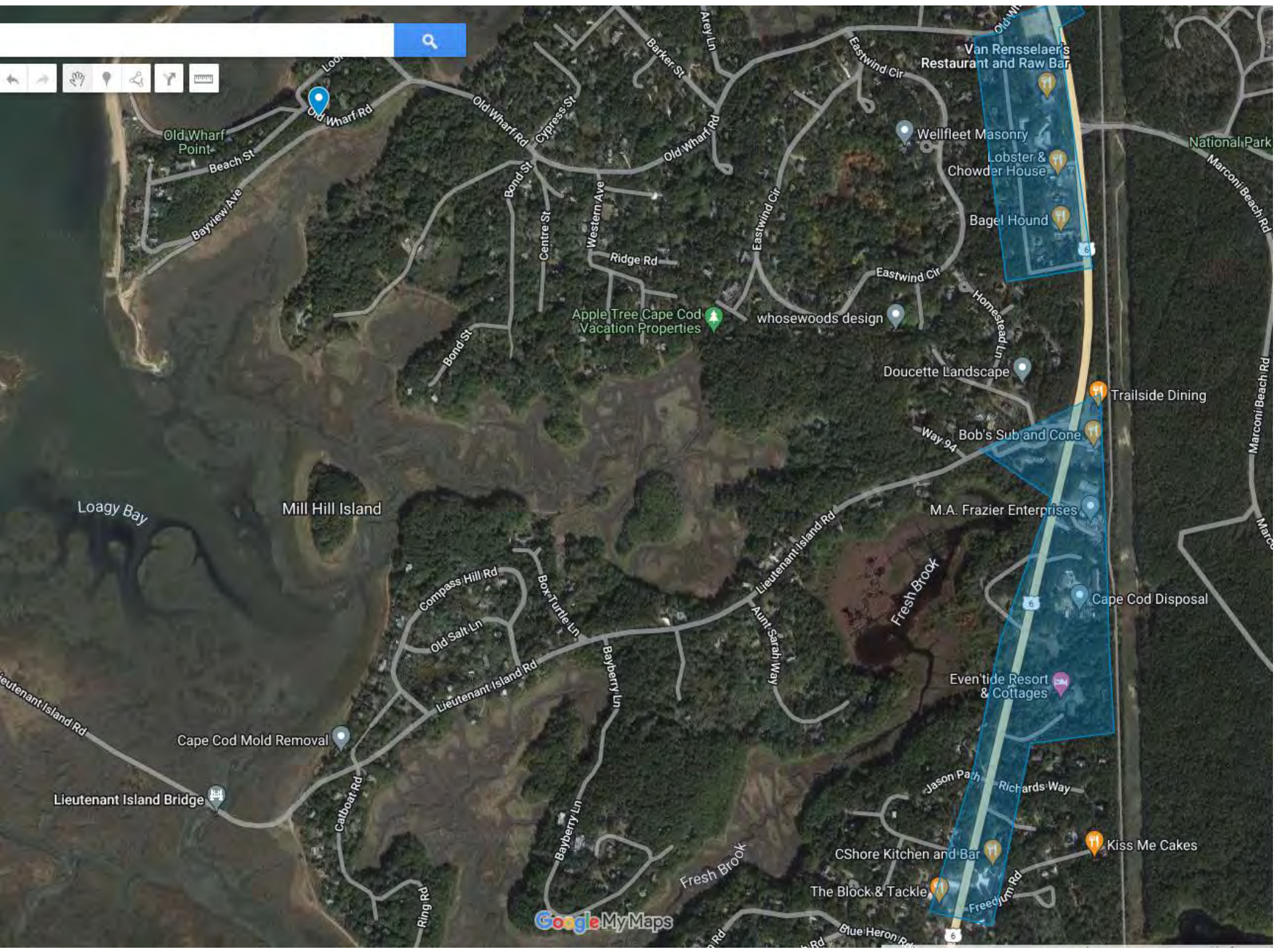
Project No. 11216492
Revision No. -
Date 05/27/2022

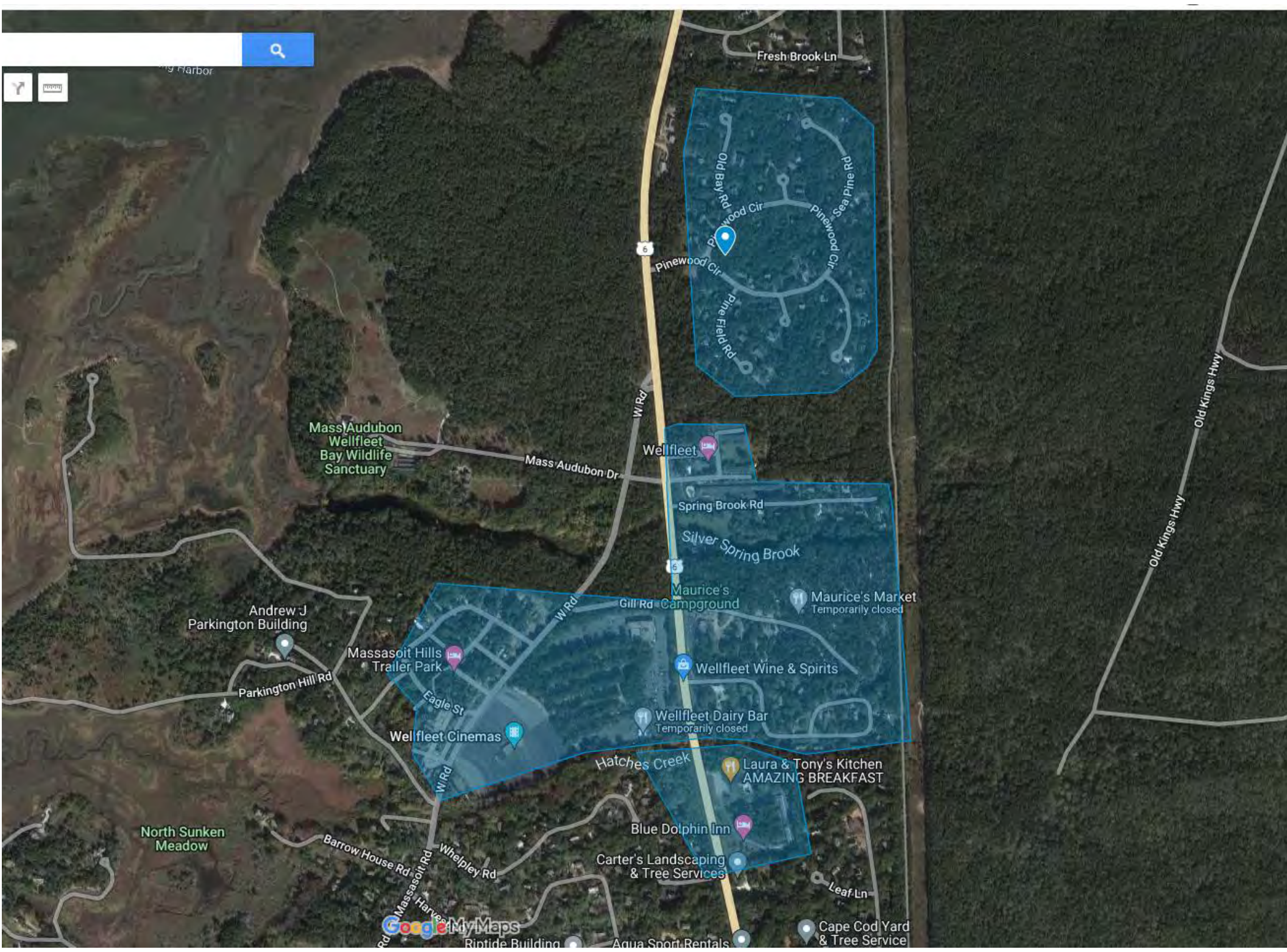
FIGURE 2

C:\data\Wellfleet\FIGURE 2 CONCEPTUAL SEWERSHED LAYOUT.mxd
Print date: 27 May 2022 - 10:29

Note the following slides are not from GHD but they are areas that are likely worth instigating for decentralized sewers (cluster systems)






Fresh Brook Ln
Old Bay Rd
Pinewood Cir
Sea Pine Rd
Pinewood Cir
Pinewood Cir
Pine Field Rd
6
W Rd
Mass Audubon Wellfleet Bay Wildlife Sanctuary
Mass Audubon Dr
Wellfleet
Spring Brook Rd
Silver Spring Brook
6
Old Kings Hwy
Old Kings Hwy
Maurice's Campground
Maurice's Market
Temporarily closed
Gill Rd
W Rd
Andrew J Parkington Building
Massasoit Hills Trailer Park
Wellfleet Wine & Spirits
Parkington Hill Rd
Eagle St
Wellfleet Dairy Bar
Temporarily closed
Wellfleet Cinemas
W Rd
Hatches Creek
Laura & Tony's Kitchen
AMAZING BREAKFAST
North Sunken Meadow
Barrow House Rd
Massasoit Rd
Whelpley Rd
Blue Dolphin Inn
Carter's Landscaping & Tree Services
Leaf Ln
Google My Maps
Riptide Building
Aqua Sport Rentals
Cape Cod Yard & Tree Service

SELECTBOARD

AGENDA ACTION REQUEST

Next Steps

REQUESTED BY:	**Chair Curley**
DESIRED ACTION:	
PROPOSED MOTION:	
SUMMARY (Optional)	
ACTION TAKEN:	Moved By: _____ Seconded By: _____ Condition(s):
VOTED:	Yea _____ Nay_____ Abstain _____

Pleasant Bay Watershed Permitting
Pursuant to the Massachusetts Clean Waters Act
Intermunicipal Agreement
Between
The Towns of Brewster, Chatham, Harwich and Orleans

This Intermunicipal Agreement ("Agreement") is entered into as of May 21, 2018 (the "Effective Date") by and among the Towns of Brewster, Chatham, Harwich and Orleans, each one a municipal corporation acting through their respective chief executive officers (collectively, with their successors and assigns, the "Parties").

RECITALS

WHEREAS, municipalities are authorized in accordance with G.L. c. 40, §4A to enter into intermunicipal agreements for the purpose of performing jointly, or on behalf of each other, activities or undertakings which any of the municipalities are authorized by law to perform; and

WHEREAS, Brewster, Chatham, Harwich and Orleans have been authorized to enter into this Agreement as evidenced by a vote of their respective Town Meetings, authorizing the execution of this Agreement by their respective Boards of Selectmen; and

WHEREAS, the Commonwealth of Massachusetts has, pursuant to the Federal Clean Water Act §208(b) (3) and 40 C.F.R. 130.6(e), prepared and certified the Cape Cod Water Quality Management Plan Update ("208 Plan Update") developed by the Cape Cod Commission, which was certified by the Governor of the Commonwealth on June 10, 2015, and submitted to the United States Environmental Protection Agency, Region 1 ("USEPA"); and

WHEREAS, USEPA approved the 208 Plan Update on September 15, 2015: and

WHEREAS, Section 2A of Chapter 259 of the Acts of 2014 requires Massachusetts Department of Environmental Protection (MassDEP) "to develop a watershed permitting approach to address and optimize nitrogen management measures intended to restore water quality to meet applicable water quality standards in watersheds included in an approved area wide nitrogen management plan developed pursuant to section 208 of the federal Clean Water Act," and

WHEREAS, the 208 Plan Update includes a number of recommendations for improving water quality in the estuaries and embayments on Cape Cod, including the development of a watershed-based permit program ("Permit") pursuant to Section 2A of Chapter 259 of the Acts of 2014; and

WHEREAS, the 208 Plan Update designates the towns as Waste Treatment Management Agencies (WMAs) responsible for meeting Total Maximum Daily Loads (TMDL) on a watershed basis; and

WHEREAS, the estuaries and embayments of the Pleasant Bay system have experienced greatly increased anthropogenic loads of nitrogen delivered to the water through surface and groundwater sources from an increasingly developed watershed, and that this increase in nitrogen has increased the rate of eutrophication of the waters causing adverse aesthetic, water quality, and habitat impacts that result in violation of state water quality standards, all as documented in the Massachusetts Estuary Project ("MEP") report entitled, *"Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Pleasant Bay System, Towns of Orleans, Chatham, Brewster and Harwich, Massachusetts, Final Report, May 2006"*; and

WHEREAS, MassDEP developed and USEPA approved the report entitled *"Pleasant Bay System, Total Maximum Daily Loads for Total Nitrogen (Report #96-TMDL-12, Control #244.0), MADEP, May, 2007,"* establishing 19 Total TMDLs for Total Nitrogen in Pleasant Bay; and

WHEREAS, meeting the established TMDLs for Pleasant Bay will require substantial reductions in the amount of nitrogen flowing into Pleasant Bay from current and future watershed sources; and

WHEREAS, the Towns of Brewster, Chatham, Harwich and Orleans share the watershed of Pleasant Bay and, by an inter-municipal memorandum of agreement entered into in 2018 (Attachment 1), have formed the Pleasant Bay Alliance (Alliance) to coordinate resource management of Pleasant Bay among the member towns and further that the provisions of said inter-municipal agreement relating to the receipt and expenditure of funds and the designation of Chatham as the fiscal agent for the Alliance are hereby incorporated by reference into this Agreement; and

WHEREAS, Pleasant Bay is a state-designated Area of Critical Environmental Concern (ACEC); and

WHEREAS, a Resource Management Plan for the Pleasant Bay ACEC and Watershed developed by the Alliance and approved by Town Meetings of the four member towns and the Secretary of the Executive Office of Energy and Environmental Affairs identifies excessive nitrogen loading from watershed surface and groundwater sources as a primary threat to the health and sustainability of Pleasant Bay; and

WHEREAS, the Parties agree that wastewater, fertilizer, and stormwater are the prime source of controllable watershed nitrogen causing impairment of the embayment and that, as a result, a joint effort is required to restore and protect beneficial uses and aquatic resources of the Bay and its tributaries; and

WHEREAS, each of the Parties have, to varying degrees, established or are in the process of preparing a Comprehensive Wastewater Management Plan ("CWMP") or equivalent plan, pursuant to the requirements of MassDEP to address its share of

responsibility for reducing the amount of nitrogen flowing into Pleasant Bay from watershed sources; and

WHEREAS, the Alliance is charged under the locally- and state-approved Resource Management Plan to convene a Pleasant Bay Watershed Work Group consisting of representatives of the member towns to work with MassDEP, USEPA, and the Cape Cod Commission, among others, to facilitate efforts to meet TMDLs on a watershed basis, through activities such as monitoring, technical analysis, modeling, and coordination of regional activities as may be required under a watershed permit; and

WHEREAS, the Pleasant Bay Alliance has compiled the *Pleasant Bay Composite Nitrogen Management Analysis* (March 2017) which presents in a uniform way the attenuated nitrogen loads and load removal requirements contained in individual town plans; and

WHEREAS, on June 23, 2017 the Select Boards of Brewster, Chatham, Harwich and Orleans voted to sign a *Resolution of the Towns Sharing the Watershed of Pleasant Bay* endorsing the *Pleasant Bay Composite Nitrogen Management Analysis* (March 2017) as an accurate representation of each Town's share of current attenuated nitrogen load and its responsibility to remove nitrogen in Pleasant Bay, as follows:

Town	Share of Attenuated Pleasant Bay Watershed Nitrogen Load	Share of Attenuated Pleasant Bay Watershed Nitrogen Load Removal
Brewster	6,359 kg/yr (13%)	2,262 kg/yr (13%)
Chatham	16,572 kg/yr (34%)	4,076 kg/yr (23%)
Harwich	10,929 kg/yr (23%)	4,399 kg/yr (25%)
Orleans	14,646 kg/yr (30%)	6,980 kg/yr (39%)
Total	48,503 kg/yr (100%)	17,717 kg/yr (100%)

and

WHEREAS, MassDEP initiated a new voluntary program of Watershed Permitting to facilitate removal of excess nitrogen loads impacting coastal embayments. The Alliance and member towns were invited by MassDEP to participate in a Watershed Permit Pilot Project for Pleasant Bay, to fully examine the requirements and benefits of entering into such a permit, and to compile the information required for such a permit; and

WHEREAS, based on the pilot project, Brewster, Chatham, Harwich, and Orleans believe that it is in their mutual best interests to jointly execute a Watershed Permit for the following reasons: (1) a Watershed Permit will allow greater flexibility to achieve TMDL compliance by providing a MassDEP accepted framework of nitrogen mitigation measures beyond a traditional MassDEP issued groundwater discharge permit; (2) a Watershed Permit will recognize community efforts to achieve compliance with the Clean Water Act through non-traditional nitrogen management approaches; (3) a Watershed Permit will support the towns' application for State Revolving Loan Fund (SRF) financing for non-traditional technologies and allow for higher priority for SRF financing for both traditional and non-traditional technologies for qualified projects; (4) a Watershed Permit will provide

an assured procedure for documenting nitrogen removal credit(s) toward TMDL compliance; and (5) a Watershed Permit will allow communities to demonstrate they are undertaking a MassDEP approved framework of actions to address water quality impairment and excess nitrogen in the Pleasant Bay watershed and in so doing obtain forbearance from MassDEP enforcement efforts intended to compel action to address water quality impairment and TMDL compliance; and

WHEREAS, a core aspect of the permit is a Targeted Watershed Management Plan (TWMP), found in Attachment 2. The TWMP summarizes the nutrient management plans (i.e., CWMPs) already prepared by the towns for the watershed, and is an elaboration of the Composite Analysis completed in March 2017 that was the basis for the June 2017 joint resolution; and

WHEREAS, In order to obtain a Watershed Permit, a four-town inter-municipal agreement will need to be executed that confirms each town's share of nitrogen removal responsibility and its intended implementation schedule, giving all towns the assurance that the towns are working together and that improved water quality will be not delayed by one town's inactions; and

WHEREAS, following the execution of this agreement, the Parties will be free to submit a Watershed Permit application for MassDEP review and approval (Attachment 3) as specified below.

NOW, THEREFORE, in consideration of the promises and mutual benefits to be derived by the Parties hereto, the Parties agree as follows:

1. **Recitals** to this Agreement are incorporated into and are part of this Agreement.

2. **Watershed Boundary**

The Pleasant Bay Watershed is comprised of all land and water in the Towns of Brewster, Chatham, Orleans, and Harwich that have been determined by USGS, as shown depicted in the Linked Watershed-Embayment Model to Determine Critical Nitrogen Loading Thresholds for the Pleasant Bay System, Towns of Orleans, Chatham, Brewster and Harwich, Massachusetts, Final Report, May 2006, to be contributing groundwater or surface water flow into Pleasant Bay and its fresh and saltwater lakes, ponds, rivers, creeks, bays, coves, and other wetlands.

3. Targeted Watershed Management Plan

a. The Parties agree that the most cost-effective means in terms of total cost, of meeting the TMDL requirements and attaining water quality and beneficial use goals, may be a regional, watershed-based approach to mitigate nitrogen at locations within the watershed where contributing loads are the greatest and methods useful for nitrogen reduction are most effective.

b. The Parties agree that the Targeted Watershed Management Plan (TWMP) is a fair representation of its CWMP and thereby endorse that document.

c. The Parties agree that the implementation table [specific reference] in the TWMP reflects their respective town's intent with respect to implementing nitrogen control plans. Further, the Parties recognize that nitrogen removal plans in the first five years of the implementation table represent DEP enforceable commitments and that later nitrogen removal measures are presented for planning purposes.

d. The Parties acknowledge the likely growth in watershed nitrogen loads from future development and intend to enact nitrogen growth management strategies contained in their respective local nitrogen management plan (i.e. CWMP) and summarized in the TWMP.

4. **Joint Responsibilities and Shared Activities.**

a. Each Party will continue to develop and/or implement its own MassDEP approved CWMP or comparable plan, as described in the TWMP, but shall include in their respective plan, if appropriate, any joint efforts undertaken by the Parties pursuant to this Agreement.

b. The Parties agree to be named joint permittees on a Permit for the Bay pursuant to the 208 Plan Update and Chapter 259 of the Acts of 2014, and any future requirements for such Permits established by MassDEP pursuant to any applicable state or federal regulations. The 20-year permit will require nitrogen removal activities as described in the TWMP, which is found in Attachment 2.

c. The Towns further agree to individually fund those measures expected to achieve control of their respective share of the load identified in the TWMP unless they mutually agree to joint efforts to mitigate nitrogen. The Parties agree to adopt a fair and practical methodology for implementing the most cost-effective approach, in order to comply with any permits issued by MassDEP, and to share on a fair and equitable basis the capital, operating, administrative, legal, operational, and other ancillary costs associated with a regional, watershed-based wastewater and/or nutrient management system.

d. The Parties agree to develop, if deemed mutually beneficial based on comparison of other wastewater management options of each Town, a fair and practical methodology for a reasonable nitrogen trading mechanism, including metrics for determining a nitrogen credit trading "currency" in terms of dollars per pound or other trading metric, as a means to implement a watershed-based plan.

e. The Parties agree to measure key parameters, share data and compile an annual report of progress as required under the Permit. Accordingly, the Parties agree to continue to support on-going system-wide monitoring and modeling of water quality and other nutrient-related ecological parameters in the Pleasant Bay system and to share equitably in the costs of these activities as set forth in the Memorandum of Agreement establishing the Alliance.

f. Each Party shall cooperate with the other Parties and other entities as appropriate to identify, apply for, secure, manage, and fairly allocate federal, state, or other funding sources, as such may become available, to finance the planning and implementation of multi-town or regional nutrient management plans resulting from the cooperative efforts of the Parties under this Agreement.

5. **Pleasant Bay Alliance.** The Parties hereby agree that the Alliance comprised of town representatives appointed in conformance with Memorandum of Agreement forming the Alliance, will oversee the Permit referenced in this IMA. The Alliance's responsibilities in this regard will be to:

a. Coordinate joint activities of the Parties under this Agreement;

b. Coordinate with the various departments and boards of their respective towns to apply for and implement a Permit for the Bay, subject to approval by each of the Parties prior to filing;

c. Share or develop engineering and economic studies and evaluations to define means of meeting the Parties' respective nitrogen reduction targets and to develop cost-performance relationships that define most cost-effective technologies and practices for the removal of nitrogen;

d. Coordinate system-wide monitoring and modeling of water quality and other nutrient-related ecological parameters in the Pleasant Bay system as needed to support implementation of the TWMP and compliance with the terms of the Permit;

e. Develop and propose for adoption amendments to this IMA, if necessary, or other forms of agreement that will define and require the action of each Party to implement agreed-upon plans to apply for and implement, a Permit;

f. The Alliance has no authority to bind one or more of the Parties. Its role shall be solely administrative in nature and to make recommendations to the Parties for actions required to implement such recommendations. The incurrence of any obligation under this Agreement by any Party shall be subject to the approval of the chief executive officer of each Party (e.g., Board of Selectmen) and the legislative body (e.g., Town Meeting), if required, to implement such recommendations.

6. Terms of Agreement

a. Effective Date of Agreement – The effective date of this Agreement shall be the date upon which this Agreement is entered into as first written above.

b. Term of Agreement – Pursuant to G.L. c. 40, §4A, the maximum term of this Agreement shall be twenty years, unless otherwise renewed or extended by mutual agreement. Coterminous with the Memorandum of Agreement establishing the Alliance, this Agreement will be reassessed by the Boards of Selectmen of each participating town at intervals of five years, or, if more stringent, in accordance with any permit renewal

requirements established by the MassDEP and may be modified by mutual agreement of the Parties through an amendment of this Agreement, if necessary, to achieve permit renewal and compliance.

c. Termination – This Agreement may be terminated by any one Party upon sixty (60) days notice to the other Parties, provided, however, that any obligations created by a joint Watershed Permit issued by the MassDEP shall continue for each of the Parties unless the Permit is modified pursuant to a joint application filed by all or the remaining Parties. Should a town elect to opt out of the Watershed Permit, the Permit shall remain in force and effect on the remaining towns, accepting that modification to the Permit may be necessary to the extent certain permit activities relied upon the opt out town's participation.

d. Dispute Resolution – In the event of a dispute arising out of or in relation to the terms of this Agreement, representatives of the Parties shall meet and endeavor to settle the dispute in an amicable manner through mutual consultation. If such persons are unable to resolve the dispute in a satisfactory manner within thirty (30) calendar days, either party may seek assistance of an independent third party, mutually-agreeable to both or all Parties.

e. Assignment - Any Party may assign to another governmental entity established for the purpose of addressing wastewater issues in the Town the responsibility in whole or in part for implementing the watershed permitting activities contemplated in the Agreement.

f. Amendment of this Agreement – This Agreement may be changed or modified through a mutually agreed upon written Amendment executed by each and all of the Parties to this Agreement. Any Amendment shall be attached to and shall become part of this Agreement.

g. Mutual Indemnification – Each party to this Agreement shall indemnify and hold harmless each and all other Parties to this Agreement, their officers, agents, consultants, employees and assigns for all liability arising out of the activities under this Agreement.

h. Subject to Appropriation – The obligations of each of the Parties shall be subject to appropriation and the availability of funds.

i. No Remuneration – Parties to this Agreement shall be solely responsible for any and all costs incurred by themselves, their agents, their employees, committee members, consultants or other persons or entities resulting from activities undertaken pursuant to this Agreement.

j. Governance – This Agreement shall be governed by, construed under and enforced in accordance with the laws of the Commonwealth of Massachusetts.

k. Severability – If any provision of this Agreement is determined to be illegal, unenforceable, or void, then all Parties shall be relieved of their obligations under

that provision, provided, however, that the remainder of the Agreement shall remain in full effect.

l. Entire Agreement - This Agreement constitutes the entire agreement between the Parties.

IN WITNESS THEREOF, the Parties hereto have executed this Agreement as of the first date written above.

Town of Brewster
By its Select Board

Town of Chatham
By its Board of Selectmen

Town of Harwich
By its Board of Selectmen

Town of Orleans
By its Board of Selectmen

Attachments:

1. Alliance Memorandum of Agreement
2. Targeted Watershed Management Plan
3. Watershed Permit Application and Conditions

Memorandum of Understanding
Between
Town of Wellfleet, Massachusetts
And
Town of Eastham Massachusetts

Whereas: The Town of Wellfleet (Wellfleet) and the Town of Eastham (Eastham) have joint responsibilities to assure compliance of their shared watershed and groundwater lens with State and Local Regulations; and

Whereas: Wellfleet and Eastham share the Hatches Creek tributary to Wellfleet Harbor ("the water bodies"), and the rich resources therein; and

Whereas: Wellfleet and Eastham have efforts underway to address nutrient and other concerns in all adjacent water bodies and, more specifically, in these shared water resource areas, to insure compliance with State and Local Regulations; now

Therefore: The parties agree to mutually cooperate by carrying out joint meetings and discussions if issues of mutual concern are identified in these water bodies. The form and content of this cooperation would include formal contact between the Towns' respective water quality and/or wastewater committees in development of their respective comprehensive wastewater management plans. The parties agree that where water quality issues of mutual concern are raised by either party, the parties agree to cooperate to develop a mutually acceptable plan for addressing these concerns

Town of Wellfleet

Signature: [signature]

Title: TOWN ADMINISTRATOR

Date: 19 November 2013

Town of Eastham

Signature: Sheila Vanderhoef

Title: Town Administrator

Date: 6 November 2013

Memorandum of Understanding
Between
Town of Wellfleet, Massachusetts
And
Town of Truro Massachusetts

Whereas: The Town of Wellfleet (Wellfleet) and the Town of Truro (Truro) have joint responsibilities to assure compliance of their jointly shared watershed and groundwater lens with the Clean Water Act.

Whereas: Wellfleet and Truro share the Herring River estuary and the Chequesset groundwater lens (the "water bodies").

Whereas: Wellfleet and Truro have active efforts underway to address nutrient and other concerns in these water bodies to insure Clean Water Act Compliance.

Therefore: The parties agree to mutually cooperate by carrying out joint meetings and discussions if issues of mutual concern are identified in these water bodies. The form and content of this cooperation would include formal contact between the Towns' respective water quality and/or wastewater committees in development of their respective comprehensive wastewater management plans. The parties agree that where water quality issues of mutual concern are raised by either party, the parties agree to cooperate to develop a mutually acceptable plan for addressing these concerns.

Accepted for Town of Wellfleet

Signature: Peter Bruinooge

Title: Chair, Board of Selectmen

Date: 8/27/13

Accepted for Town of Truro

Signature:

Title: Chair, Board of Selectmen

Date: 8/16/13

Town of Wellfleet

208 COMPLIANCE REPORT | 2021

CUMULATIVE TOWN SNAPSHOT SINCE 208 PLAN APPROVAL

$2.35M	$322K	1	-	-
TOWN APPROVED FUNDING	GRANT FUNDING RECEIVED	NON-TRADITIONAL PROJECTS UNDERWAY	TOTAL FLOW COLLECTED BY CENTRALIZED SYSTEMS	ALL PROPERTIES SERVED BY CENTRALIZED SYSTEMS

TEAM

Team members engaged in water quality planning efforts.

Town Team:

- Comprehensive Wastewater Management Planning Committee
- Health and Conservation Agent
- Scott Horsley
- GHD
- Bohler Engineering
- On-Site Engineering

Collaborations:

- MassDEP
- Cape Cod Commission

MS4 COMPLIANCE

12 Cape Cod towns are required to address stormwater discharge under the MS4 Permit. Towns with nitrogen impaired waters must meet additional permit requirements.

Not subject to MS4 Permit

PRIORITY WATERSHED PROGRESS

Plans and permits in the priority watersheds as identified by the 208 Plan Implementation Report in 2017.

- Town of Wellfleet
- Town(s) with Joint Agreement or Plan in Place
- Priority Watershed
- Watershed

The Town of Wellfleet does not have any Priority Watersheds within its jurisdiction.

SYMBOL LEGEND | Complete or Approved | Partial | Not Shared or Not Approved | Not Available

OTHER LEGEND | Progress shown is for the period from November 2020 through November 2021 | The Cumulative Town Snapshot section summarizes the funding snapshot categories since 2015

Town of Wellfleet

208 COMPLIANCE REPORT | 2021

TOWN REGIONAL DATA SHARING STATUS

☑ 2019	☑ 2019	☑ 2016	☑ 2017
PARCEL DATA	ASSESSOR DATA	WATER USE	EMBAYMENT MONITORING

IMPLEMENTATION

Actions taken relative to plan and project implementation and regulatory and town meeting actions.

PROJECT STATUS

Reduction Project | Remediation Project | Restoration Project | P Pilot project

	Project Stage
Transfer Station Wastewater Disposal	FEASIBILITY
Lawrence Road Affordable Housing / Neighborhood Wastewater	FEASIBILITY
Commercial Street Permeable Reactive Barrier P	FEASIBILITY

LOCAL REGULATORY ACTIONS

Zoning Changes

☒ None in reporting period

Adoption of Regulations

☒ None in reporting period

TOWN IMPLEMENTATION ACTIONS

Implementation Actions reflect unfunded municipal actions such as, inter-municipal agreements, procedural approvals, and committee actions.

☒ None in reporting period

FUNDING

Actions taken during the reporting period to secure funding for water quality improvement plans and projects.

☑ **Cape Cod and Islands Water Protection Fund Member Community**

Town Funding Actions

- ☑ 2021 Enhanced Septic System Upgrade Program to assist with installation of high performance Innovative & Alternative Septic Systems within the Wellfleet Harbor Watershed ($250,000 Approved)
- ☑ 2021 Wastewater Commercial Street PRB Hydrogeological Assessment and Engineering ($50,000 Approved)
- ☑ 2021 Wastewater Mitigation/95 Lawrence Road Cluster Wastewater Treatment Facility ($1,931,886 Approved)

Grant Funding

- ☑ 2020 District Local Technical Assistance : Wastewater planning for Affordable / Community Housing ($30,000 Awarded - Applicant)

SYMBOL LEGEND | ☑ Complete or Approved | ◪ Partial | ☒ Not Shared or Not Approved | ▨ Not Available

OTHER LEGEND | Progress shown is for the period from November 2020 through November 2021 | Text color indicates that data made available is 5 years or older

WATERSHED REPORT: OUTER CAPE

Wellfleet Harbor

WELLFLEET, EASTHAM & TRURO

WATER THREAT LEVEL

MODERATE

Wellfleet Harbor Watershed

Introduction to the Watershed Reports

In 2001, the Massachusetts Estuaries Project (MEP) was established to evaluate the health of 89 coastal embayment ecosystems across southeastern Massachusetts. A collaboration between coastal communities, the Massachusetts Department of Environmental Protection (MassDEP), the School of Marine Science and Technology (SMAST) at the University of Massachusetts-Dartmouth, the US Environmental Protection Agency (US EPA), the United States Geological Survey (USGS), the Massachusetts Executive Office of Energy and Environmental Affairs (EEA), and the Cape Cod Commission, the purpose of the MEP is to identify nitrogen thresholds and necessary nutrient reductions to support healthy ecosystems.

The Cape Cod 208 Plan Update, certified and approved by the Governor of the Commonwealth of Massachusetts and the US EPA in 2015, provides an opportunity and a path forward to implement responsible plans for the restoration of the waters that define Cape Cod.

On Cape Cod there are 53 embayment watersheds with physical characteristics that make them susceptible to nitrogen impacts. In its 2003 report, "The Massachusetts Estuaries Project – Embayment Restoration and Guidance for Implementation Strategies", MassDEP identifies the 46 Cape Cod embayments included in the

MEP. Thirty-three embayments studied to date require nitrogen reduction to achieve healthy ecosystem function. A Total Maximum Daily Load (TMDL) has been established (or a draft load has been identified and is under review) for these watersheds. For those embayments not studied, the 208 Plan Update recommends planning for a 25% reduction in nitrogen, as a placeholder, until information becomes available.

The 208 Plan Update directs Waste Treatment Management Agencies (WMAs) to develop watershed reports within 12 months of certification of the Plan Update. The Watershed Reports outline potential "bookend" scenarios for each watershed that include two scenarios to meet water quality goals in the watershed – a traditional scenario, which relies completely on the typical collection and centralized treatment of wastewater, and a non-traditional scenario, which uses remediation, restoration, and on-site reduction techniques to remove nutrients from raw and treated wastewater, groundwater and affected waterbodies.

The intent of the Watershed Reports is to outline two distinct approaches for addressing the nutrient problem. The reports are not intended to identify preferred and detailed plans for each watershed, but to facilitate discussions regarding effective and efficient solutions, particularly in watersheds shared by more than one town. In some cases, towns have provided information on collection areas and non-traditional technologies that have been specifically considered by that town.

The 208 Update developed a regionally consistent database of the nitrogen load entering each watershed. This data set includes estimates of wastewater, stormwater and fertilizer loads - similar to methodologies used by the MEP. Using this regionally consistent database, the Watershed MVP tool (wMVP) was developed so that different strategies (i.e., bookend scenarios) to reduce excess nitrogen load could be evaluated. The Watershed Reports use the MEP recommendations for the required nitrogen load reductions necessary to meet the threshold loads (that serve as the basis for nitrogen management), and then use the wMVP and the regionally consistent database values to develop bookend scenarios. There are variations of load between the MEP and wMVP, primarily due to differences in comparing older and newer databases.

Terms Defined

Total nitrogen load: the nitrogen load from the watershed contributed by septic, wastewater, fertilizer, stormwater, golf course, landfill, and natural sources.

Attenuated nitrogen load: the nitrogen load from the watershed that reaches the embayment after the effect of natural attenuation in wetlands, ponds or streams.

Threshold: the amount of nitrogen that a water body can receive from its watershed and still meet water quality goals; this number is based on MEP technical reports or Total Maximum Daily Load (TMDL) reports.

Reduction target: an approximation of the amount of nitrogen that needs to be removed from the watershed to achieve the threshold; this number is calculated by subtracting the threshold number from the attenuated total watershed load, and is for planning purposes only.

Percent contribution: the percent of attenuated nitrogen load that a town contributes to the watershed.

Kilogram responsibility: is calculated by applying the percent contribution to the reduction target and indicates the amount of nitrogen, in kg, that a community is responsible for addressing.

Total Maximum Daily Load: a regulatory term in the Clean Water Act, describing a value of the maximum amount of a pollutant that a body of water can receive while still meeting water quality standards. Establishing a TMDL is necessary when a water body has been listed on the 303D list of impaired waters.

WATERSHED REPORT: OUTER CAPE

Wellfleet Harbor

WELLFLEET, EASTHAM & TRURO

WATER THREAT LEVEL

MODERATE

The Wellfleet Harbor embayment system is one of the Cape's largest. The large Harbor area has several large tributaries, including Duck Creek, Herring River, Blackfish Creek with Drummer Cove and Loagy Bay, and Silver Spring Harbor The estuary supports a variety of recreational uses including boating, swimming, shell fishing and fin fishing.

The Problem

For the purposes of the Section 208 Plan Update, areas of wastewater need are primarily defined by the amount of nitrogen reduction required as defined by the Total Maximum Daily Load (TMDL) and/or Massachusetts Estuaries Project (MEP) technical report. Wellfleet Harbor is presently being assessed by the Massachusetts Estuaries Project (MEP) and a draft technical report has been completed.

- **MEP TECHNICAL REPORT STATUS:** Draft
- **TMDL STATUS:** In Progress

Watershed nitrogen load characteristics were published in the 2016 Draft MEP report for Wellfleet Harbor, reflecting current conditions at the time of writing:

- **TOTAL ATTENUATED NITROGEN LOAD (MEP CHAPTER VIII):** 29,105 Kg/Y
- **SOURCES OF ATTENUATED WATERSHED NITROGEN LOAD:**
  - 82% Wastewater
  - 8% Impervious Surfaces
  - 8% Fertilizers
  - 1% Farm Animals
  - 1% Landfill/Solid Waste

The Commission compiled the following updated water use and nitrogen loads using the regional wMVP database (see page 2), enabling a current estimate of nitrogen loading.

- **TOTAL WASTEWATER FLOW:** 307 million gal per year (MGY)
  - Treated Wastewater Flow: 36 MGY
  - Septic Flow: 271 MGY
- **TOTAL ATTENUATED NITROGEN LOAD (WMVP):** 30,893 kg/Y (kilograms per year)

CONTRIBUTING TOWNS

Percent contributions listed below are the aggregate sub-embayment contributions identified in Appendix 8C of the Cape Cod Section 208 Plan Update (contributions are based on attenuated load where available). See Appendix 8C for detailed town allocations by sub-embayment.

A portion of the land area in this watershed is within the boundaries of the Cape Cod National Seashore and any nitrogen load that results from Seashore controlled property is not within control of the towns.

- **WELLFLEET:** 87%
- **EASTHAM:** 11%
- **TRURO:** 2%

WELLFLEET HARBOR EMBAYMENT

- **EMBAYMENT AREA:** 11,647 acres
- **EMBAYMENT VOLUME:** 5,848 million cubic feet
- **2014 INTEGRATED LIST STATUS:** Category 2 for fecal coliform
  - Category 2: Attaining some uses; other uses not assessed
  - www.mass.gov/eea/docs/dep/water/resources/07v5/14list2.pdf

WELLFLEET HARBOR WATERSHED

General watershed characteristics according to the current wMVP regional database (see figure on page 1 for watershed boundary) follow.

- **WATERSHED CHARACTERISTICS:**
  - Acres: 12,322
  - Parcels: 5,009
  - Percent residential parcels: 73%
  - Parcel density: 2.5 acres per parcel (approx.)

Freshwater Sources

PONDS

- **IDENTIFIED SURFACE WATERS:** 26
- **NUMBER OF NAMED FRESHWATER PONDS:** 11
- **NUMBER WITH PRELIMINARY TROPHIC CHARACTERIZATION:** 10
- **2014 INTEGRATED LIST STATUS:** 7 listed
  - Great Pond (Truro); Category 4a: TMDL completed (mercury)
  - Snow Pond; Category 4a: TMDL completed (mercury)
  - Long Pond; Category 4a: TMDL completed (mercury)
  - Great Pond (Wellfleet); Category 4a: TMDL completed (mercury)
  - Dyer Pond; Category 4a: TMDL completed (mercury)
  - Ryder Pond/Higgins Pond; Category 5 (mercury, dissolved oxygen, phosphorus)

Wellfleet, Eastham and Truro have participated in the Pond and Lake Stewardship (PALS) program, that has helped establish baseline water quality, and the Cape Cod National Seashore has an on-going monitoring program that has helped establish baseline water quality. Trophic characterizations are based on most recent Commission staff assessment.

Streams

- **SIGNIFICANT FRESHWATER STREAM OUTLETS:** 3

Herring River:
- Average Flow: 28,323 cubic meters per day (m3/d)
- Average Nitrate Concentrations: 0.076 milligrams per liter (mg/L)

Fresh Brook:
- Average Flow: 2,344 m3/d
- Average Nitrate Concentrations: 0.223 mg/L

Hatches Creek:
- Average Flow: 743 m3/d
- Average Nitrate Concentrations: 1.92 mg/L

Stream data from draft MEP technical report. Nitrate concentrations higher than 0.05 mg/L background concentrations, evident in public supply wells located in pristine areas, provide evidence of the impact of non-point source pollution on the aquifer and receiving coastal water bodies.

A number of streams contribute to Wellfleet Harbor through surface water discharge including Herring River, Duck Creek, Pilgrim Spring, Blackfish Creek, Trout Brook, Fresh Brook, Silver Spring Brook and Hatches Creek.

Drinking Water Sources

- **WATER DISTRICTS:** 1
  - Wellfleet Water Supply
- **GRAVEL PACKED WELLS:** 17
  - 5 have nitrate concentrations between 0 and 0.5 mg/L
  - 3 have nitrate concentrations between 0.5 and 1 mg/L
  - 2 have nitrate concentrations between 1 and 2.5 mg/L
  - 3 have nitrate concentrations between 2.5 and 5 mg/L
  - 4 have no nitrate concentration data
- **SMALL VOLUME WELLS:**86

Drinking water data from Cape Cod Commission and MassDEP data sources – nitrate values obtained from drinking water wells are from 2009-2012. The state and federal drinking water limit for nitrate is 10 mg/L. The Cape Cod Commission nitrate loading standard is 5 mg/l.

Degree of Impairment and Areas of Need

For the purposes of the Section 208 Plan Update, areas of need are primarily defined by the amount of nitrogen reduction required as defined by the TMDL and/or MEP technical report. The MEP technical report also provides a specific targeted amount of nitrogen reduction required by subwatershed (see the figures: Subwatersheds with Total Attenuated Watershed Removal Targets and Subwatersheds with Septic Attenuated Nitrogen Removal Targets).

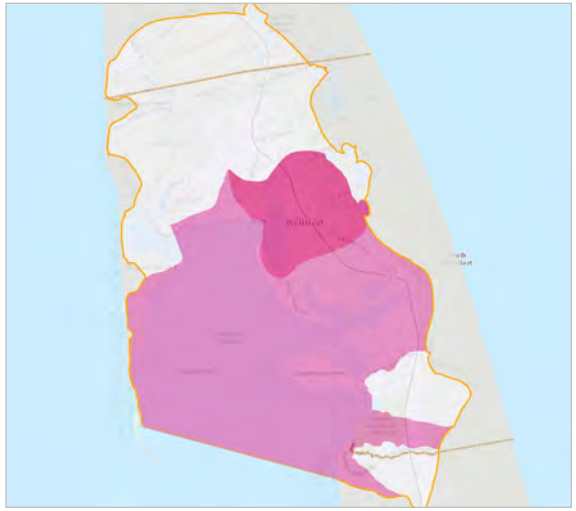
The nitrogen load from the watershed exceeds the threshold for Wellfleet Harbor, resulting in impaired water quality. The ecological health of a water body is determined from water quality, extent of eelgrass, assortment of benthic fauna, and dissolved oxygen and ranges from severe degradation,

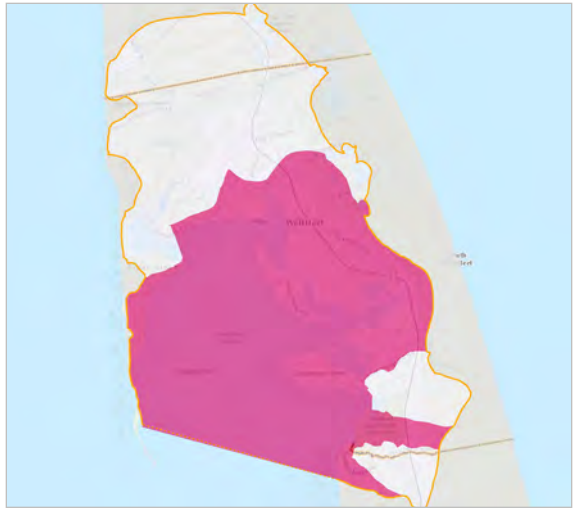
significantly impaired, moderately impaired, or healthy habitat conditions.

ECOLOGICAL CHARACTERISTICS AND WATER QUALITY

The MEP report provides the following characterization of the estuary's health:

- **OVERALL ECOLOGIC CONDITION:** Healthy to Significantly Impaired
- **UPPER WELLFLEET HARBOR:** Healthy to Moderately Impaired
- **LOWER WELLFLEET HARBOR:** Healthy
- **DUCK CREEK:** Moderately Impaired to Significantly Impaired
- **THE COVE:** Moderately Impaired
- **HERRING RIVER MOUTH:** Healthy
- **DRUMMER COVE:** Moderately Impaired
- **SOUTH OF LT. ISLAND:** Healthy to Moderately Impaired
- **SENTINEL STATION:**
  - Total Nitrogen Concentration Threshold: 0.53 mg/L
  - Total Nitrogen Concentration Existing: 0.55 mg/L (As reported at the MEP sentinel water-quality monitoring station.)





0.1% - 9%
9.1% - 38%
38.1% - 62%
62.1% - 86%
86.1% - 100%

Subwatersheds with
Total Attenuated Watershed Removal Targets

(Left) Benthic and atmospheric loads directly on embayments are not included.

Subwatersheds with
Septic Attenuated Nitrogen Removal Targets

(Right)

Traditional & Non-Traditional Scenarios

SCENARIO DEVELOPMENT

Through the 208 Stakeholder process, the Commission developed "bookend" scenarios – one looking at a possible solution using traditional collection and treatment, the other examining a possible suite of non-traditional technologies – to address the nitrogen management needs in each watershed. These bookend scenarios provide guidance for communities as they continue to discuss alternatives, priorities, and opportunities for identifying well-considered solutions that will address communities' needs and interests.

REGIONAL DATA

In preparation for this effort, the Commission collected regionally consistent data for the purposes of watershed scenario development. Both parcel data and water use data was identified and collected for the entire region. While the scientific basis for planning is the thresholds identified in the MEP technical reports, each report uses data from different years, and in some cases the MEP data used are 10 or more years old. In addition, there are watersheds on Cape Cod without the benefit of an MEP report; therefore, similar data was not available for planning purposes.

The updated regional data set was used to estimate wastewater, stormwater and fertilizer loads, using the same methodologies as the MEP. This approach allows for a reevaluation of existing development, which may have changed in the last 10 years. Parcel data included in the regional database is from 2010-2012 and water use data is from 2008-2011, depending on the water supplier and based on best available data. This approach allows for regionally consistent watershed scenario development.

WATERSHED SCENARIOS

The watershed scenarios that follow outline possibilities for the watershed. A series of non-traditional technologies that might be applicable are included, as well as the amount of residential load that would need to be collected if a traditional collection system and treatment facility was implemented. The pie charts show the load to be collected for treated effluent disposal both inside and outside the watershed.

Site specific analyses of collection areas may result in the need to collect wastewater from more or fewer parcels to meet the nitrogen reduction target. The scenarios presented are conceptual and are meant to inform discussions regarding effective and efficient solutions; they are not specific recommendations and should be viewed as resource information for additional and more detailed wastewater management planning.

TOTAL ATTENUATED NITROGEN LOAD VALUES (FROM WMVP)

Wellfleet Harbor Nitrogen Sources	Total Attenuated Watershed Nitrogen Load (kg-N/yr)
Wastewater[1]	22,591
Fertilizer[2]	2,138
Stormwater	4,577
Other[3]	1,587
TOTAL WATERSHED LOAD	30,893
Total Watershed Threshold	20,020
TOTAL ATTENUATED LOAD TO BE REMOVED	10,873

1. Includes nitrogen loads from septic systems and wastewater treatment facilities.
2. Includes nitrogen loads from lawns, cranberry bogs, and golf courses.
3. Includes nitrogen loads from landfills and atmospheric deposition to vacant land.

SELECTBOARD

AGENDA ACTION REQUEST

DEP's Proposed Changes to SRF Priority Ranking System

REQUESTED BY:	**Chair Curley**
DESIRED ACTION:	
PROPOSED MOTION:	
SUMMARY (Optional)	
ACTION TAKEN:	Moved By: _____ Seconded By: _____ Condition(s):
VOTED:	Yea _____ Nay_____ Abstain _____

APCC
Association to Preserve Cape Cod
Preserving the Very Nature of Cape Cod

June 13, 2022

Dear Municipal Leader:

The Department of Environmental Protection is seeking public comment on changes to the SRF priority ranking system used to fund water quality projects with state loans. (Click here for more information.) This is an incredibly important issue for all of Cape Cod and the proposal rightly ranks Cape projects in the highest priority tier statewide. The DEP needs to hear from Towns that water quality restoration on the Cape should remain a high priority.

The Association to Preserve Cape Cod (APCC) has drafted a model letter that we ask you to consider submitting to DEP prior to their public hearing on June 24, 2022.

Thank you,

Andrew Gottlieb
Executive Director

June XX , 2022

Ms. Maria Pinaud, Director
Division of Municipal Services
MassDEP
One Winter St, 5th floor
Boston, MA 02108

Dear Ms. Pinaud:

The Town of XXXXXX writes in strong support of the Department's proposal entitled Revised Clean Water State Revolving Fund criteria for 2022 Project Evaluation Form.

The proposed changes simplify and clarify the hierarchy of priorities for the allocation of low and no interest loans from the SRF. The revised ranking system properly and clearly places the funding of nutrient management projects so critical to the restoration of the Cape's degraded estuaries in the highest tier for priority funding. This formal recognition of the importance of assuring Cape municipalities of their access to SRF financing sends an important signal that will encourage ongoing efforts to continue.

The SRF program is both the backbone of municipal finance strategies for all Cape towns as well as the key to accessing additional subsidy from the Cape and Islands Water Protection Fund. The proposed revisions to the SRF funding criteria provide additional assurance to Cape towns that their access to the Fund's 25% subsidy provided will continue. The enhanced access to the SRF assured by the Department's proposal and the ongoing cost relief provided by the Fund are complimentary strategies that are essential if the newly developed momentum for water quality restoration on Cape Cod is to continue.

We urge the Department to adopt these criteria as originally proposed.

Sincerely,

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Public Hearing Notice

Revised Clean Water State Revolving Fund criteria for 2022 Project Evaluation Form

The Massachusetts Department of Environmental Protection (MassDEP), Division of Municipal Services, is proposing revisions in the method used to score and rank Project Evaluation Forms (PEFs) for Clean Water construction projects seeking financial assistance through the Commonwealth's State Revolving Fund (SRF) loan program.

The proposed scoring system will categorize incoming Clean Water PEF construction proposals into one of five Tier Categories, each having a set point value. Additional points can be assigned based on documented public health impacts and environmental criteria. The Tier categories are designed to identify the most significant clean water project proposals in terms of public health and/or environmental impacts. The proposed revisions are an attempt to further ensure that Clean Water projects addressing the greatest environmental and/or public health needs are given priority for SRF financing assistance.

The Proposed 5-Tier Project Evaluation System can be found here: CWSRF Proposed Tier System.

Pursuant to the provisions for adequate alternative public access to agency hearings, set forth in Section 20 of Chapter 20 of the Acts of 2021, an Act Extending Certain COVID-19 Measures Adopted During the State of Emergency, a public hearing on the Proposed Clean Water SRF Tier System will take place virtually and via telephone on **Friday June 24, 2022, at 10 AM**.

Register in advance for this meeting:
https://us06web.zoom.us/meeting/register/tZ0vce2gpjgsHtEHajwN4EH4pYlnOQPQSFpt

Testimony may be presented orally at the public hearing. MassDEP will accept written testimony **until 5:00 PM on Friday June 24, 2022**. Written testimony must be submitted by email to Maria.Pinaud@mass.gov or by regular mail to: Maria Pinaud, Director, Division of Municipal Services, MassDEP, One Winter Street, 5th Floor, Boston, MA 02108.

By Order of the Department
Martin Suuberg, Commissioner

SELECTBOARD

AGENDA ACTION REQUEST

Adjourn

REQUESTED BY:	**Chair Curley**
DESIRED ACTION:	**I move to adjourn**
PROPOSED MOTION:	
SUMMARY (Optional)	
ACTION TAKEN:	Moved By: _____ Seconded By: _____ Condition(s):
VOTED:	Yea _____ Nay_____ Abstain _____