

Date: **August 31, 2022**

Project No.: **20985**

To: **Orleans Wastewater Management Advisory Committee (WMAC)**

From: **Mike Giggey**

Subject: **Orleans Wastewater Management Planning
Planning for CWMP Update**

At the August 25 meeting of the WMAC, we reached concurrence on the importance of formulating a strategy for updating the 2010 Comprehensive Wastewater Management Plan (CWMP). This memo addresses the fundamental benefits of a CWMP, identifies deadlines imposed by outside entities and suggests a preliminary way forward.

Purposes and Benefits of a CWMP

Planning for a CWMP update requires a review of the basic purposes and goals of a CWMP, which include:

1. Identifying and quantifying the "needs"; that is, answering the question "what are the problems that we need to solve?" The 2010 CWMP established five categories of needs and determined the number of properties and estimated wastewater flows associated with each need. (The categories are: 1) sanitary (prevention of public health issues associated with failed systems); 2) water supply protection; 3) protection of surface waters from nutrient enrichment (nitrogen and phosphorus); 4) economic development; and 5) convenience and aesthetics.)
2. Identifying and evaluating options (technology and regulatory) for addressing the identified needs.
3. Evaluating these options and establishing an overall plan from the most applicable and cost-effective options.
4. Evaluating the environmental impacts of the options and the recommended plan, and recommending mitigation measures to facilitate approval of the project under the Massachusetts Environmental Policy Act (MEPA).
5. Setting forth estimates of capital and operating costs for town meeting appropriation and long-term budgeting.
6. Recommending cost recovery measures, including grants and loans, plus property tax levies, betterment assessments, etc.
7. Identifying sewer service areas and sites for pump stations, treatment facilities and effluent disposal.
8. Providing a vehicle to inform the public on the project, receive public comment and address public concerns.
9. Providing a comprehensive assessment of all the permits needed to proceed with the project and a schedule for obtaining them.

The 2010 CWMP accomplished these goals. To the extent that current plans deviate from the 2010 CWMP, or are not covered by the CWMP, an update is warranted.

Uses of a CWMP

The CWMP is a vital document for:

- Demonstrating cost-effectiveness of the recommend plan in addressing documented needs, a pre-requisite for most funding programs.
- Providing the basis for multi-town watershed permits. A “Targeted Watershed Management Plan” (TWMP) was developed for the Pleasant Bay watershed permit. A “Watershed Management Plan” is called for in DEP’s proposed new watershed permitting program. Regardless of the name, the document is intended to bring together key aspects of each town’s current plans for that specific watershed.
- Providing the basis for concurrence by the Cape Cod Commission that the town’s plan is consistent with the Regional Water Quality Plan (208 Plan)
- Providing an important input to the Town’s comprehensive plan.

Outside Drivers

There are several factors that will dictate the nature and timing of a CWMP update in Orleans.

1. The Pleasant Bay watershed permit requires Orleans to update its CWMP to form the basis of a modified permit at the end of Year 5 (mid 2023).
2. The MEPA office’s certification of the recent Notice of Project Change requires the town to update the CWMP by 2023. (The language in the certificate implies that the update will be as required in the watershed permit, so we should consider the deadline to be mid 2023.)
3. To the extent that the town’s plans have changed in a way that is not consistent with the 2010 CWMP, a CWMP update provides the rationale and costs of any new features. Town meeting appropriations for new projects are likely to be more successful if the voters know that the new project fits into a comprehensive document approved by DEP and MEPA.
4. Traditionally, use of funds from the State Revolving Fund or from the Cape Cod and Island program must be supported by a DEP-approved CWMP. Lack of an approved updated CWMP could hinder funding. (Since the new PRB project has not been supported by a CWMP, we should clarify DEP’s stance on this matter. PRBs were not part of the plan set forth in the 2010 CWMP, but sufficient justification seems to have been provided to allow SRF funding without a CWMP update. Has adequate public consultation occurred and have environmental impacts been thoroughly evaluated?)

Possible Approaches

It seems that there are two basic approaches:

1. Develop a full new CWMP that incorporates pertinent portions of the 2010 CWMP and thoroughly addresses all new circumstances. It is good idea to update any CWMP every 10 to 15 years, just as you would a traditional comprehensive plan.
2. Prepare one or more partial CWMP updates to address only the issues currently at hand. For example, a partial update could be directed at those issues needed to allow a joint Orleans-Eastham TWMP to be prepared for Rock Harbor and the Nauset system. Similarly, Orleans could update its CWMP just focusing on the technologies and project timing to be used to achieve the nitrogen removal targets for Pleasant Bay.

Timing of CWMP Update

One of the most important precedents to a thorough needs survey is current information on nitrogen removal requirements in Pleasant Bay, Rock Harbor and Nauset Harbor. About 80% of the overall project covered by the 2010 CWMP is associated with achieving nitrogen removal needs, as they were known at the time. We know that revised nitrogen threshold loads are being developed by the Pleasant Bay Alliance and that those threshold loads will likely incorporate more natural attenuation in the Pochet Neck sub-watershed in Orleans. Formulating a revised plan for Orleans' share of nitrogen removal responsibilities in Pleasant Bay should wait for the completion of ongoing PBA work, now scheduled to be complete in early 2023.

Wright-Pierce has not evaluated the status of water quality studies for Rock Harbor and the Nauset system. If re-evaluation of nitrogen loading and water quality data is to occur, followed by re-modeling of those system, it is unlikely that Orleans' shares of nitrogen removal responsibilities will be known before 2024. Further, management options selected for Rock Harbor and the Nauset system should consider the potential for regional solutions with Eastham, which can best be identified after Eastham has made significant progress with its planning.

If partial CWMP updates allow more rapid determination of needs and solutions, compared to waiting for all data for all watersheds, then knowing the nitrogen removal requirements is on the critical path. The lack of that data could be addressed by proceeding with "current best estimates", much like the approach in the 2010 CWMP, with phased projects used to fine-tune the solutions when more information is available. That approach is more feasible in Pleasant Bay than for other systems, due to the complications that will arise in coordinating efforts with Eastham.

Preliminary Recommendation

Based on all of the above, we suggest the following strategy for discussion:

1. Prepare a partial CWMP update focused on Pleasant Bay in early 2023, based on revised nitrogen removal responsibilities and incorporating new technologies such as PRBs.
2. Plan for partial CWMP updates for Rock Harbor and/or Nauset once more is known about nitrogen removal needs and as Eastham progresses with its planning. Ideally those updates would be based on new watershed nitrogen loads and/or revised water quality and hydrodynamic modeling. If that new information is not forthcoming, Orleans could consider partial CWMP updates for these two systems using best available data on nitrogen needs.

Let us plan on a thorough discussion of this material at the WMAC meeting scheduled for Thursday, September 8, 2022. At that time, we should consider how to gain DEP approval with the approach if the Town proceeds with partial CWMP updates.