

2018 PLAN

CAPE COD AREA WIDE WATER QUALITY MANAGEMENT PLAN UPDATE

2017 IMPLEMENTATION REPORT



CAPE COD
COMMISSION



Addendum to the Cape Cod Area Wide Water Quality Management Plan Update
October 2017



CAPE COD
COMMISSION

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Cover Photo: View of Nauset Bay from the Nauset Bike Trail

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Executive Summary

The Cape Cod 208 Plan Update provides a path forward for restoration of the coastal waters that define this iconic region. Since the Plan's approval in 2015, the region has seen many successes, but action is still needed to achieve the goals of nitrogen reduction and improved water quality Cape wide. Significant region-wide momentum is tempered by ongoing challenges, particularly securing funding for both local project implementation and region-wide initiatives, such as monitoring.

Monitoring provides the basis for all action. A reliable funding source for monitoring will support the use of alternative strategies and non-traditional technologies and ease the cost of meeting water quality standards by providing for the collection, analysis and maintenance of data to aid informed decision-making. Each local plan will need monitoring to confirm and support the use of technologies identified for implementation.

The 15 Cape Cod towns are the individually-designated Waste Treatment Management Agencies, or WMAs, responsible for the development and implementation of water quality management plans. WMAs were charged with developing watershed reports that outline potential

scenarios for each watershed. For many communities, watershed reports reflect years of planning and progress. For some, the reports reflect shared efforts in watersheds that cross town boundaries. Almost every community on Cape Cod contributes to an area that is defined as a priority watershed.

This 2017 Implementation Report identifies 11 priority watersheds in the region where action must be taken over the next 12 months that, at a minimum, commits communities to their share of nitrogen. These watersheds are complex given their degree of impairment and shared nature. Community engagement must continue to play a central role in planning and implementing strategies to address these and other areas across the region.

The course of action for communities to move forward depends on information. It is the basis for determining the severity of the issue in each watershed, the number of homes and businesses impacted, and the selection of appropriate technologies for implementation. The collection of data, the development of decision-support tools making data easier to use, and the analysis of water quality and wastewater technologies and policies create

the framework within which communities can design responsible watershed plans. In order to effectively support communities in developing and implementing watershed plans, the best available data must be accessible and decision support tools must be maintained and available.

Key to the successful implementation of the 208 Plan Update and local watershed plans is the provision of direct support. Over the last 12 months Federal, State and regional partners sought to support community planning efforts through the ongoing development and maintenance of decision-support tools, the development of guidance on pilot projects and performance monitoring, and the provision of funds for implementation of projects that seek to use innovative approaches to improve water quality.

Progress has been made to improve the regulatory process to better meet the challenges of diffuse, non-point source nutrient pollution and accommodate the use of non-traditional approaches. After much internal review and consideration of the regional regulatory process and in light of the State's newly developed watershed permitting process, the Cape Cod Commission determined that the most appropriate review for municipal water quality and

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wastewater management plans is one that looks exclusively at such plans' consistency with the 208 Plan Update, in place of a traditional Development of Regional Impact, or DRI, review. Plans consistent with the 208 Plan Update will be eligible for a watershed permit, which provides communities with more flexibility in obtaining credit for nutrient load reductions and opportunities to demonstrate appropriate action, in lieu of potential enforcement.

The flexibility afforded by this new regulatory approach will allow communities to address nitrogen issues within their jurisdictions in the most efficient and least costly manner. Cost has always been paramount in considering the feasibility of proposed actions to restore Cape Cod's marine water quality. The burden of cost should not fall solely on the backs of year-round residents, but should be distributed among all those benefiting from this iconic region. Ongoing State, Federal and regional initiatives that save communities money are necessary. Cape Cod communities must take initiative to identify and earmark revenues for water quality, too. Communities that take the initiative to develop plans consistent with the 208 Plan Update and obtain a watershed permit should be eligible

for principal forgiveness up to 25% on State Revolving Fund loans. The potential for up to \$12 million over three years exists through the Environmental Protection Agency's Southeast New England Program, or SNEP, which has provided funding to assist in maintaining and improving water quality and habitat conditions in Rhode Island and Southeastern Massachusetts. SNEP has supported Cape Cod initiatives in past years and the continuation of this program should be encouraged.

Locally, the Cape Cod Water Protection Collaborative has had a long-standing history of working with the State's legislative delegation to highlight the need for a broader base of financial support for wastewater treatment. In June 2017, the Barnstable County Assembly of Delegates and the Barnstable County Board of Regional Commissioners voted to adopt Barnstable County Ordinance 17-08 to re-establish the Cape Cod Water Protection Collaborative. Its stated mission is to protect Cape Cod's shared water resources by promoting and supporting the coordinated, cost effective and environmentally sound development and implementation of local water quality initiatives, including, but not limited to watershed management plans

required by section 208 of the Federal Clean Water Act. This ordinance formally aligns the Collaborative with the effort to implement the recommendations of the 208 Plan Update.

With ongoing support and initiative, Cape Codders, in coordination with State, Federal and regional partners, can reduce nitrogen loading to estuaries in a cost-effective way, maintaining the character of Cape Cod for future generations. This report provides a detailed update on how all involved in this effort are working to achieve the goal of improved water quality and identifies future actions and next steps necessary to maintain the course.

Implementation Report

Introduction

There has been significant progress toward restoring the health of bays and estuaries on Cape Cod since the approval of the Cape Cod 208 Plan Update in 2015. The good news is that Cape Cod communities are engaged and taking action to better address the problem of nitrogen pollution in coastal water. Each of the 15 towns are planning and the Cape Cod 208 Plan Update has proven an appropriate framework for moving forward. Implementation is underway and local appropriation of funds for projects looks promising.

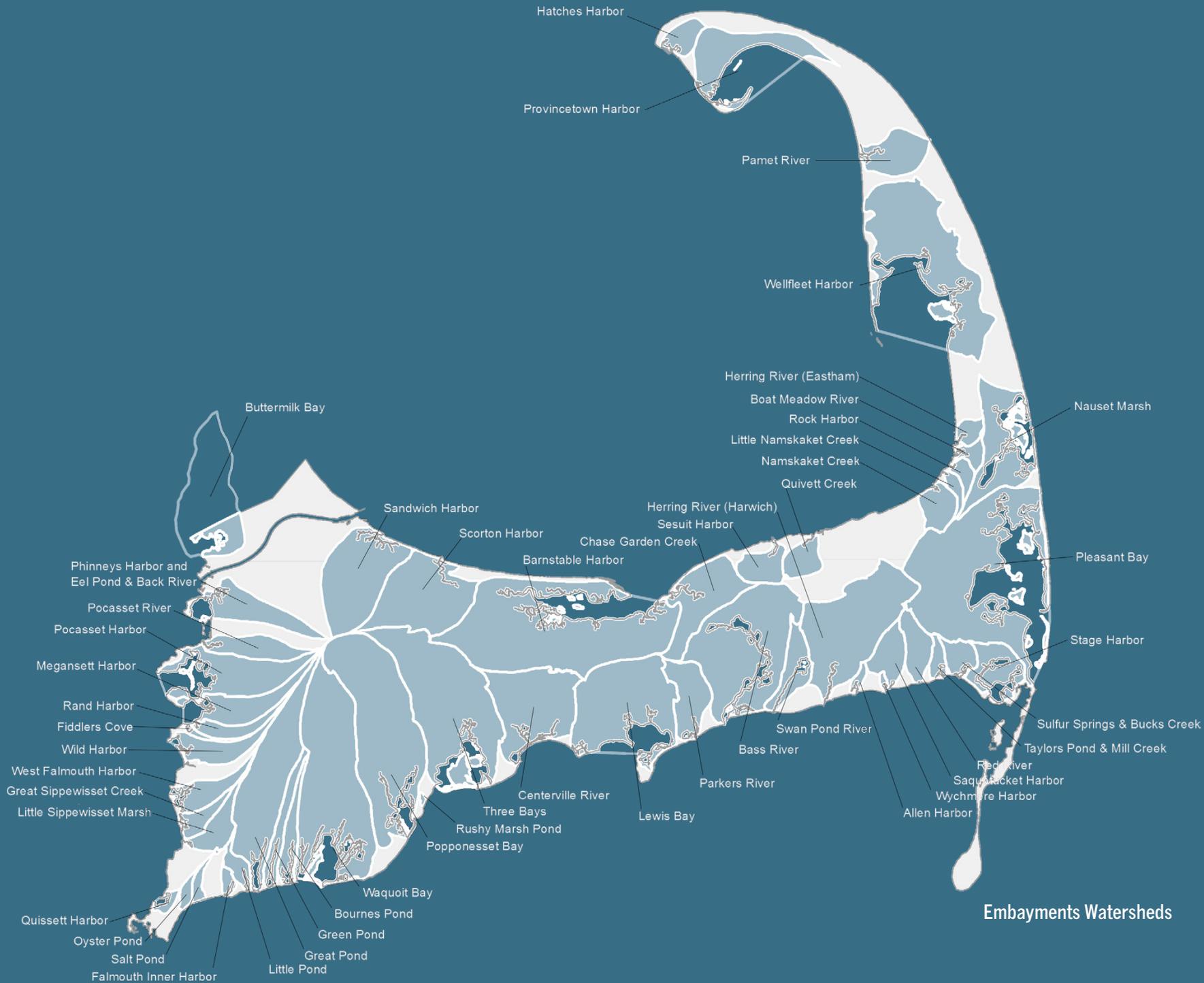
Action is occurring across town lines. Towns from Sandwich through Orleans are actively engaged with their neighboring communities in concrete discussions around nitrogen responsibility and potential shared solutions. The 208 Plan Update provided the framework for these discussions and created a path for shared solutions that go beyond traditional source reduction to better address the diffuse nature of the nitrogen problem on Cape Cod.

However, the significant region-wide momentum toward implementing solutions is tempered by a major challenge that remains – funding. In the past, the County successfully leveraged both Federal and State funding and while local appropriation of funds has been forthcoming in discreet areas, it won't be enough to solve the problem entirely. County funding for water quality is uncertain. In Fiscal Year 2018 (FY18, State and County Fiscal Year – July 1-June 30), Barnstable County defunded the line item supporting the Cape Cod Water Protection Collaborative, an asset unique to Barnstable County that has provided significant technical and financial resources to Cape Cod communities. While an ordinance reestablishing the Collaborative and aligning it with 208 Plan implementation was adopted in June 2017, significant County resources for this initiative are uncertain.

Monitoring provides the basis for all action. The use of alternative strategies and non-traditional technologies are predicated on a sustainable monitoring program. A reliable funding source for monitoring is necessary to ease the cost of meeting water quality standards by collecting and analyzing data necessary to develop, maintain and update successful water quality initiatives. A lack of monitoring puts the broad use of alternatives and proper adaptive management protocols at risk. Without funding for monitoring and data management WMA's are reverting to pre-208 planning methods resulting in a more costly traditional approach to wastewater solutions.

This Implementation Report showcases the region's successes since 2015 and outlines future actions to achieve the primary goal of improved water quality Cape wide. The challenge moving forward is to create a regional strategy around capital infrastructure needs that can bring costs down for municipalities and ensure that the remaining burden is shared appropriately. The solution to the financial threat facing the region must be one that supports the innovative ideas that communities have embraced through the 208 Plan Update and its process.

A draft of the Implementation Report was released in August 2017 for a 30-day public comment period. Two comment letters were received. Both letters, along with responses prepared by the Commission, can be found in **Appendix A**.



Embayments Watersheds

A Path Forward

The Cape Cod 208 Plan Update, certified and approved by the Governor of the Commonwealth of Massachusetts and the US Environmental Protection Agency (US EPA) in 2015, provides a path forward and an opportunity to implement responsible plans for the restoration of the waters that define Cape Cod.

Designing Solutions for Coastal Water Quality on Cape Cod

The Cape Cod 208 Plan Update, certified and approved by the Governor of the Commonwealth of Massachusetts and the US Environmental Protection Agency (US EPA) in 2015, provides a path forward and an opportunity to implement watershed management plans for the restoration of the waters that define Cape Cod.

Developing a path forward to reduce nitrogen loading to Cape Cod waters was an appropriate next step in what has been a decades-long effort to identify watershed-wide sources of nitrogen and define associated water quality impacts on a watershed-by-watershed basis. In 2001, the Massachusetts Estuaries Project (MEP) was created to evaluate the health of coastal embayment ecosystems across southeastern Massachusetts. It is a collaboration among 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 EPA, the

United States Geological Survey (USGS), the Massachusetts Executive Office of Environmental Affairs (EOEA), and the Cape Cod Commission. The MEP's purpose is to identify nitrogen loads and necessary reductions to support healthy ecosystems.

On Cape Cod there are 53 embayment watersheds with physical characteristics that make them susceptible to nitrogen impacts (**Figure 1**). In its 2003 report, "The Massachusetts Estuaries Project – Embayment Restoration and Guidance for Implementation Strategies," MassDEP identifies 46 Cape Cod embayments included in the MEP (**Figure 2**). The table below provides an update on the status of MEP Technical Reports completed and Total Maximum Daily Loads (TMDLs) established as a result of the MEP analysis. Watersheds in italics are those that were originally scheduled to be studied.

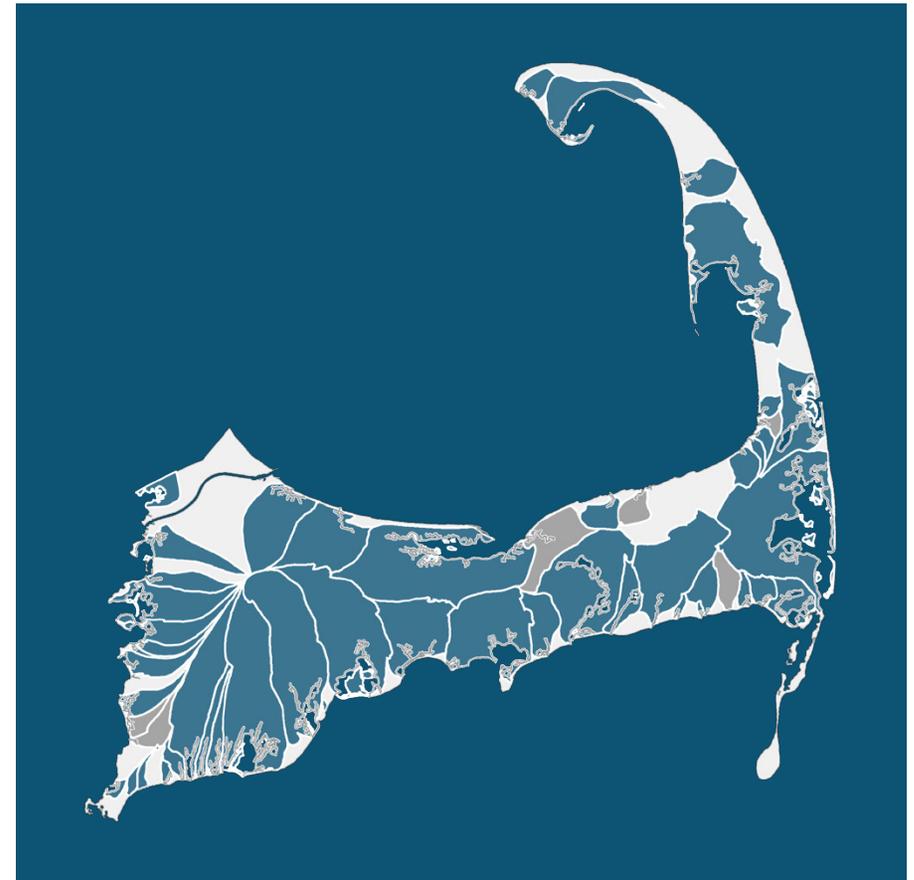
Four of the 38 embayments studied to date (**Figure 3**) have been identified as having assimilative capacity for nitrogen (Little Namskaket Creek, Namskaket Creek, Sandwich Harbor, and Scorton Creek); therefore, no TMDL is necessary at this time (also see **Figure 4**). Thirty-four embayments studied to date require nitrogen reduction to

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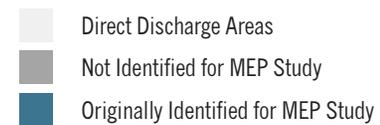
53 Embayments Watersheds

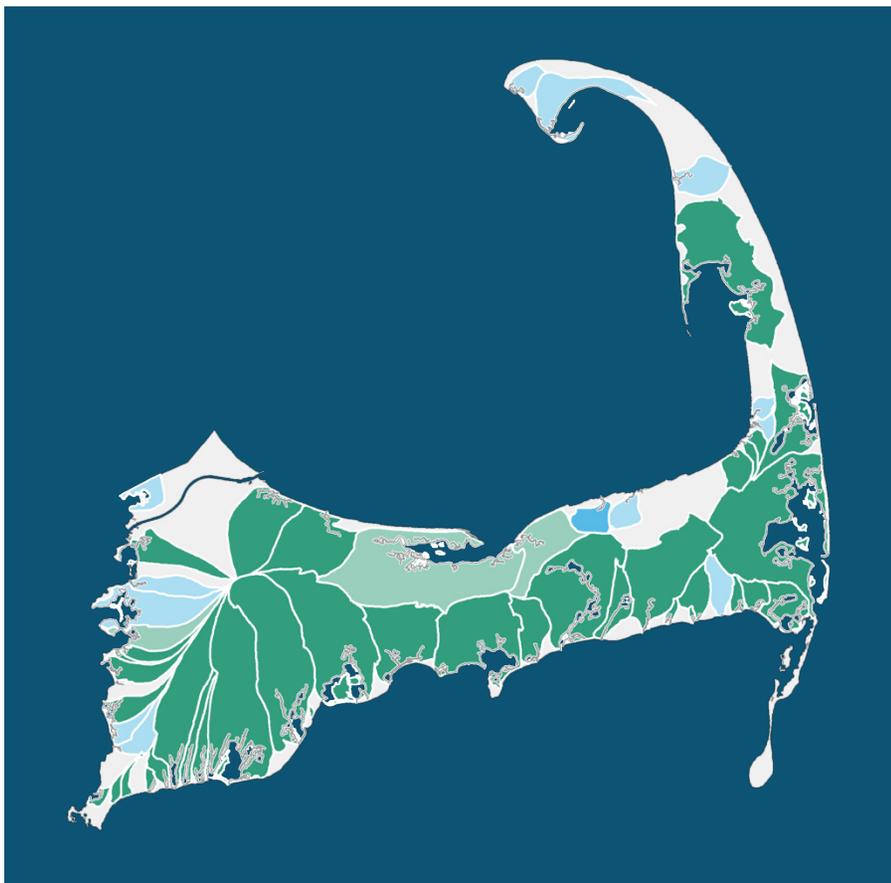
Figure 1



46 Embayments Watersheds Originally Identified by MEP for Study

Figure 2





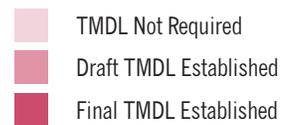
Status of MEP Technical Reports by Watershed (August 2017)

Figure 3



Status of TMDLs by Watershed (August 2017)

Figure 4



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Status of MEP Technical Reports and TMDLs (August 2017)

WATERSHED	STATUS OF MEP REPORT	STATUS OF TMDL
Allen Harbor	Final Technical Report	Final TMDL Established
Barnstable Harbor	Draft Technical Report	
Bass River	Final Technical Report	Final TMDL Established
Boat Meadow River	Not Studied	
Bournes Pond	Final Technical Report	Final TMDL Established
Buttermilk Bay	Not Studied	
Centerville River	Final Technical Report	Final TMDL Established
Chase Garden Creek	Draft Technical Report	
Falmouth Inner Harbor	Final Technical Report	
Fiddlers Cove	Final Technical Report	Draft TMDL
Great Pond	Final Technical Report	Final TMDL Established
Great Sippewissett Creek	Not Studied	
Green Pond	Final Technical Report	Final TMDL Established
Hatches Harbor	Not Studied	
Herring River (Eastham)	Not Studied	
Herring River (Harwich)	Final Technical Report	Final TMDL Established
Lewis Bay	Final Technical Report	Final TMDL Established
Little Namskaket Creek	Final Technical Report	TMDL Not Required
Little Pond	Final Technical Report	Final TMDL Established
Little Sippewissett Marsh	Not Studied	
Megansett Harbor	Draft Technical Report	
Namskaket Creek	Final Technical Report	TMDL Not Required
Nauset Marsh	Final Technical Report	
Oyster Pond	Final Technical Report	Final TMDL Established
Pamet River	Not Studied	
Parkers River	Final Technical Report	Final TMDL established
Phinneys Harbor	Final Technical Report	Final TMDL Established
Pleasant Bay	Final Technical Report	Final TMDL Established

Status of MEP Technical Reports and TMDLs (August 2017)

WATERSHED	STATUS OF MEP REPORT	STATUS OF TMDL
Pocasset Harbor	Not Studied	
Pocasset River	Not Studied	
Popponneset Bay	Final Technical Report	Final TMDL Established
Provincetown Harbor	Not Studied	
Quissett Harbor	Final Technical Report	Draft TMDL
Quivett Creek	Not Studied	
Rands Canal	Final Technical Report	Draft TMDL
Red River	Not Studied	
Rock Harbor	Final Technical Report	
Rushy Marsh Pond	Final Technical Report	Final TMDL Established
Salt Pond	Final Technical Report	TMDL Not Required
Sandwich Harbor	Final Technical Report	TMDL Not Required
Saquatucket Harbor	Final Technical Report	Final TMDL Established
Scorton Harbor	Final Technical Report	TMDL Not Required
Sesuit Harbor	Data Collection Phase	
Stage Harbor	Final Technical Report	Final TMDL Established
Sulfur Springs/Bucks Creek	Final Technical Report	Final TMDL Established
Swan Pond River	Final Technical Report	Final TMDL Established
Taylor's Pond/Mill Creek	Final Technical Report	Final TMDL Established
Three Bays	Final Technical Report	Final TMDL Established
Waquoit Bay	Final Technical Report	Final TMDL established for the Quashnet River, Hamblin Pond, Little River, Jehu Pond and Great River
Wellfleet Harbor	Final Technical Report	
West Falmouth Harbor	Final Technical Report	Final TMDL Established
Wild Harbor	Final Technical Report	Draft TMDL
Wychmere Harbor	Final Technical Report	Final TMDL Established

Status of MEP Technical Reports and TMDLs (August 2017)

achieve healthy ecosystem function. For those embayments not studied, the 208 Plan Update suggested a 25% reduction in nitrogen, as a placeholder, until information becomes available.

WATERSHED REPORTS

The 208 Plan Update identified the 15 Towns of Cape Cod as Waste Treatment Management Agencies (WMAs), responsible for development and implementation of water quality management plans. The towns have historically served in this capacity and they are the appropriate entities to continue this work. WMAs were charged with developing watershed reports within 12 months of certification of the Plan Update by the Governor. Watershed reports outline potential “bookend” scenarios for each watershed and include two scenarios that meet water quality goals in the watershed – a traditional scenario, which relies completely on traditional collection and treatment of wastewater, and a non-collection scenario, which uses a broad range of innovative, non-traditional techniques to remove nutrients from raw and treated wastewater, groundwater and affected waterbodies. WMAs were given two options for completing reports:

- Complete them on their own prior to the June 2016 deadline; or

- Work with the Commission through the Watershed Team Technical Assistance Program, which would provide assistance to the community and complete reports, as requested.

In the event that a WMA chose not to submit reports or work with the Commission, the Commission issued an interim report that stands unless and until a study is completed by the WMA and an alternate watershed report consistent with the 208 Plan Update is developed by the WMA.

The majority of WMAs submitted watershed reports or provided information for the Commission to use in drafting watershed reports on their behalf. The towns of Dennis, Eastham, Harwich, and Yarmouth submitted watershed reports to the Commission, while the towns of Brewster, Chatham, Mashpee and Orleans requested that information from existing Comprehensive Wastewater Management Plans, or other ongoing planning efforts, be used for the reports. The towns of Barnstable, Bourne, Falmouth and Sandwich worked with Commission staff to develop their reports. The towns of Wellfleet, Truro, and Provincetown commented on their draft watershed reports after they were completed by the Commission.

Appendix B includes a watershed report for each of the embayment watersheds on Cape Cod.

The intent of watershed reports is to outline possible options. They are not intended to identify preferred or detailed plans for each watershed, but to facilitate discussions regarding effective and cost efficient solutions, particularly in watersheds shared by more than one town.

The range of solutions presented in the watershed reports provide the outer bounds of an adaptive management plan and are intended to aid communities in discussing shared solutions and the use of reduction, remediation and restoration approaches. Coupled with a robust monitoring program, communities will be able to adjust their plans moving forward, as more information regarding technology effectiveness becomes available.

PROGRESS TO DATE

For many communities, watershed reports reflect years of planning and progress. For some communities, the reports reflect shared efforts in watersheds that cross town boundaries. A description of ongoing local efforts in each of the 15 Cape Cod communities can be found in **Appendix C**. Although local progress is being made, there are still several communities that are not involved in shared watershed planning that should be. Almost every community on Cape Cod contributes to a priority watershed (priority watersheds are identified below in “Next Steps”)

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and action must be taken over the next twelve months that, at a minimum, commits communities to their share of nitrogen in priority areas.

The following are examples of local progress and accomplishments by Cape Cod communities working in shared watersheds. More needs to be done to expand these approaches to other priority watersheds across the region.

SHARED PLANNING

Communities across Cape Cod have been planning for wastewater and water quality infrastructure for decades, but the 208 Plan Update afforded the flexibility for neighboring towns in shared watersheds to work together without the requirement to address the needs of their entire towns. Since the fall of 2015, progress toward shared solutions has been made in communities across the region. Discussion of responsibility and shared infrastructure are taking place from Sandwich through Orleans and in other areas communities are, at minimum, engaging in conversations with their neighbors.

Shared progress has taken different forms. In some communities, established watershed groups have taken the lead and in others it has been town management, illustrating the various ways to come to agreement regarding responsibility and management of shared resources.

Popponesset Bay

The Towns of Barnstable, Mashpee and Sandwich have been discussing approaches for the Popponesset Bay watershed since October 2015. This effort was driven by town management, initiated by a meeting of the three Town Managers from contributing communities. Mashpee requested and was awarded District Local Technical Assistance (DLTA) funds to support the multi-towns effort to develop an intermunicipal agreement (IMA) governing implementation of nitrogen management for Popponesset Bay. A draft agreement has been prepared and will go before the Mashpee and Sandwich Boards of Selectmen and the Barnstable Town Council. The IMA allocates nitrogen responsibility to each of the three towns, establishes a Popponesset Bay intermunicipal working group, and agrees to jointly apply for a permit under the MassDEP watershed permit program. It is expected that these three towns will collaborate on one of the first watershed permits in the region in close coordination with the Cape Cod Commission and MassDEP.

Pleasant Bay

The Towns of Brewster, Chatham, Harwich and Orleans have been working together through an established watershed group, the Pleasant Bay Alliance, for decades. Since the Fall of 2015, the Alliance has been working to assess the combined effect of the four towns' wastewater

and nitrogen management plans. In the Spring of 2017, the Alliance completed the Pleasant Bay Composite Nitrogen Management Analysis, which provides an analysis of the combined impact of town plans, establishes nitrogen responsibilities for each of the four towns, and outlines next steps of identifying efficiencies, considering nitrogen trading amongst the four communities, and the potential application for a joint watershed permit.

The Alliance, MassDEP and the Cape Cod Commission met with the Boards of Selectmen from each of the member communities to discuss the Composite Nitrogen Management Analysis. A resolution supporting allocations and recommendations in the Alliance's analysis was approved by all four Boards at a joint meeting held as part of the 2017 OneCape Summit. Through the resolution, the Boards also agreed to further discussions on the next steps outlined in the Analysis. The Alliance and its Watershed Working Group members have expressed interest in working with MassDEP on their watershed permit pilot program.

Dennis-Harwich-Yarmouth Community Partnership Plan

Dennis, Harwich and Yarmouth are neighboring communities with the benefit of the same wastewater consultant. Their consultant has worked with each of the three Towns on comprehensive wastewater management planning and, in 2016, Yarmouth applied for and was

awarded 208 implementation funds by the Commission to complete a community partnership evaluation. As a result, their consultant reviewed Dennis, Harwich and Yarmouth's collection and conveyance systems and phasing, as proposed in each community's comprehensive wastewater management planning process, and developed a regional approach assuming a wastewater treatment facility location in Dennis (referred to as the D-H-Y WWTF). They evaluated effluent recharge sites across Dennis, Harwich and Yarmouth to identify the optimum locations to infiltrate treated wastewater effluent while minimizing regional conveyance costs; estimated the reduction in treatment costs at the D-H-Y WWTF associated with eliminating septage treatment costs at the D-H-Y WWTF and keeping the Yarmouth-Dennis Septage Facility in operation; and developed refined planning level costs (collection, conveyance, treatment and recharge) for Dennis, Harwich, and Yarmouth assuming a shared D-H-Y WWTF.

In March 2017, the Boards of Selectmen from each of the three communities met to hear the results of this evaluation and discuss how they may partner on this effort moving forward. The towns established a subcommittee with representatives from all towns on this issue and anticipate continuing discussions to refine and further consider potential implementation of the community partnership plan.

Chatham and Harwich

At their respective Spring 2017 Town Meetings, Chatham and Harwich voted to execute an IMA that includes a plan for Chatham to accept wastewater flow from Harwich to be treated at the Chatham WWTF. The IMA provides benefits to both communities – Chatham offsets some of its capital costs and fixed operation & maintenance (O&M) costs through payments from Harwich. Harwich avoids having to locate and construct a stand-alone East Harwich treatment facility and avoids capital and O&M costs. Both communities receive enhanced protection to municipal water supply wells, and nutrient loads are reduced to freshwater bodies and Pleasant Bay.

While the IMA was developed over the past year, discussions about shared wastewater treatment have been taking place for several years between Chatham and Harwich.

NEXT STEPS

While much progress has been made since the 208 Plan Update was certified and approved by the Commonwealth and US EPA, there is much more work to be done to achieve water quality standards on Cape Cod.

PRIORITY WATERSHED AGREEMENTS AND PLANNING

As described above and in the 208 Plan Update, it is recommended that communities develop hybrid watershed scenarios and coordinate closely with their neighboring communities in shared watersheds. Tools and resources have been developed to assist communities in these discussions and several towns are already moving forward.

The science provided through Massachusetts Estuaries Project provides a clear understanding of problem areas across the region. Many of the watersheds to highly impacted water bodies are shared by more than one community, increasing the complexity of the solutions. However, through the 208 Plan Update there is now more flexibility associated with planning, permitting and implementation than there has ever been in the past. Over the course of the year and half since the 208 Plan Update was approved, every town from Sandwich through Eastham has been engaged in shared planning to varying degrees.

Given the best available science and the ongoing local progress, the following priority watersheds have been identified as the priorities for development and implementation of watershed plans.

- Popponesset Bay
- Parkers River

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- Three Bays
- Bass River
- Lewis Bay
- Centerville River
- Swan Pond River
- Pleasant Bay
- Nauset Marsh
- Waquoit Bay
- Herring River

Through implementation of the recommendations of the 208 Plan Update it is anticipated that the communities contributing to the 11 watersheds identified will coordinate their efforts to develop watershed scenarios that will gain community support for implementation and ultimately achieve water quality standards.

The communities in Pleasant Bay and Popponesset Bay have already taken the first step to agree on nitrogen responsibility amongst all the contributing towns. It is recommended that the communities that contribute to the priority watersheds develop agreed upon nitrogen allocations. It is further recommended that each shared priority watershed adopt an intermunicipal agreement

that, at a minimum, establishes nitrogen responsibility. Agreements should be in place within one year of adoption of this Implementation Report by MassDEP and US EPA.

Recommendation S2017.1: Communities that contribute to the priority watersheds identified in the 2017 Implementation Report should develop agreed upon nitrogen allocations and, in shared watersheds, adopt an intermunicipal agreement, within one year of adoption of the Implementation Report by MassDEP and US EPA.

It is further recommended that contributing communities in priority watersheds outline a plan and schedule for hybrid watershed scenario development and develop hybrid watershed scenarios consistent with the 208 Plan Update within two years of adoption of this Implementation Report.

Recommendation S2017.2: Communities that contribute to the priority watersheds identified in the 2017 Implementation Report should outline a plan and schedule for hybrid watershed scenario development and develop hybrid watershed scenarios consistent with the 208 Plan Update within two years of adoption of the Implementation Report by MassDEP and US EPA.

The Commission and the Cape Cod Water Protection Collaborative have a responsibility to track implementation of the 208 Plan Update. To do so, 208 compliance reports will be developed for each of the 53 watersheds on an annual basis. Priority watersheds will be tracked based on progress toward nitrogen allocation agreements and scenario development, as outlined above. It is recommended that the Commission establish criteria to be included in the compliance reports within 60 days of adoption of the Implementation Report by MassDEP and US EPA. Prior to the issuance of reports, the Commission will host a working session of the Waste Treatment Management Agencies to discuss progress and planning in shared watersheds.

Recommendation I2017.3: The Cape Cod Commission shall establish criteria to be included in annual compliance reports within 60 days of adoption of the Implementation Report by MassDEP and US EPA.

COMMUNITY ENGAGEMENT

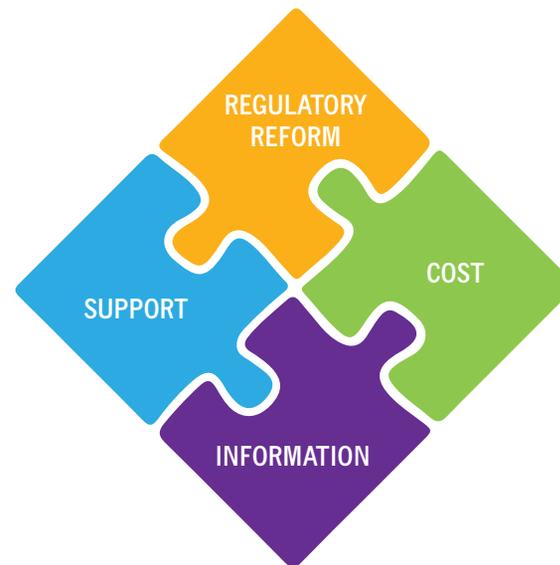
Community engagement was central to the development of the 208 Plan Update. The 208 Plan Update recognizes the importance of third-party facilitation of intra and intermunicipal disagreements and recommends a process or guidance to manage disagreement among parties be developed in addition to the allocation of federal, state and regional resources for this purpose (**Managing Disagreement S1.1**). In fiscal year 2016, the Commission awarded discretionary District Local Technical Assistance grant funds to the Town of Mashpee to develop a model intermunicipal agreement (IMA) for cooperation in shared watersheds. A copy of the IMA will be made available to the public upon completion. Guidance should continue to be developed to address anticipated areas of disagreement in local wastewater planning and implementation efforts, as they arise.

In addition to managing disagreement among communities planning in shared watersheds, the 208 Plan Update

recommends that implementation include a local public participation process that includes efforts specifically designed to reach environmental justice (EJ) communities (**Environmental Justice S6.6**). The Commission recently developed a process to publicly vet transportation planning and implementation projects with the Cape's EJ communities. This new process garnered 172 responses from EJ community members; far more than the number of comments received in prior public comment processes. It is recommended that the Commission transfer this newly

developed process in a manner that will facilitate local and regional outreach to EJ communities for wastewater infrastructure planning and implementation.

Recommendation S2017.4: The Cape Cod Commission shall transfer the newly developed process for publicly vetting transportation planning and implementation projects with the Cape's Environmental Justice communities in a manner that will facilitate local and regional outreach to EJ communities for wastewater infrastructure planning and implementation.



208 Plan Update Recommendation Categories

Figure 5

Implementing the 208 Plan Recommendations

To encourage implementation of scenarios developed by WMAs, and in particular successful shared watershed solutions, the approved 208 Plan Update provided a series of recommendations that outline actions necessary for restoration of water quality. Recommendations from the 208 Plan Update are identified in **bold**. The recommendations were grouped into four categories:

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- Information (I)
- Regulatory Reform (R)
- Support (S)
- Cost (C)

These four categories (also see **Figure 5** at left) are the same used to characterize the recommendations in this 2017 Implementation Report. Recommendations made in this Implementation Report are included in the blue brackets.

Progress has been made by WMAs, Barnstable County, state agencies and US EPA in implementing the 208 Plan Update recommendations, but ongoing efforts are necessary.

INFORMATION

The course of action proposed in the 208 Plan Update depends on information. It is the basis for determining the severity of the issue in each watershed, the number of homes and businesses impacted, and the selection of appropriate technologies for implementation. The collection of data, the development of decision-support tools making data easier to use, and the analysis of water quality and wastewater technologies and policies create the framework for designing responsible watershed plans.

MONITORING

The implementation of watershed plans will require both compliance monitoring within the embayment systems to gauge the overall water quality improvements from permitted strategies, and performance monitoring of selected technologies under the adaptive management plans (**Monitoring 14.7**).

Information collected should be housed in a regional water quality data center and made available to the public, serving as a primary source for the continued research and development of water technologies and modeling. The creation of a data center will ensure the public is afforded the highest level of transparency regarding the information used as a basis for water quality policy and associated capital planning (**WQ Data Center 14.10**).

Consistently providing updated information to the public will enhance the information feedback loop and allow for more effective modification of adaptive management plans. To effectively monitor non-traditional technologies that are a part of adaptive management plans, the 208 Plan Update recommended that the Cape Cod Commission provide a technical guidance document that includes draft monitoring protocols for non-traditional technologies (**Monitoring Protocols 14.8**). This document, titled “Preliminary Guidance for Piloting, Monitoring, and Evaluating Non-Traditional Water Quality Improvement Technologies on Cape Cod,” was issued in June 2016 and includes

monitoring protocols for eight technologies identified by the Monitoring Committee as the highest priority to better understand. Those technologies include innovative/alternative septic systems, eco-toilets, permeable reactive barriers, shellfish aquaculture, shellfish bed restoration, floating constructed wetlands, inlet modification and inlet modification specifically for coastal habitat restoration. In addition, the document provides evaluation guidelines to aid in determining which technologies are most appropriate for large scale implementation on Cape Cod.

Performance monitoring of all technologies will be required as part of permits and 208 consistency review. The guidance document is available in **Appendix D**. The Monitoring Committee established during the preparation of the 208 Plan Update will continue as part of this effort, consistent with the 208 Plan Update recommendation that the Commission create a standing Monitoring Committee, subject to available resources (**Monitoring Committee 14.9**). It is recommended that the Monitoring Committee identify any remaining technologies that require monitoring protocols and amend the preliminary guidance document issued in 2016 to include all necessary monitoring protocols for non-traditional technology implementation.

Recommendation I2017.5: The Monitoring Committee shall identify any remaining technologies that require monitoring protocols and amend the preliminary guidance document issued in 2016 to include all necessary monitoring protocols for non-traditional technology implementation.

In April 2016, MassDEP provided the County with funding for implementation of the 208 Plan Update. This funding included, in part, \$250,000 for a regional water quality monitoring program. These funds were matched by Barnstable County for a total of \$500,000, to support the expansion of the water quality monitoring program currently conducted by the Provincetown Center for Coastal Studies, collection of historical water quality monitoring data, development of a regional database to store historical and future data, and a web-based portal for data access. This database is available at: <http://2016.watershedmvp.org/wq/>. As part of this effort, an Excel template was developed that allows an automated approach to data uploads. A formal launch of this program occurred at the June 2016 OneCape Summit and is part of the following Science, Information and Technology effort underway at the Commission.

The regional water quality monitoring program will provide the basis for planning and adaptive management. Many of the communities on Cape Cod monitor the embayments for which they are responsible. As described above, the County is conducting monitoring through the Center for Coastal Studies to collect data from sentinel monitoring stations in each coastal embayment, in addition to stations in surrounding areas. A greater regional effort is needed to manage this information. The established regional database provides a central repository for data and a platform for distributing information to communities; however, a process for regularly obtaining data and updating the database and a program for analyzing and presenting the data in a useful format and on a regular basis is necessary. It is recommended that the Commission work with MassDEP, the Cape Cod Water Protection Collaborative and other partners, as appropriate, to formally establish an overall structure for the regional water quality monitoring program. It is further recommended that the Commission work through a committee of representatives from each of the 15 Cape Cod communities to establish a data sharing agreement to provide embayment water quality monitoring data and technology performance data, if available, on an annual basis. As part of this agreement communities should agree to use the template developed as part of the database management effort for providing data.

Recommendation I2017.6: The Cape Cod Commission shall work with MassDEP, the Cape Cod Water Protection Collaborative and other partners, as appropriate, to formally establish an overall structure for the regional water quality monitoring program.

Recommendation I2017.7: The Cape Cod Commission shall work through a committee of representatives from each of the 15 Cape Cod communities to establish a data sharing agreement to obtain embayment water quality monitoring data and technology performance data, if available, on an annual basis. As part of this agreement communities should agree to use the template developed as part of the database management effort for providing data.

TECHNOLOGIES MATRIX

In an effort to make the latest information more widely available, the 208 Plan Update recommended that the

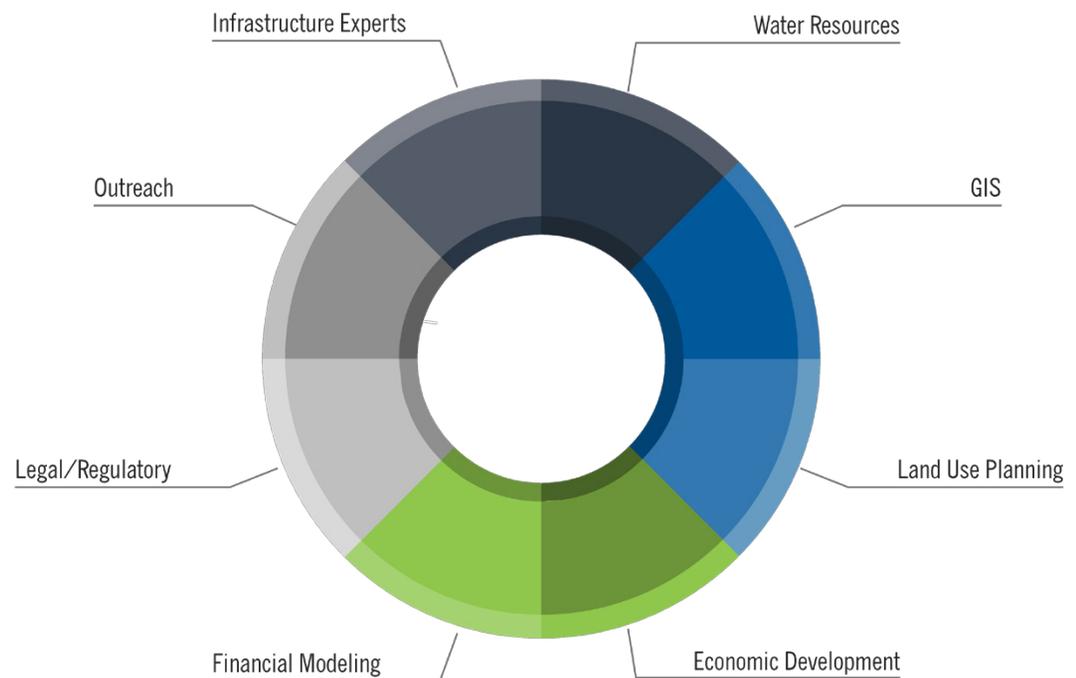
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Commission seek opportunities to sponsor an annual symposium to present and review new research on nutrient management technologies and approaches that coincides with regular updates to the Technologies Matrix (**Annual Technologies Symposium I4.2**). In June 2016, the Commission hosted the OneCape Summit: Implementing Solutions for Clean Water. The OneCape Summit focused on local implementation projects, monitoring, the use of GIS-based planning tools and included an update on WMA progress and the status of watershed reports. The agenda and presentations from the OneCape Summit are available at www.capecodcommission.org/onecape/previous.

In 2016, The Nature Conservancy (TNC) and the Commission successfully partnered on a Southeast New England Program (SNEP) proposal to transfer the 208 planning process to southeast Massachusetts and Rhode Island. While the Commission is providing technical assistance to TNC as it conducts a process like that of the Cape Cod process, a component of the project is to update the Technologies Matrix to inform our neighboring Massachusetts and Rhode Island communities and to continue to supply the most up to date data to Cape Cod communities. The process to update the Matrix is underway, with a draft issued for public comment on June 22. The draft is available at <http://www.capecodcommission.org/208>. A summer 2017 update is anticipated and progress toward that update was highlighted at the 2017 OneCape Summit, which is

also a component of the SNEP grant. The Commission emphasized the need to make the information in the Matrix more accessible and has transitioned Matrix data to a database, which is directly connected to decision support tools, such as WatershedMVP, and has developed a web-based user interface. These efforts directly respond to the recommendation in the 208 Plan Update that the

Commission develop a process for annual updates to the Technologies Matrix (**Technologies Matrix Updates I4.1**). A 208 Technologies Review Panel was established in Spring 2017 and the Commission worked with its members to add new technology-specific data, consider and potentially



Areas of Expertise Available Through Watershed Teams

Figure 6

narrow the types of information included based on applicability to watershed planning to date, and further refine the information included in the user interface.

The 2017 Summit was held on June 22 and 23 in Hyannis and included the third annual All Cape Selectmen and Councilor's meeting on water quality. The 2017 Summit expanded beyond water quality to include housing and regional infrastructure.

SUPPORT

Key to the success of the 208 Plan Update is the provision of additional direct support of local wastewater planning and the removal of barriers to implementation. Support may include expertise and technical assistance, access to decision support tools, and the provision of guidance on issues from pilot projects to effluent disposal, as needed.

EARLY CONSULTATION WITH THE CAPE COD COMMISSION

A key recommendation of the 208 Plan Update is that WMAs consult with the Commission early in the planning process to ensure coordination between active watershed planning efforts and the 208 Plan Update. Over the last 12 months the Commission assigned Watershed Teams to support

community planning efforts and to assist with decision support tools, permitting of technologies and financing (**Watershed Teams S5.3**).

Staff has assisted the towns of Bourne, Mashpee, Sandwich, Falmouth, Barnstable, Brewster, Chatham, and Orleans to develop watershed reports. Watershed Teams are designed to supplement local capacity and can assist in the areas of water resources, GIS, land use and economic development planning, finance modeling, legal and regulatory issues and 208 consistency, infrastructure and technologies, and outreach and consensus building, as requested (see **Figure 6**). These teams are available to assist in the development and implementation of targeted watershed planning efforts and will advise on the development of watershed scenarios and nutrient management plans consistent with the Section 208 Plan Update (**Hybrid Watershed Planning Approach S5.2**).

Requests for Watershed Team assistance should be directed to the Cape Cod Commission Executive Director from the Town Manager or Administrator, in writing, and should specify the types of assistance anticipated. While assistance will be directed to those areas of expertise required, the Watershed Team request will also entitle the WMA to an ongoing 208 Plan Update consistency review by Commission staff. The Watershed Team will be integral to the pre-application process associated with the consistency review, as described in the section on regulatory reform

that follows on page 16. As a result of consistency with the 208 Plan Update watershed plans will be eligible for State Revolving Fund (SRF) loans and other financial assistance, as available.

PILOT PROJECTS

To support the development of local watershed plans the 208 Plan Update recommended the Commission establish criteria for pilot projects (**Criteria for Pilot Projects S4.5**).

Pilot projects are a key component of watershed plans that seek to use non-traditional technologies as part of their overall adaptive management plan. Pilot projects will provide a basis for updating the Technologies Matrix and will allow communities to move forward with larger scale implementation of non-traditional technologies that prove effective. The document, "Preliminary Guidance for Piloting, Monitoring, and Evaluating Non-Traditional Water Quality Improvement Technologies on Cape Cod," described above and available in **Appendix D** includes a discussion on pilot projects. The document includes criteria related to site selection, characterization, and suitability, scale of the project and performance measures, in addition to criteria that should be considered in evaluating risk and developing contingency plans.

The 208 Plan Update recommended that US EPA, MassDEP, and the Cape Cod Commission work with communities

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and State and Federal agencies to identify opportunities to implement pilot projects in suitable locations across Cape Cod (**Implementing Pilot Projects S4.6**). Both the Commission and MassDEP have been actively involved in EPA's Southeast New England Program (SNEP) for coastal watershed restoration, which has provided funds for implementation of projects that seek to innovatively maintain and improve quality and habitat conditions within the coastal watersheds of Rhode Island, Southeastern Massachusetts and Cape Cod. In fiscal year 2016, EPA awarded technical assistance funds to complete hydrogeologic investigations for the siting of permeable reactive barriers in Barnstable, Dennis, Falmouth, Mashpee, and Orleans. In previous years, technical assistance has been awarded to install innovative stormwater projects in Barnstable and Chatham, in addition to funds awarded for installation of innovative/alternative septic systems in Falmouth and exploration of regional wastewater management solutions for the Town of Bourne, in conjunction with neighboring off Cape communities, among others. Over \$2 million has been awarded to Cape Cod communities to date and efforts are underway to maintain the Program moving forward. In FY17, SNEP issued a Request for Applications (RFA) for an entity to administer a sub-award grant program that supports SNEP goals. The estimated funds for FY17 are \$5 million, with the potential for up to \$12 million over three years, pending federal appropriations.

In addition to the \$250,000 provided to Barnstable County by the State in FY16 to fund a regional water quality monitoring program, \$700,000 was provided for additional efforts to implement the 208 Plan Update. A portion of those funds (\$142,149) were awarded to Cape Cod communities to fund local and innovative projects that would move water quality plans toward implementation. Communities that were awarded funding include Mashpee, Barnstable, Dennis, Falmouth, Orleans, Yarmouth and Truro. A complete list of projects funded, along with deliverables associated with each project can be found in **Appendix E**.

Efforts to provide this type of support to communities will continue. In June 2017, the Commission received a \$50,000 604(b) grant on behalf of the Cape Cod Stormwater Managers that will assist communities in identifying ways to collaborate and meet the requirements of the Municipal Separate Storm Sewers (MS4) permit. In previous years, the Commission, through the Fertilizer District of Critical Planning Concern (DCPC), assisted communities in addressing nitrogen through fertilizer management. The Commission proposed the Cape-wide Fertilizer DCPC in response to legislation that would remove the ability of individual communities to regulate fertilizers. The DCPC provided Cape Cod communities the opportunity to voluntarily adopt local bylaws consistent with the implementing regulations. The towns of Barnstable, Brewster, Chatham, Eastham, Mashpee, and Provincetown

adopted local nitrogen-oriented regulations in Fall 2014. The towns of Falmouth and Orleans had grandfathered nitrogen bylaws. Orleans added phosphorus to its nitrogen bylaw through the DCPC. While there were variations in each local rule, all were deemed consistent with the DCPC by the full Commission.

EFFLUENT DISPOSAL

Traditional infrastructure will be necessary in some locations. There are pockets of density across the region that can support centralized infrastructure currently and there are designated centers where increased density is expected. Many of these areas will require infrastructure to support the density desired. Identifying disposal options will be necessary and often controversial. The 208 Plan Update recommended the Commission provide a detailed evaluation of effluent disposal options (**Effluent Disposal S4.3**). A region wide groundwater discharge analysis was undertaken by Cape Cod Commission staff to evaluate and apply criteria for the purpose of siting effluent disposal sites Cape-wide. In 2016, AECOM worked with the regional analysis to identify areas across Cape Cod not suitable for disposal and provide guidance associated with appropriate disposal areas. AECOM provided the Commission with a list of general considerations for groundwater discharge site selection, divided into three general categories: those that make an area least favorable for discharge, those that make an area less favorable for discharge, and those

that make an area more favorable for discharge. The general considerations and the results of the region wide analysis can be found in **Appendix F**. Existing groundwater discharge permits are identified at: <http://208.capecodcommission.org> by selecting Groundwater Discharge Permits under Cape Wide Data Layers.

REGULATORY REFORM

The regulatory framework for wastewater and water quality plans and projects is better suited for permitting traditional facilities. Cape Cod communities agree that regulations need to evolve to meet the challenges of diffuse, non-point source nutrient pollution. Many process improvements were recommended in the 208 Plan Update and progress has been made to increase flexibility of permitting. Process improvements recommended include changes to both regional and state policies and regulations. Changes are necessary to make it easier for communities to better respond to the problem.

REGIONAL REGULATORY REVIEW

The Cape Cod Commission Development of Regional Impact review is not well-suited for permitting long-term, municipal water quality and wastewater plans. A new review process would be more appropriate to deal with the sources of nutrient pollution addressed in municipal plans.

At the regional level, the 208 Plan Update specifically recommended that the Cape Cod Commission Development of Regional Impact (DRI) review that typically follows the issuance of a Massachusetts Environmental Policy Act (MEPA) certificate of adequacy from the Secretary of the Executive Office of Energy and Environmental Affairs should be reformed, and a simpler and more supportive process to review Capital Developments of Regional Impacts (CDRIs) should be developed (**CDRI R3.5**). The 208 Plan Update also recommended that minimum performance standards associated with Targeted Watershed Management Plans (TWMPs) be developed (**Targeted Watershed Management Plan R5.1**).

In 2014, the Cape Cod Commission Act was changed to allow for the Commission's concurrent review with other regulatory agencies, including MEPA. Additional changes to the Act include the ability for the Cape Cod Commission and any public agency to enter into agreements to expedite permitting for municipal water quality management projects, and for the Commission to review municipal water quality management projects for consistency with the Cape Cod 208 Plan.

After approximately 12 months of review and consideration of the regional regulatory process, in light of the State's newly developed Watershed Permitting process described below, and after completing initial 208 consistency reviews for the Mashpee and Harwich Comprehensive Wastewater

Management Plans (CWMPs), it has been determined that the most appropriate review for municipal systemic water quality and wastewater management plans is one that looks exclusively at such plans' consistency with the 208 Plan Update, in place of a traditional DRI review. As recommended in the 208 Plan Update municipal water quality management plans, and material changes to existing plans will be reviewed to ensure consistency with the 208 Plan Update (**208 Plan Update Consistency Review R3.7**). It is therefore recommended that the Cape Cod Commission adopt regulation amendments to allow for 208 Plan Update Consistency Review in place of traditional DRI review for municipal water quality and wastewater capital plans. This approach alleviates the need for specific minimum performance standards associated with TWMPs. Specific guidance on the consistency review (**208 Consistency Review Guidance R3.8**) is available in **Appendix G**.

Recommendation R2017.8: The Cape Cod Commission shall adopt regulation amendments to allow for 208 Plan Update Consistency Review in place of traditional DRI review for municipal water quality and wastewater capital plans.

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MassDEP must also make determinations for certain plans and projects, and the Commission and MassDEP are committed to coordinating these reviews.

General 208 Plan Update Consistency Review requirements include:

- WMA assumes responsibility for controllable nitrogen for any part of the watershed within its jurisdiction
- Plan meets nutrient reduction targets
- Planning occurs at a watershed level with consideration of a hybrid approach
- Public was engaged to gain plan consensus
- Plan includes proposed strategies to manage nitrogen loading from new growth (see [Appendix H](#) for guidance on nutrient growth management plans)
- Plan includes adaptive management plan
- Plan includes monitoring program
- Plan includes an assessment of the town's ability to pay for the proposed work
- WMA commits to 5-year 208 Plan Update Consistency reviews until water quality goals are achieved
- In shared watersheds, WMA seeking 208 Consistency Review collaborates with neighboring WMA(s) on nitrogen allocation, shared solutions, and cost saving measures

Applicable requirements will vary, based on the type of plans or projects proposed. Consistency review may also be appropriate for projects not associated with a municipal water quality management plan. Nutrient reduction projects that seek SRF funding are required to be found consistent with the 208 Plan Update by both the Commission and MassDEP. Proponents of a project that wish to seek SRF funding for a project that may not be part of a targeted watershed plan or CWMP may request a 208 consistency review. Specific requests should be made in writing to the Executive Director of the Cape Cod Commission. Proponents should also contact MassDEP to discuss SRF eligibility. Types of projects might include, but are not limited to:

- Projects that lead to aquatic habitat restoration, establishment, and enhancement of tidal wetlands and riparian areas provided those activities result in net increases in aquatic resource functions and services
- Enhancement/Restoration projects that propose to remove accumulated sediment or increase tidal exchange
- Bog restoration projects that lead to an improved wetland system
- Other remediation or restoration projects that may affect a large area or several sites, for example, watersheds and other ecosystems.

A pre-application process will be necessary for CWMPs or targeted watershed plans to outline a schedule and identify applicable consistency requirements. More information on this is included in [Appendix G](#). Communities that have engaged a Watershed Team at the beginning of the planning process will have the benefit of Commission input early and that coordinated effort should serve in place of a pre-application meeting, in addition to providing technical assistance for planning.

State funds, such as MassWorks Grants and others, are often made available to communities for infrastructure. The Cape Cod Commission reviews and comments on proposals for such grants. It is recommended that the Commission review these proposals for consistency with the 208 Plan Update, as applicable. It is further recommended that state agencies prioritize proposals for state funding from communities with a nutrient management plan consistent with the 208 Plan Update, particularly if the proposed project is expected to improve embayment water quality.

Recommendation R2017.9: The Cape Cod Commission shall review project proposals for State funds, such as MassWorks grants, for consistency with the 208 Plan Update, as applicable.

Recommendation C2017.10: State agencies should prioritize proposals for state funding from communities with a nutrient management plan consistent with the 208 Plan Update, particularly if the proposed project is expected to improve embayment water quality.

The Commission is in the process of updating the Cape Cod Regional Policy Plan (RPP), which will reflect the proposed changes to the regulatory review process described above. It will also consider other recommendations included in the 208 Plan Update. Associated regulatory amendments will be necessary for implementation of the RPP and the 208 Plan Update. Specific recommendations from the 208 Plan Update associated with the RPP and regulatory amendments in addition to those above include:

- The evaluation of steps required for a regional or locally based nitrogen impact fee (**Nitrogen Impact Fee S6.3**) that requires that new development located where it must rely on septic systems to participate in managing nutrient loading.

- Creation of a streamlined Special Review Procedure (SRP) for the review of TWMPs and/or nutrient reduction projects jointly by the MEPA office and the Cape Cod Commission (**SRP R3.6**). A proposed draft SRP for consideration is included in **Appendix I**.

It is recommended that the Commission work with MEPA to adopt a revised Memorandum of Understanding (MOU) that incorporates this new regulatory process and allows for an expeditious review of projects of this nature, as appropriate and applicable, specifically, that targeted watershed plans requiring MEPA review be allowed to proceed through MEPA review, even if a town or towns have not yet developed town-wide wastewater or watershed management plans. A proposed draft MOU is included in **Appendix J**. This approach is directly in line with the proposed watershed permitting approach recommended in the 208 Plan Update and described below.

Recommendation R2017.11: The Cape Cod Commission shall work with MEPA to adopt a revised Memorandum of Understanding (MOU) that incorporates this new regulatory process and allows for an expeditious review of projects of this nature, as appropriate and applicable, specifically, that targeted watershed plans requiring MEPA review be allowed to proceed through MEPA review, even if a town or towns have not yet developed town-wide wastewater or watershed management plans.

WATERSHED PERMITTING

The collective responsibility of localities for nutrient loading in a watershed may be included in a watershed permit, which will provide WMAs an opportunity to demonstrate appropriate measures to address water quality degradation, in lieu of potential enforcement action being taken by the Massachusetts Department of Environmental Protection (MassDEP), such as the designation of water pollution abatement districts or nitrogen sensitive areas. The watershed permit is a wastewater management and impact mitigation permitting program to be administered by the MassDEP. The 208 Plan Update recommended MassDEP

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issue guidance outlining the process for watershed permits (**Watershed Permitting R3.2**). The watershed permit approach will allow communities more flexibility in designing efforts to comply with nutrient load limitations defined in the permit. See below, as well as **Appendix K**, for more information. The information included in **Appendix K** is draft and intended as an initial framework that will be further developed via a pilot program that will include several Cape Cod partner communities.

MassDEP provided guidance to Cape Cod communities on watershed permits at the OneCape Summit in June 2016. The watershed permitting program is a new MassDEP wastewater management and impact mitigation permitting program initially being offered as a pilot program to Cape Cod towns consistent with the updated 208 Plan. MassDEP is currently seeking willing partner communities for this effort and anticipates working with the Commission, as well as the communities in the Pleasant Bay and Popponesset Bay watersheds, to further develop the concept.

The watershed permit provides a mechanism to approve non-traditional methods of wastewater management and/or impact mitigation that may not otherwise be approved by MassDEP. The program will allow towns to receive watershed specific permit(s) based on an adaptive management approach rather than reliance solely on

traditional technologies. What follows are initial thoughts from MassDEP that will be discussed and tested via the watershed permit pilot program.

Permit Characteristics

As described in the documents provided by MassDEP, watershed permits are:

- Available to WMAs
- 20-year renewable permits
- Umbrella permits that incorporates other necessary permits, such as groundwater discharge permits that may be required if actual discharge of treated wastewater is proposed
- Voluntary permits that can be relinquished at any time by the permittee and/or withdrawn by MassDEP if agreed upon milestones are not met

When there is an approved and up-to-date Area Wide Water Quality Management Plan (pursuant to section 208 of the Clean Water Act), the Watershed Permit Plan must be consistent with that document. See **Appendix G** for 208 Consistency Guidance.

The permit requires that the WMA(s) develop a CWMP or a Targeted Watershed Management Plan (TWMP) for each permitted watershed. In some cases, the permit will

allow a WMA to address subwatersheds within the overall watershed, but the WMA must address the entire watershed if it is completely within the Town's boundary.

To apply for a watershed permit, WMA(s) must submit a Watershed Permit Plan that addresses the pollutants of concern using an adaptive management approach to select proposed mitigation strategies. The Plan will need to achieve compliance with established restoration targets for the receiving waters as identified in a TMDL or MEP technical report. For nitrogen mitigation, compliance shall be demonstrated by the achievement of a threshold nitrogen concentration at a sentinel station, or stations, as identified in a TMDL or MEP technical report.

Components of a Watershed Permit

The watershed permit will describe the permittee's authority and ability to secure the necessary financing and permits and conduct or contract for all required activities.

The permit will delineate the boundaries of the entire watershed or subwatershed being permitted, and identify all parcels within the watershed(s) or subwatershed(s).

The permit will require that, when a watershed crosses a municipal boundary, appropriate consideration is given for regional solutions, such as inter-municipal agreements or other mechanisms.

The Watershed Permit Plan submitted with the application must include all the proven and alternative technologies and approaches to be used in the entire watershed and will outline the adaptive management plan.

Obtaining and complying with a Watershed Permit is a demonstration that a WMA is voluntarily taking appropriate steps to address wastewater and that additional regulatory action is not necessary. So long as the permit is complied with and water quality standards are met, additional regulatory action will not be needed.

In the event that WMAs do not move forward with restoration, the 208 Plan Update recommended that MassDEP designate as Nitrogen Sensitive Areas those watersheds contributing to waterbodies listed on the 303(d) list due to nitrogen overloading and modify available remedial actions to allow for appropriate time for waste management agencies to plan (**Nitrogen Sensitive Areas R3.3**). The 208 Plan Update also recommended that MassDEP eliminate the regulatory language establishing the presumption that Title 5 systems meet the state water quality standards in situations where it has been established that septic systems contribute to non-attainment (**Title 5 Presumption R3.4**).

More detailed guidance on watershed permits is available in **Appendix K** and further information will be provided as the pilot program is underway.

To further enforce the Commonwealth's commitment to improving water quality, Governor Baker filed legislation necessary to enable Massachusetts to receive federal delegation of the National Pollutant Discharge Elimination System (NPDES) in March 2017. Given the importance of the federal Clean Water Act and the long-term commitment necessary to implement solutions to nutrient pollution on Cape Cod, the 208 Plan Update recommends the Commonwealth seek this authority under the Clean Water Act to issue and enforce NPDES permits (**NPDES Delegated Authority to the State R3.1**). The Commonwealth is one of only 4 remaining states without delegated authority.

COST

This issue of cost is paramount in considering the feasibility of proposed actions to restore Cape Cod's marine water quality. A principle of the 208 Plan Update is that the burden of cost should not fall solely on the backs of year-round residents, but should be distributed among all those benefiting from this iconic region. State, Federal and regional initiatives that save communities money will be necessary to move forward. Cape Cod communities must take the initiative to identify and earmark revenue for this issue too. It is recommended that, to the extent that new revenue sources become available towns should earmark funds for wastewater and water quality improvement efforts.

Recommendation C2017.12: To the extent that new revenue sources become available towns should earmark funds for wastewater and water quality improvement efforts.

STATE SUPPORT

The Environmental Bond Bill signed by the Governor in August 2014 made available \$4 million for monitoring programs and \$4.5 million for pilot projects that are consistent with a current area wide water resource management plan adopted under section 208 of the federal Clean Water Act. The 208 Plan Update recommended that the Commonwealth of Massachusetts make these and other funds designated for monitoring programs and pilot projects available to Cape Cod for efforts that are consistent with this Section 208 Plan Update (**Monitoring and Pilot Projects C6.2**). In fiscal year 2016 they did just that. The Commonwealth agreed to provide funds to Barnstable County in the amount of \$250,000 each year for four years to support a region-wide monitoring program. In addition, the Commission was awarded funding for local projects through the State-provided 208 Plan implementation funds. As briefly described above, under Progress to Date: Information, the County initiated the region-wide monitoring program by expanding the water quality monitoring conducted by the Center for Coastal Studies in Provincetown,

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collecting historical water quality monitoring data, and developing a regional database to store historical and future data and a web-based portal for data access. The money provided by the state to support the monitoring program is done so as a match to County funds in the same amount.

In addition, the 208 Plan Update recommended that local targeted watershed management plans consistent with the Section 208 Plan Update should qualify for existing and potential revenue sources (**Access to Funds C5.4**). In 2016, State Revolving Fund (SRF) Loan Regulations (310 CMR 44.00) were changed to require that all nutrient removal projects deemed consistent with any regional water resources management plan, including but not limited to a 208 Plan, be eligible for SRF loans and other forms of financial assistance at the financial equivalent of a loan made at an interest rate at 0%. Efforts to increase access to potential revenue sources are ongoing.

The 208 Plan Update also recommended that, pursuant to the recently signed Massachusetts Water Infrastructure Bill, MassDEP exercise its discretion in providing principal forgiveness up to 25% (**Principal Forgiveness C6.1**). It is recommended that principal forgiveness up to 25% be provided to communities with a watershed permit.

Recommendation C2017.13: MassDEP and the Massachusetts Clean Water Trust should exercise their discretion to provide principle forgiveness up to 25% to communities with a watershed permit.

FEDERAL SUPPORT

As discussed above in Progress to Date: Support, EPA has provided over \$2 million in SNEP funding to Cape Cod communities since its inception in 2014, in addition to funds awarded for work in other parts of the Southeast New England region. The estimated funds for FY17 are \$5 million, with the potential for up to \$12 million over three years, pending federal appropriations. The 208 Plan Update recommended that US EPA continue to expand the funding and piloting efforts of the SNEP and encourage the continued expansion of the program (**SNECWRP C7.4**). EPA has continued to evolve the Program and issue Requests for Proposals to fund local projects. Over the past couple of years, the Program has expanded to the following structure:

Senior Executive Council: This group is comprised of state leaders and government officials that work together to provide oversight, as well as insight and guidance on relevant policy, and assist in identifying top priorities for the Southeast New England region.

Steering Committee: This group includes staff level representatives of government agencies, non-profit organizations, and non-governmental organizations.

Sub-Committees: These subcommittees are topic-based and represented by relevant expertise and local knowledge. Representatives from the Steering Committee and other experts participate in each subcommittee. Current subcommittees include policy, monitoring and ecosystems.

The Commission remains active with SNEP, participating on the Steering Committee and the Policy Subcommittee and will continue to encourage the expansion of the Program and its associated resources.

REGIONAL INITIATIVES

In addition to accessing state and federal sources of funding the 208 Plan Update recommended that the Cape Cod Commission develop a proposal for a Cape Cod Capital Trust Fund for the financing of infrastructure design and construction (**Cape Cod Capital Trust Fund C6.5**) and a proposal for a Septic Trust Fund (**Septic Trust Fund C6.4**) and pursue authorizing legislation. A framework for both the Capital Trust Fund and Septic Trust Fund have been developed. Over the last year or so the Commission and the Cape Cod Water Protection Collaborative worked with a consultant to develop a more detailed framework for a Capital Trust Fund, with the goals

of providing funds to Cape Cod communities for alternative treatment technology pilot projects and monitoring, increasing the overall pool of available funds for water quality and infrastructure investment on Cape Cod, and reducing costs to communities implementing water quality improvement projects. The Commission has met and discussed options with the Massachusetts Clean Water Trust. It is recommended that conversations with the Trust continue. It is further recommended that additional work be completed by the Commission to identify funding sources to implement the Cape Cod Capital Trust Fund.

Recommendation C2017.14: The Cape Cod Commission should continue conversations with the Massachusetts Clean Water Trust about options for a Cape Cod Capital Trust Fund.

Recommendation C2017.15: Additional work shall be completed by the Cape Cod Commission to identify funding sources for the Capital Trust Fund and Septic Trust Fund.

The Cape Cod Water Protection Collaborative has had a long-standing history of working with our legislative

delegation to highlight the need for a broader base of financial support for wastewater treatment on Cape Cod and consistently provided technical assistance to communities in the area of financing, among other expertise. In June 2017, the Barnstable County Assembly of Delegates and the Barnstable County Board of Regional Commissioners voted to adopt Barnstable County Ordinance 17-08 to establish the Cape Cod Water Protection Collaborative, with a mission to protect Cape Cod's shared water resources by promoting and supporting the coordinated, cost effective and environmentally sound development and implementation of local water quality initiatives, including, but not limited to watershed management plans recommended by the 2015 Cape Cod Area Wide Water Quality Management Plan Update approved in accordance with Section 208 of the Federal Clean Water Act. Daily operations and activities, as well as annual budget development, will be managed by the Cape Cod Commission.

This ordinance formally aligns the Collaborative with the effort to implement recommendations of the 208 Plan Update. In this capacity, the Collaborative will continue to effectively support local wastewater and water quality plans by pursuing opportunities for financial assistance, improving regional cooperation, coordinating effective and cost effective infrastructure development, educating the public about wastewater management, tracking 208

Plan implementation and local progress, and advising and reviewing the development and implementation of a sustainable regional water quality monitoring program.

PARTNERSHIPS

Cooperation between local, regional, state and federal agencies, among other partners, will be key to improving the flow of information and the consistent feedback loops necessary to create informed and successful implementation plans.

The 208 Plan Update suggests continued cooperation and coordination with both the Massachusetts Department of Transportation (MassDOT) and Joint Base Cape Cod (JBCC), as key partners in alleviating the impacts of nitrogen on coastal waters.

Regarding Joint Base Cape Cod, the 208 Plan recommended ongoing discussions with JBCC and MassDevelopment regarding wastewater allocation policies for the base (**JBCC S7.1**), and also suggests that the military ensure that all future development within the cantonment area be connected to the JBCC wastewater treatment facility (**Development in Cantonment Area S7.2**). The discussion of wastewater allocation is dependent, in part, on the ultimate ownership of the JBCC wastewater treatment facility which is anticipated to be transferred from the 102nd Air National Guard (ANG) to MassDevelopment.

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MassDevelopment has completed a business case evaluation and will likely assume ownership of the facility and the water system at JBCC. At this time, there are no specific plans for future development in the cantonment area, although future development is anticipated. Commission staff participates in quarterly meetings of the Military Civilian Community Council and has (and will continue to) impress upon the military leadership and MassDevelopment staff the need to collect and treat wastewater from all future development. It is recommended that, upon the transfer of ownership of the treatment facility, that Commission staff discuss with MassDevelopment, or the appropriate owner, a reasonable allocation policy that ensures local wastewater needs can be met.

Recommendation S2017.16: Upon the transfer of ownership of the JBCC treatment facility, Cape Cod Commission staff shall discuss with MassDevelopment, or the appropriate owner, a reasonable allocation policy that ensures local wastewater needs can be met.

The 208 Plan Update specifically suggests continued cooperation and coordination with MassDOT in part to develop methodologies to assess stormwater contributions

from state roadways, identify opportunities to improve tidal flushing in coastal areas and use rights-of-way for water quality improvement projects (**MassDOT I7.3**). It is anticipated that US EPA Region 1 will release a draft MassDOT Municipal Separate Storm Sewer (MS4) permit for public review and comment. In a May 2016 discussion between US EPA Region 1 and Commission staff, US EPA staff recommended that the Commission wait for the public release of the MS4 permit and provide input on assessment methodologies through the public comment process. In FY17, the Commission programmed federal highway funds to complete a study of stormwater management opportunities in the U.S. Route 6 median and right-of-way to reduce pollution and risk of hydroplaning. The Commission initiated conversations with MassDOT regarding the use of rights of way. It is further recommended that the Commission continue to identify opportunities for use of these areas and engage MassDOT staff in conversations on how to best implement such strategies.

Recommendation S2017.17: The Cape Cod Commission shall continue to identify opportunities for use of MassDOT rights-of-way and engage MassDOT staff in conversations on how to best implement such strategies.

As water quality plans are implemented Cape-wide, it is understood that a significant percentage of wastewater generation on Cape Cod will continue to rely on septic systems, creating a demand for septage treatment. More information is needed to better understand septage demands and consideration needs to be given as to how to keep costs low for processing and treatment. The 208 Plan Update recommended an evaluation of the demands for septage processing and treatment (**Septage Treatment I4.4**). This evaluation was completed in 2016 (see **Appendix L**). The Commission engaged AECOM to conduct a region-wide septage and grease disposal study to evaluate the demands for septage treatment on a regional and subregional basis. The completed report concludes that, in the near to intermediate term, there does not appear to be a capacity limitation on Cape Cod as it pertains to septage treatment. While transportation costs will be impacted by the closing of the Tri-Town Septage Treatment Plant, primarily for Outer Cape users, there should be sufficient capacity available elsewhere. There is also likely sufficient capacity for the disposal of oil and grease, which capacity should be monitored going forward. Projects like Harvest Power's proposed anaerobic digester in Bourne, which was unfortunately unsuccessful, would provide additional disposal options to benefit the region. In 2016, the Commission convened a meeting of the Cape's publicly owned wastewater treatment facility operators which led to a multi-town request for quotations for sludge, grit and

grease transport and disposal. The multi-town bid was successful, with participating towns realizing disposal cost savings. It is recommended that the Commission continue to work with local publicly owned facilities and their operators to ensure adequate septage disposal coverage in the future.

Recommendation S2017.18: The Cape Cod Commission shall continue to work with local publicly owned facilities and their operators to ensure adequate septage disposal coverage in the future.

For a complete listing of all 208 Plan Update recommendations, as well as those included in this Implementation Report, see [Appendix M](#).

Schedule

PRIORITY WATERSHEDS

Communities that contribute to the priority watersheds should develop agreed upon nitrogen allocations and adopt intermunicipal agreements that formally establish responsibility in FY18. Furthermore, those communities in priority watersheds should complete hybrid scenarios in FY19 (see section on “Next Steps” for additional detail).

The Cape Cod Commission shall establish criteria to be included in annual compliance reports no later than January 2018. Compliance reports for each of the 53 Cape Cod watersheds will be issued on an annual basis.

DATA AND INFORMATION

Maintaining an up-to-date database with the best available information is crucial for successful local and regional planning. Parcel data and water use information used to inform WatershedMVP, and other decision support tools, and local planning efforts is now five years old. It is recommended that the Commission pursue an update to parcel and water use data in FY18, consistent with the five-year intervals proposed in the 208 Plan Update for data acquisition.

Recommendation I2017.19: The Cape Cod Commission shall pursue an update to the parcel and water use data used in WatershedMVP and other decision support tools in FY18, consistent with the five year intervals proposed in the 208 Plan Update for data acquisition.

Decision support tools will be updated based on new data. Nitrogen allocations will be updated accordingly, for those

shared watersheds where WMAs do not have an agreement in place specifying nitrogen load allocations. It is recommended that decision-support tools be updated in FY18, once data is acquired and quality assurance is complete. It is further recommended that the functionality available in decision support tools, such as WatershedMVP, be revisited regularly to ensure the tools remain effective for planning purposes.

Recommendation I2017.20: The Cape Cod Commission shall update WatershedMVP and other decision support tools in FY18 based on newly acquired data.

Recommendation I2017.21: The Cape Cod Commission shall revisit functionality available in decision support tools, such as WatershedMVP, regularly to ensure the tools remain effective for planning purposes.

While there are challenges ahead and much of the work has yet to be done, the ongoing partnership between WMAs, the County and both the State and Federal governments is promising. State and Federal financial resources continue

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to support implementation of non-traditional strategies and water quality monitoring and both the regional and state permitting processes are improving to address the unique nature of the nitrogen problem on Cape Cod. With ongoing support and initiative, Cape Codders can solve this problem in a cost-effective way, maintaining the character of Cape Cod for future generations.

Abbreviations

US EPA United States Environmental Protection Agency

ANG Air National Guard

CCC Cape Cod Commission

CDRI Capital Developments of Regional Impact

CWMP Comprehensive Wastewater Management Plan

DCPC District of Critical Planning Concern

DLTA District Local Technical Assistance

DRI Development of Regional Impact

EJ Environmental Justice

EOEA Massachusetts Executive Office of Environmental Affairs

EPA Environmental Protection Agency

FY Fiscal Year

IMA Intermunicipal Agreement

JBCC Joint Base Cape Cod

MassDEP Massachusetts Department of Environmental Protection

MEP Massachusetts Estuaries Project

MEPA Massachusetts Environmental Policy Act

MOU Memorandum of Understanding

MS4 Municipal Separate Storm Sewers

NPDES National Pollutant Discharge Elimination System

RFA Request for Applications

RPP Regional Policy Plan

SMAST School of Marine Science and Technology

SNEP Southeast New England Program (formerly Southeast New England Coastal Watershed Restoration Program, SNECWRP)

SRF State Revolving Fund

SRP Special Review Procedure

TMDL Total Maximum Daily Load

TNC The Nature Conservancy

TWMP Targeted Watershed Management Plan

US EPA US Environmental Protection Agency

USGS United States Geological Survey

WMA Waste Treatment Management Agency

WQ Water Quality





Addendum to the Cape Cod Area Wide Water Quality Management Plan Update October 2017



CAPE COD
COMMISSION

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