Wastewater Groundwater Discharge Citizens Advisory Committee Analysis & Recommendations

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Vice Chairman

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Presentation Overview

- Committee Establishment, Purpose, Composition, and Charge
- A Summary of the Current Situation
- The Town's Expanded Environmental Notification Form (EENF) to Massachusetts Environment Policy Act Office (MEPA)
  - The EENF is a document created for and with the Department of Public Works by Horsley Witten Group Inc. in which the Town describes the current situation and projected future needs as justification for a change in permitting
  - Based on the EENF review, MEPA indicated that a more elaborate document, a Draft Environmental Impact Report (DEIR) must be created
  - The MEPA review provided what is effectively a statement of requirements that are to be met by the Town in the DEIR; one of the requirements was public input
- Committee Vote & Recommendations

The Citizen Advisory Committee (CAC)

The Committee will be sponsored by the Select Board. In terms of structure, the CAC will be comprised of a diverse group of community members, including representatives from local government, environmental organizations, local industry, academia, and the general public. This diversity ensures a broad range of perspectives and expertise, facilitating comprehensive discussions.

Committee Membership – All Residents

- David Golden – Committee Chair, Current Select Board Chair
- Hampton Watkins, PhD – Committee Vice Chair, LUAC Chair, ERBC Member
- Rose Forbes, PE – Committee Clerk, Business Owner adjacent to WWTF, Retired Environmental Engineer
- Joshua Bows, PE – Member, Business Owner, Civil Engineer
- Bill Doyle – Member, Business Owner, Shellfisherman
- Martin Enos – Member, Retired Town Employee, Wastewater Treatment Facility Neighbor
- Marc Champagne – Member, Septic Installer, Eel River Neighbor

The Committee Charge

- A Wastewater Groundwater Discharge CAC will play a crucial role in fostering community engagement and ensuring effective oversight of town owned wastewater discharge. With growing concerns about environmental sustainability and public health, such a Committee serves as a vital bridge between local government agencies and the community they serve. The need for such a Committee stems from the complexity of wastewater management issues, which often require input from diverse stakeholders ranging from technical experts to everyday residents. Ultimately, the overarching purpose of such a Committee is to support the safeguarding of public health, protect the environment, and promote sustainable practices in wastewater management for the benefit of present and future generations.
- The primary function of the Citizens Advisory Committee will be to provide a platform for citizen input, feedback, and collaboration with town departments, related to wastewater treatment and disposal. By being comprised of citizens directly, the Committee helps to enhance transparency, accountability, and inclusivity in policy development and implementation. Furthermore, the Committee serves as a forum for educating the public about the importance of proper wastewater management practices and promoting community involvement in related initiatives.
- The CAC itself will not have regulatory authority over the MEPA (Massachusetts Environmental Policy Act) or DEP (Department of Environmental Protection) processes. Its primary role is to facilitate public engagement and provide a platform for community input. While the CAC's recommendation and feedback are considered during the environmental review, the ultimate decision-making authority lies with the regulatory agencies overseeing the MEPA and DEP processes. The CAC serves as a channel for public involvement, ensuring that community interests are acknowledged and considered within the broader regulatory framework of the MEPA and DEP processes.

Current Situation

- The Town Wastewater Treatment Facility (WWTF) is located at 131 Camelot Drive
- The facility was completed in and has been operational since 2002
- It is permitted to discharge 1.75 million gallons per day (MGD) of treated effluent into the Plymouth Harbor outfall and another 0.75 MGD into sand beds adjacent to the WWTF when needed
- The WWTF has been operated by Woodard & Curran under contract to the Town since 2021
- The current average annual daily treated effluent discharge is approximately 1.6 MGD at a pumping cost of approximately $250k annually
- The WWTF currently provides primary and secondary treatment, and 2025 Annual Town Meeting approved $9M to commence initial work toward unspecified tertiary treatment

Expanded Environmental Notification Form (EENF) Statement of Motivation for Discharge Change

The motivation behind pursuing the proposed change is to improve water quality in the Harbor, with associated benefits to ecology, commercial aquaculture, and recreation; and to increase groundwater recharge for the aquifer. Shifting the prioritization of treated effluent disposal locations from the harbor outfall to the Camelot Drive WWTF disposal beds would have multiple environmental benefits, including:

- Improved water quality in the Harbor and Plymouth/Kingston/Duxbury (PKD) Bay to support shellfishing, aquaculture, eelgrass, and recreational interests.
- Reduced loading of pathogens to the Harbor. This will help the Town address concerns from the federal Food and Drug Administration (FDA) regarding viruses in the WWTF effluent that may persist in the Harbor environment long enough to pose health risks. On this point, a dye study was conducted in 2018 that documented significant retention times of outfall effluent in PKD Bay.
- Increased recharge/retention of fresh groundwater within the Plymouth-Carver Aquifer (PCA) to support baseflow to the Eel River and other surface waters; and
- Increased recharge of groundwater to offset public drinking water withdrawals and provide mitigation credit for potential future drinking water withdrawal permit requests to meet MassDEP Water Management Act (WMA) requirements.

EENF Response from MEPA & Requirement for the DEIR

- EENF was submitted in 2023 and response from MEPA was received later that year
- MEPA response required the submission of a more elaborate description of the proposed project in the form of a Draft Environmental Impact Report
- Here is one of the MEPA review provided comments including the following:

  "As detailed below, comments provided by MassDEP, incorporated herein by reference, state that additional alternative locations should be considered for disposal of some of the treated effluent in order to meet surface water quality standards, as the future hydraulic and nutrient loading of the Eel River watershed may not be able to assimilate the additional loads from the WWTF prior to entering the PKD embayment system. In particular, alternative locations outside the of the Eel River Watershed should be evaluated. The alternatives analysis should be supplemented in accordance with the Scope."

What's in the Pipeline from Plymouth DPW

- Current permitted total effluent discharge is 2.5MGD: 1.75MGD to harbor & 0.75MGD to adjacent sand beds when needed
- Increase the effluent discharge to the sand beds adjacent to the WWTF to a maximum of 3.0 MGD and make this location the primary discharge site
- Maintain the permit to discharge up to 1.75 MGD of treated effluent into Plymouth Harbor at the current outfall and use only when the discharge to beds exceeds 3.0 MGD
- The current average annual daily treated effluent discharge is approximately 1.6 MGD, or about 90% of permitted harbor discharge
- The WWTF currently provides primary and secondary treatment, and 2025 Annual Town Meeting approved $9M to commence initial work toward tertiary treatment
- If and as required by permitting, add upgraded treatment of effluent (tertiary treatment) to reduce the load of biologics (bacteria & virus), nutrients (nitrogen and phosphorus), and any other substances (emergent hazards)

The Vote of Citizens Advisory Committee

- Based on the charge, and
- The information provided to the Committee
  - Numerous presentations at committee meetings
  - Input from a presentation by the chair and vice chair at a citizens group
  - A draft of the DEIR provided to the committee in July 2025 and dated September 2025
- The Committee voted **not to move forward** with the changes proposed in the DEIR and with its submission for MEPA review and approval
- The vote was 3 in favor, 2 opposed, 1 abstention, and 1 absence

Current Situation

- There have been very few permit violations (exceedances) since the WWTF has been operated by Woodard and Curran (2021) and treated effluent discharge has been to the harbor outfall
- The hydraulic impact on immediately adjacent structures has not been adequately studies, particularly to the adjacent wind turbine structure and Warren Wells Brook/Russell Mill Pond/Eel River
- Though requested by the committee, no detailed evaluation of the cost, efficacy, or permissibility of other offshore sites has been provided
- The Committee recognizes that the WWTF was built to a much higher capacity than is presently used, but very little progress has been made in expanding footprint of the Town's sewer system since the completion of the plant in 2002
- The Town has now established a Comprehensive Wastewater Management Plan Citizens Advisory Committee and any future expansion or change of services should await their findings and recommendations

Facts

- WWTF is operating below design capacity
- WWTF is discharging treated effluent to the Plymouth Harbor in compliance with all current permits
- The Town has established a new Comprehensive Wastewater Management Plan (CWMP) CAC to evaluate options and direction for the future
- The immediate doubling in daily permitted discharge to the sand beds and eventual quadrupling of discharge would be allowed if the DEIR were approved
- The Town would expect a reduction in sewer effluent pumping costs of approximately $2.5M each year by shifting from the Harbor to the beds
- The lower Eel River drainage basin would experience the majority of impacts caused by the proposed change

Recommendations

- Require new construction to be sewered and attached to an existing WWTF infrastructure
- Await the report of the CWMP, which may include recommendations for additional geographically distributed WWTFs in other areas of Plymouth, for example Cedarville or West Plymouth, or the purchase by the Town of existing WWTFs
- Immediately commence study and evaluation of tertiary treatment of effluent from the Camelot WWTF: (1) ozonation or UV for harbor directed effluent & (2) nitrogen reduction & phosphorus sequestration should the sand beds be employed
- Should the sand beds be employed:
  - Incremental changes in effluent volume should be made over the course of years in order to evaluate the impact on local hydraulics and hydrogeology
  - Test wells additional should be in place around the beds to regularly the groundwater chemistry and levels in the adjacent subsurface

Questions?