Appendix D - Response to Public Comment

In January 2013, the Massachusetts Department of Environmental Protection (MassDEP) designated the Cape Cod Commission (Commission) the agency responsible for the Area Wide Water Quality Management Plan for Cape Cod, consistent with Section 208 of the Clean Water Act, and provided direction for an update to the plan developed in 1978. On August 20, 2014 the Cape Cod Commission released the Draft Section 208 Plan Update for public comment, which compiled 12 months of work, with stakeholders from across Cape Cod, to consider watershed-based solutions to reduce nitrogen and improve water quality. An investigation in to more than 60 technologies and approaches that may be useful on Cape Cod yielded recommendations for watershed permitting and adaptive management to create a regulatory environment that better suits the needs of Cape Cod communities. The development of decision support tools and a Watershed Team technical assistance program provides communities with access to data and information and allows for more informed local decision making.

The 90-day public comment period generated more than 40 comments from the community, as well as local, state and federal organizations and agencies. The Section 208 Plan Update reflects and incorporates many of the suggestions received. Each comment letter received is attached to the document as Appendix D.

Comments received were generally related to process, decision support tools, technical review, and new and existing policies. The following response to comments is organized around these four broad topics.

PROCESS

COMMUNITY ENGAGEMENT

Engagement of stakeholders and education and outreach to the broader Cape Cod community were at the forefront of the process to update the Cape Cod Section 208 Plan, but more is needed. Many comments received suggested the need for more public outreach, highlighted the use of new approaches used as part of the Section 208 Plan Update, and urged that more be done. The Commission agrees and is making an effort to use new and innovative outreach methods to reach a wider audience. Throughout the planning process the Commission utilized an online engagement game called Cape2O, launched the CCH2O website (www.cch2o.org), and spoke and answered questions at meetings of the Boards of Selectmen in every town and the Barnstable Town Council, in addition to presentations and discussions with various local community organizations.

All of the outreach described above supplemented the 50-plus meetings held with stakeholder groups between July 2013 and October 2014. Every meeting was a public meeting and included a public comment period. Attendance varied by subregion, but generally included elected officials, town staff, volunteer town committees, innovative and alternative technology advocates and interested citizens, among others. This stakeholder process was not designed to achieve consensus on particular solutions in the 53 embayment watersheds, but instead, sought feedback on a procedural approach to be used in each watershed that allows for consideration of all technologies and a variety of management structures. The approach is designed to be used locally to identify a path forward in each watershed. The 170 stakeholders that participated in this process expressed support for this flexible, inclusive approach to local decision making and it is expected that, when properly utilized, this approach will facilitate local consensus to achieve water quality goals in an acceptable time frame.

It is difficult to engage average citizens, as work and family schedules often leave little time for residents to attend meetings. With a limited timeframe of 12-18 months to complete the plan, driven in part by MassDEP and the United States Environmental Protection Agency (US EPA), it became increasingly important to provide additional avenues for input. As described above, daytime stakeholder sessions, weekend "listening" sessions, evening Boards of Selectmen and Town Council meetings, community group meetings, and online engagement tools were utilized to provide multiple avenues to elicit input and feedback. The Commission will continue to invest in new ways to reach the public on important issues regarding water resources.

Future outreach should focus not only on the impacts of nitrogen, but on phosphorus, contaminants of emerging concern (CECs) and other water resources. A number of comments received expressed the desire for more information on these topics. The degree to which ponds and other freshwater resources are impaired, as well as the effects of CECs on water resources, is noted to be of great concern.

NON-NITROGEN ISSUES

This Section 208 Plan Update is an update to a section of the 1978 Area Wide Water Quality Management Plan for Cape Cod (1978 Plan). The Cape Cod Commission was directed and resourced to update the 1978 Plan with a focus on nitrogen and its impact on coastal water quality. A small concentration of nitrogen has a big impact on marine water quality. It is considered one of the most pressing environmental issues facing Cape Cod. This update was not intended to provide a 20-year plan for comprehensive water management. However, the planning framework set forth in the Section 208 Plan Update encourages local processes that consider impacts to ponds and other water resources during implementation. In areas where strategies for managing nitrogen may also reduce the impacts of phosphorus, CECs or other contaminants, those strategies should be considered. The Water Quality Technologies Matrix (Technologies Matrix) developed by the Commission during the 208 Plan Update planning process provides information on phosphorus removal rates, the potential for each technology to address CECs, and the impacts of sea level rise on technology selection, among other

information. However, geographic placement of individual solutions and technologies is not specified in the Section 208 Plan Update, leaving those decisions to be made locally.

All aspects of Cape Cod's water resources should be monitored and managed to ensure healthy environmental conditions. An update to the information on freshwater resources in the 1978 Plan is warranted and should be considered, along with further investigation of CECs, and education and outreach around both issues should be a regional priority. A thorough update to the freshwater ponds section of the 1978 Plan may include a review of the Pond and Lake Stewardship (PALS) Program data, consideration of an expanded monitoring program and a regional database to collect and display monitoring data and analysis results, a thorough investigation of the potential technologies and approaches to mitigate pond water quality and an update to the Pond and Lake Atlas.

There are a number of new and exciting initiatives related to CECs. In particular, is the Unregulated Compound Monitoring Rule (UCMR) introduced by US EPA. While there are currently no regulatory requirements to address CECs, they should continue to be the focus of state and federal research, review, and regulation. The Commission will make every effort to address phosphorus and CECs in the future.

PARTNERSHIPS

A few comments received urged the Section 208 Plan Update to put more focus on other ongoing planning and regulatory endeavors that affect water resources on Cape Cod. While this update is focused on the impacts of nitrogen on coastal water quality, the Cape Cod Commission, through other planning efforts and partnerships with state and federal agencies and non-profit organizations, is actively involved with other issues related to land use and environmental impact.

As an example, the Commission participated as a member of the Massachusetts Ocean Management Plan (MOMP) Advisory Commission during the recent MOMP update and will continue to work with state and federal partners to identify opportunities for consultation and coordination of ocean and estuary management approaches to achieve water quality and habitat restoration goals.

During the course of the process to update the Section 208 Plan the Commission acted as a liaison between the Outer Cape towns and the Massachusetts Department of Transportation (MassDOT) to discuss stormwater impacts from state roadways. The Commission will continue to serve this role during discussions between MassDOT and the communities on projects that have water quality impacts or present the potential to provide improvements. The Commission will continue working through the Cape Cod Metropolitan Planning Organization and through other avenues to ensure that MassDOT projects are consistent with the Section 208 Plan Update and close coordination with communities is encouraged. MassDOT has expressed an interest in participating in the process to develop a regional nitrogen budget and we welcome their

participation in any public process associated with that, or any other, project related to water quality.

The Cape Cod Commission will continue to seek data from agencies whose projects affect water quality across the region. MassDOT shared runoff data for a data point on Route 6 in Harwich and Joint Base Cape Cod (JBCC) agreed to share data to support the Section 208 planning process. The first exchange of data from JBCC was provided in January 2015 and the Commission will continue to work with JBCC leadership to further the policies and goals set forth in the Section 208 Plan Update.

In its order on the settlement agreement in the recent Conservation Law Foundation (CLF) v. US EPA lawsuit regarding Cape Cod water quality impairments, the parties agreed that "Within 75 days of the Court's entry of the Final Order, EPA will encourage MassDEP in writing with regard to all future nitrogen TMDLs submitted by MassDEP to US EPA for approval related to waters and embayments on Cape Cod, to consider, based on then currently available information and data, impacts that climate change may have on nitrogen loading and transport in the embayments and waters that are subject of the TMDL; and, to...consider whether such effects should be incorporated in setting the loads in the TMDL, in setting the margin of safety, and/or in adjusting the implementation plan and its activities."

A partnership between the Cape Cod Commission, the Association to Preserve Cape Cod (APCC), the US Geological Survey and others to evaluate the effect of sea level rise on near coastal aquifer conditions can inform this process and assist in considering potential policy and regulatory changes.

SUBMISSION OF THE SECTION 208 PLAN UPDATE AND DESIGNATION OF WASTE TREATMENT MANAGEMENT AGENCIES

The success of the Section 208 Plan Update is dependent upon implementation of its principles and recommendations. The Clean Water Act identifies the statutory requirement to do so, as described in detail in Chapter 8 of the 208 Plan Update. The final Section 208 Plan Update, submitted to MassDEP in March 2015, was completed prior to the designation of waste treatment management agencies (WMAs), as required by Section 208 of the Clean Water Act. The draft Section 208 Plan Update included a list of all of the potential existing entities that can fulfill the requirements of a WMA – the 15 Cape Cod towns and all other existing districts with the requisite authorities.

In correspondence dated February 25, 2015, subsequent to the settlement agreement in the abovementioned Conservation Law Foundation v. US EPA lawsuit regarding Cape Cod water quality impairments, US EPA sets forth the expectation that MassDEP will submit a final Section 208 Plan Update to US EPA by June 15, 2015 and that the submission will include designated WMAs.

The Cape Cod Commission has outlined a process for designating WMAs by June 15, 2015 that includes a series of three meetings around the topics of nitrogen allocation, scenario development and legal and organizational structure. Each town is requested to designate a team of up to seven individuals to participate in these meetings. This process of designated WMAs was developed based on feedback from the 208 Advisory Board, the 208 Finance Committee, the Cape Cod Water Protection Collaborative Governing Board, and the Cape Cod Selectmen and Councilors who attended the OneCape Summit in February 2015. Details on the process are provided in Chapter 8 and the outcomes of that process, including a list of designated WMAs and nitrogen allocation information will be included with the final submission of the Section 208 Plan Update to US EPA for approval.

DECISION SUPPORT TOOLS

The Cape Cod Commission developed a number of decision support tools throughout the process to update the Section 208 Plan. The tools are intended to support local planning by providing information to the WMAs in a way that is easy to understand and can be utilized to develop and evaluate watershed scenarios. Tools developed by the Commission include:

WATERSHEDMVP (MULTI-VARIANT PLANNER)

A dynamic web-based, geospatial scenario planning tool developed by the Cape Cod Commission that allows technical experts and the general public to compare various water quality management options at scales ranging from the neighborhood, watershed and subregional level (www.watershedmvp.org).

WATERSHED TRACKER

A companion tool to WatershedMVP that tracks nitrogen loads and interventions chosen by the user.

SITE SCREENING VIEWER FOR NON-TRADITIONAL TECHNOLOGIES

A geographic information systems (GIS)-based data analysis of non-traditional technologies and approaches to weigh potential nitrogen attenuation enhancements, improvements to existing green infrastructure networks and conditions necessary to maximize effectiveness.

WATERSHED CALCULATOR

A tool used to track cumulative nitrogen reductions and cost through the layered application of technologies in a watershed to meet reduction targets.

WATER QUALITY TECHNOLOGIES MATRIX

A flexible, dynamic and continually updated source of performance and cost information on currently available technologies and approaches for reducing nitrogen from wastewater, groundwater and saltwater and their applicability for use on Cape Cod.

BARNSTABLE COUNTY COST REPORT UPDATE

The 2014 update by AECOM to the 2010 report "Comparison of Costs for Wastewater Management Systems Applicable to Cape Cod" (2010 report prepared by Wright-Pierce in conjunction with the Barnstable County Wastewater Cost Task Force) on collection, treatment, disposal, and non-traditional approaches relevant to Cape Cod, prepared to provide an updated basis for financial decisions in the Section 208 Plan Update.

FINANCIAL MODEL

A tool to estimate the total cost to build, finance and operate a proposed set of solutions and help determine if they are affordable to the average household. The model is also designed to indicate if municipalities included in a proposed nutrient reduction scenario have the capacity to cover the total costs given current tax and borrowing restrictions and allows the user to select from a variety of potential revenue sources, assess the impact of various interest rates and consider timeframes for payment in order to determine how to best pay for the scenario proposed.

Every tool developed has been, or will be, beta tested upon completion. Each tool has been developed through input from a variety of sources and the Commission welcomes further review. The tools are not intended to be static and will evolve as updated data becomes available and as improvements to technology are made.

Due to the evolving nature of the data that feeds these decision support tools and the fact that the Massachusetts Estuaries Project (MEP) technical reports are, in some cases, several years old, nitrogen loads from WatershedMVP may deviate from those presented in MEP reports. The Section 208 Plan Update recommends using the target, in kilograms per year, identified in the MEP reports and/or total maximum daily load (TMDL) reports as the goal when developing watershed scenarios. WatershedMVP is a tool for identifying how to reach that goal. It does not change the target, but instead provides more up to date watershed nitrogen loads that account for changes in development and land use that have occurred since the MEP analyses were completed. Appendix 5A provides more detail on the differences between MEP data and WatershedMVP data.

The Triple Value Simulation (3VS) model is being developed by US EPA and Industrial Economics, Inc. with input from the Cape Cod Commission. It considers the broader environmental and societal costs of environmental degradation and the impacts of doing nothing to address our regional water quality problems. The 3VS model is still under review by

US EPA and is not yet available to the public. Once this information becomes publicly available the Cape Cod Commission will circulate it.

The Triple Bottom Line model is still in development and is intended to be directly linked to WatershedMVP in order to provide a user interface that will allow for a community to define their goals around community values, cost, and confidence in technology. With a direct link to WatershedMVP the user can quickly evaluate scenarios based on the criteria they may customize and establish.

WATERSHED TEAM TECHNICAL ASSISTANCE

The Section 208 Plan Update recommends that the Cape Cod Commission create a Watershed Team technical assistance program to assist communities in developing effective local watershed restoration and management plans in compliance with the Section 208 Plan Update. In addition, Watershed Teams can help communities coordinate with neighboring towns to identify economies of scale and potential shared services that may make implementation easier and lessen the economic impact to homeowners and businesses. This assistance will include supporting the use of the tools outlined above to ensure appropriate use throughout the process.

Utilizing a Watershed Team positions a community to align their watershed planning efforts with the Section 208 Plan Update early in the process. Benefits to a community utilizing this resource fall in to three categories: technical assistance, regulatory flexibility, and financial resources.

Details on the Watershed Team technical assistance program and the benefits to utilizing this resource can be found in Chapter 5 of the Section 208 Plan Update.

TECHNICAL REVIEW

SCIENCE

The MEP technical reports and total maximum daily loads (TMDLs) for Cape Cod watersheds provide the scientific basis for the need for nitrogen reduction outlined in the Section 208 Plan Update. Comments received focused on three issues – describing, in more detail, the nitrogen cycle and impacts of benthic flux and atmospheric deposition on nitrogen levels, providing clarity around the status of MEP reports and TMDLs, and addressing watersheds without TMDLs or MEP technical reports.

The nitrogen cycle, eutrophication and the link to habitat degradation and fish kills are described in Chapter 2 and in Appendix 4A, as a precursor to the detailed description of the technologies matrix. Each MEP report provides detailed information on the nitrogen cycle and its effect on the plankton, eelgrass and macroalgae.

MEP established critical bioactive nitrogen concentration thresholds. Bioactive nitrogen consists of dissolved inorganic nitrogen (DIN) and particulate organic nitrogen (PON) and does not include forms such as dissolved organic nitrogen (DON). DIN consists of nitrite, nitrate, and ammonium. Typically, nitrogen from septic systems and other controllable sources reaches the embayment in the form of nitrate; therefore, targeting these sources generally corresponds to a reduction in bioactive nitrogen concentrations in the water body. It is acknowledged that uptake of DON as a result of certain in-embayment strategies will not result in reduced bioactive nitrogen concentrations.

This Section 208 Plan Update primarily focuses on the three major sources of controllable watershed nitrogen load – wastewater, stormwater runoff, and fertilizer. Atmospheric deposition and benthic flux are described as sources, but more detailed information is outlined in the individual, watershed specific MEP technical reports and TMDL reports. Changes in these sources will have impacts on the watershed nitrogen loads and the Commission and County are engaged in discussions with US EPA about current research and implications for nitrogen reduction requirements.

The Section 208 Plan Update provides a list and map that illustrates the status of MEP reports and/or TMDLs for each watershed. The list and map are broken in to five categories:

- Not being studied
- Data collection phase
- Draft technical report
- Final technical report
- TMDL not required
- Final TMDL established

For watersheds that do not have the benefit of an MEP technical report, a placeholder value of 25% reduction was utilized for planning purposes. This was a Cape-wide assumption for watersheds without a report; therefore, it considered Buzzards Bay watersheds, as well as watersheds on the Cape Cod Bay side, which experience significant tidal range and often efficient flushing characteristics. The 25% reduction assumption may very well be too large for some Cape Cod Bay facing watersheds and too small for some Buzzards Bay facing watersheds. As communities engage with Watershed Teams additional information can be applied to adjust this assumption. Where information is not available the Commission will seek additional funding from the Commonwealth, US EPA and others to further evaluate watershed systems.

As described above, in some cases MEP reports are several years old. Through the work of the monitoring committee and their embayment water quality recommendations, as described in the plan and below, it is expected that suggestions for updates to the MEP data sets, as well as updates to the components of the model, may be developed.

TECHNOLOGIES

The basis of the technical review and the development of watershed scenarios lies in the Technologies Matrix and the 2014 update to "Comparison of Cost for Wastewater Management Systems Applicable to Cape Cod" report, or the Barnstable County Cost Report (BCCR), both presented in Chapter 4.

The comments received regarding technologies were focused on the inclusion or exclusion of particular technologies and information in the Technologies Matrix and identification of priority technologies for implementation or piloting.

The Technologies Matrix is a tool for communities to use in identifying potential technologies and approaches that might be useful in addressing impaired water quality. It was developed in partnership with a number of agencies, organizations, experts and stakeholders. Both MassDEP and US EPA, as well as the Cape Cod Water Protection Collaborative Technical Advisory Committee and the Technologies Panel convened as part of the Section 208 Plan Update process, provided feedback on its development. This helped the Cape Cod Commission work in an iterative way with stakeholders to improve upon the information included throughout the 12-month process to develop this Section 208 Plan Update. To accompany the Technologies Matrix, the Commission developed a set of user guidelines and notes to promote appropriate use. It is considered a living document and the Section 208 Plan Update recommends a process for annual updates to incorporate new data that becomes available through research or project implementation. In addition, the Technologies Matrix is being transitioned to a SQL database, with a web-based user interface to allow for easier access.

In scenario planning, the Section 208 Plan Update applied technologies to watersheds in two ways – described as the traditional approach, which included collection and treatment, and the non-traditional approach, which included on-site systems and technologies that intercept groundwater or are used directly in a water body. That is just one way to group technologies. The Technologies Matrix identifies many ways in which technologies might be categorized. For example, they may be categorized by scale (site, neighborhood or watershed) or by the point at which they address the issue (reduction, remediation or restoration).

The Technologies Matrix is conservative in its estimates and, in cases where there is greater uncertainty, provides wide ranges for information, such as for some nutrient removal rates and some costs. It also identifies where there is a potential for ancillary benefits, such as energy savings or nutrient recovery, but has not explored the necessary considerations for management or oversight of those ancillary benefits. For centralized wastewater treatment technologies the matrix breaks out the various components – collection, treatment, transport, disposal, and septage management. Each is described in Chapter 4 and its associated appendices. All components must be considered together in order to develop a complete scenario for potential implementation of a centralized system.

The information included in the Technologies Matrix is not exhaustive and a process will be developed, upon approval of the Section 208 Plan Update, for submission and review of new

technologies and information on an annual basis. Chapter 4 – Nutrient Mitigation Technologies and Policies identifies and discusses each of the technologies included in the Technologies Matrix and provides additional detail in Appendix 4A. Full detail is available in the Technologies Matrix.

The original BCCR was completed in 2010 and the 2014 document update adjusted the costs previously presented based on the current Engineering News Record (ENR) Index, provided additional projects to the section on Wastewater Treatment Facilities Project and Operation and Maintenance Costs, and created a section that presents generalized information on a broad range of non-traditional technologies being considered as part of the Section 208 Plan Update. These non-traditional technologies cover individual on-lot systems, neighborhood systems, watershed-wide systems, and Cape-wide systems, as well as traditional effluent disposal technologies and biosolids management options. The approach to the BCCR was not revised. The 2014 document presents updated information in italics so that the reader can determine which portions of the text are directly from the 2010 report, and which portions of the text result from the 2014 update.

Some comments received asked about the distinction between innovative/alternative (I/A) septic systems (permitted by MassDEP to achieve an average nitrogen concentration of 19 mg/L) and enhanced septic systems and requested guidance on their appropriate use. The distinction stems from the 2010 BCCR, which identified I/A systems that are enhanced over current practice to achieve an average nitrogen concentration of 13 mg/L. While these are not permitted to that level by MassDEP, the costs and performance associated with them have been demonstrated elsewhere. The BCCR also provides guidance on their use, some of which is identified in the economies of scale section of Chapter 4 of the Section 208 Plan Update. Specifically, their most efficient applicability, given current permitting removal allowances, is within areas of low density and in watersheds that require less than 50% wastewater nitrogen reduction.

Chapter 4 also provides information about potential permitting agencies and the need for piloting for technologies identified in the Technologies Matrix. It provides a discussion on the merits of the traditional and non-traditional technologies. Through conversations with MassDEP and US EPA and the work of the Monitoring Committee, which include both state and federal partners, eight non-traditional technologies were identified for further research and use on Cape Cod. These technologies are aquaculture, coastal habitat restoration, inlet widening, permeable reactive barriers, I/A septic systems, eco-toilets and constructed and floating wetlands. The Committee is in the process of developing monitoring protocols for each. The Section 208 Plan Update recommends a technical guidance document detailing these protocols by September 2015. This guidance, along with the site screening criteria for non-traditional technologies described in Chapter 4 and Watershed Team technical assistance, should help communities identify locations and develop implementation plans for pilot projects at the local level. Through annual updates to the Technologies Matrix, the Cape Cod Commission can facilitate knowledge transfer on the successes or failures of pilot projects to better inform the use of these technologies in other watersheds.

WATERSHED PLANNING APPROACH

Comments received suggested monitoring should be prioritized and the Section 208 Plan Update reflects that sentiment. Not only should a significant monitoring effort be undertaken for nitrogen in marine water, but it should include monitoring of freshwater ponds and drinking water, as resources allow. We heard from the community that monitoring data should be more readily available and that there is a need for assistance in interpreting the data that is currently available.

Chapter 4 outlines the need for both performance monitoring and embayment water quality monitoring. A standing monitoring committee is recommended to develop performance monitoring protocols and keep track of developing issues, such as CECs, and the level to which particular technologies may have an impact on CEC levels in the environment. The Section 208 Plan Update recommends a regional data warehouse to store and manage existing and future monitoring data, as well as provide a user interface to make data and information more easily accessible to the public. This presents an opportunity to centralize water resources data, aside from just that associated with nitrogen in marine water. Private well monitoring data, phosphorus data, and data on CECs may all be recommended data sets to include as part of an on-going monitoring program and data storage and accessibility program. There is potential for additional coordination with the Barnstable County Laboratory, which provides low-cost testing services for Cape Cod residents with private well water, and with the Pond and Lake Stewardship (PALs) Program, among others.

Monitoring data will be important in determining which technologies to move forward with and which should not be used on Cape Cod. The Section 208 Plan Update proposes annual updates to the Technologies Matrix and an annual conference to articulate data from ongoing pilot projects and provide new information on the viability of particular technologies in the region. As pilot projects are implemented, more discrete information will become available for technologies that may now have large ranges of information due to uncertainties about performance for factors such as nitrogen removal and cost.

Chapter 5 proposes a water resources center to provide data-related services. The center would help communities move forward with watershed-based adaptive management plans, centered on feedback from monitoring and Technologies Matrix updates, via scenario analysis and consideration of the costs and benefits of particular approaches.

Support for the watershed-based adaptive management plan approach discussed in the Section 208 Plan Update is evident and has been refined based on comments received and feedback from stakeholders, MassDEP and US EPA throughout the process.

The approach is intended to be used locally in each watershed and many towns are already moving forward using the principles of the 208 planning process in their communities. Watershed scenarios developed for the stakeholder group discussions provide examples of how the planning process can be implemented in each watershed. To avoid interference and confusion with local decision making, these scenarios were not included in the Draft Section 208

Plan Update. It has always been the premise of the Plan Update that solutions should be developed locally. Consistency with 208 is reflected in the process used to generate solutions, implement them and achieve water quality goals and not in the selection and placement of technologies. Watershed scenarios developed by the Commission can be shared with communities that request Watershed Team technical assistance as they move forward with planning. Watershed specific information, such as wastewater flow, nitrogen load, developed parcels and degree of impairment are included in Chapter 5.

Feedback from stakeholder groups on a process for traditional and non-traditional watershed scenario development helped to refine the watershed planning approach to include a hybrid scenario. Together, these three scenarios form the basis of an adaptive management plan. Both traditional and non-traditional technologies should be considered concurrently and the hybrid scenario can be expected to include aspects of each, allowing for the testing of new technologies and a "backstop" of proven solutions to ensure water quality goals are met. In addition, this approach addresses nitrogen at three different points prior to impact on a water body. Strategies that provide source reduction, remediate nitrogen in groundwater, and restore water bodies are considered together. Coupled with annual updates to the Technologies Matrix, an adaptive management approach that re-evaluates technology implementation on five-year intervals allows communities to embrace new technologies and abandon projects that are not performing adequately.

It was the opinion of both the traditional and the non-traditional planning teams at the Commission that fertilizer and stormwater, as part of the controllable nitrogen load, should be addressed in watershed planning. Stakeholders agreed and a 25% reduction was used as a placeholder. Discussions with both MassDEP and US EPA have indicated that it may be possible to attain a 25% credit for fertilizer reductions, but that credits for stormwater improvements are likely to be determined on a project-by-project basis.

The efficacy of strategies used to reduce nitrogen inputs from fertilizer and stormwater needs further research. The placeholder percentage should be updated to reflect actual information as implementation occurs and monitoring provides feedback on approaches employed to address these sources of nitrogen.

The Section 208 Plan Update recommends that MassDEP establish a watershed permit, which should allow credit to be given to communities that address stormwater and fertilizer nitrogen loads. It also should allow for new technologies to be tested and used as part of a larger strategy to address an entire watershed. For further information on watershed permitting, see Chapter 3 of the 208 Plan Update.

DENSITY AND COLLECTION OF WASTEWATER FLOW

Land use information used in the development of the Section 208 Plan Update is included in associated online resources and planning tools, which are referenced in Chapter 5 of the Plan Update. Many comments urged the inclusion of of information regarding high and low density

areas across the Cape. We acknowlege that density is one of the greatest factors in identifying collection areas for traditional wastewater infrastructure. This is discussed in Chapter 4 and a density map is included with that discussion. The Watershed Team technical assistance program will utilize this information to assist communities in identifying the most cost-effective areas to consider for traditional infrastructure.

EFFLUENT DISPOSAL AND REUSE

Effluent disposal is acknowledged as one of the most important factors in determining a wastewater management approach. Several comments suggested the identification of regional disposal sites. Chapter 4 recommends that the Cape Cod Commission conduct a regional GIS analysis to identify disposal sites that may warrant further evaluation. Such an analysis would certainly take in to consideration Zone II Wellhead Protection Areas; however, Zone II conditions will need to be evaluated in more detail as disposal sites are considered. A regional US Geological Survey model depicting average pumping conditions is available to the Cape Cod Commission and is reflected in sub-watershed delineations used by the MEP. Some of the remediation and restoration strategies identified in the Technologies Matrix, if proven successful, may alleviate the difficulties of identifying disposal sites in certain areas.

In addition, many communities have considered the potential for disposal to the ocean. Ocean outfalls are included in the Technologies Matrix as an option given that Chapter 259 of the Acts of 2014 amended the Ocean Sanctuaries Act to potentially allow for ocean outfalls in limited circumstances. For more information on the requirements for approval of this approach see Chapter 132A, Section 16G. Specific uses of this approach will need to be evaluated as communities consider watershed based solutions.

Additional comments focused on water reuse. Reuse is discussed under the effluent disposal section of Chapter 4 and additional detail has been added to Appendix 4A – the technical appendix for Chapter 4. Technologies such as phytoirrigation and fertigation, among others, provide an opportunity for reuse and are noted as such in Chapter 4 and the Technologies Matrix.

COST AND GROWTH MANAGEMENT

Comments and questions were received concerning the range of costs associated with water quality improvements, as presented in the plan and during public forums, as well as on the need illustrate how the cost of projects can increase as a result of growth.

Estimates from the 2013 Regional Wastewater Management Plan (RWMP) suggest that solving the Cape-wide water quality problem through traditional centralized treatment, whether working town-by-town or watershed-by-watershed, range from $4.2 to $6.2 billion. This RWMP is referenced in Chapter 6 of the Section 208 Plan Update and information on the development of these estimates can be found at http://www.capecodcommission.org/regionalplans/RWMP/RWMPcosts. The $8 billion

number often discussed reflects the cost of sewering all existing development on Cape Cod, which is not necessary or recommended.

There are a number of ways, as discussed in Chapter 6 of the Section 208 Plan Update, that Cape Cod communities can minimize costs. One premise of the Section 208 Plan Update has always been that the state and federal governments should contribute to fixing the problem. While capital construction grants are a thing of the past, new efforts, such as the Southeast New England Coastal Watershed Restoration Program (SNECWRP), continuing the 0% interest SRF loans, and creating a pathway for principle forgiveness at the state and federal levels all lead to lower costs for Cape Cod communities.

In addition, the Section 208 Plan Update recommends a Septic Trust fund should be established to optimally manage the maintenance, repair, and replacement of remaining septic systems. In exchange for an annual fee, property owners served by septic systems would have their systems regularly pumped out, repaired as needed, and replaced with a standard Title 5 system when necessary. The benefits of such a program would be to extend the life of existing septic systems, lower overall replacement costs, optimize the treatment of septage by managing the timing of treatment at septage treatment facilities and relieve homeowners from the high cost of replacement upon failure of their septic systems.

The Section 208 Plan Update also recommends the Cape Cod Commission identify and allocate resources to develop a revolving loan fund to finance infrastructure development on Cape Cod, particularly as it relates to water quality. The Trust Fund would provide towns with additional funding at low interest rates to complete the design and construction of necessary infrastructure. It is anticipated that a process will be developed in the coming months to complete a detailed analysis of what the establishment of this fund will entail.

The cost of water quality improvements can increase substantially depending on the type and location of future growth. The Cape Cod Commission supports growth and development patterns that protect the environment and promote appropriate economic development through technical assistance, development of model bylaws, and by creating regulatory incentives for appropriate growth. However, decisions on growth are made locally through town meeting or town council votes. As part of watershed scenario development, it is expected that WMAs will have a discussion on the implications of growth and the requirements to qualify for flow neutral financing for State Revolving Fund (SRF) 0% interest loans. The RWMP provided on this and Chapter 7 of the Section 208 Plan Update discusses Chatham's flow neutral approach, as an example. Consistency with the Section 208 Plan Update requires review and approval of a nutrient growth management plan, as described in Chapter 5.

Chapter 7 – Planning and Growth Management, outlines projected future growth estimates as a result of a Cape-wide buildout analysis developed, through a grant from MassDEP, for the RWMP and suggests approaches for land use regulatory reform for minimizing the negative impacts of growth on water resources. The results of this buildout are included in WatershedMVP and the cost of addressing wastewater as a result of buildout can be identified through scenario development utilizing that tool. Coupled with the Watershed Tracker, this tool

offers communities a way to develop conceptual approaches for watershed and subwatershed interventions. The data in these tools will be updated on a regular basis.

Details on the Cape-wide buildout analysis can be found at http://www.capecodcommission.org/resources/initiatives/CCC_Final_Rpt_to_DEP.pdf. It was the Commission's intention to be conservative when establishing the developable parcel layer in order to avoid an over-inflated buildout estimate. As such, the constraint layer also excluded from buildout any properties that appeared unlikely to be developed within a 20-30 year planning horizon, such as most municipal, county, state and federal lands that were not permanently protected. The Commission compared the constraint layer with those private properties that are on record as having a conservation restriction, but that are not permanently protected or otherwise excluded from the constraint layer. This comparison revealed that there are 67 acres with conservation restrictions that were not within the constraint layer. The combined amount of new dwellings included in Watershed MVP from these properties was less than three new dwelling units. The total new dwellings estimated for the region in the buildout was 27,842 new dwellings; therefore, these conservation restricted parcels represent 0.01% of the total number and are unlikely to significantly affect the buildout numbers.

Chapter 7 also discusses the potential for public-private partnerships and the potential for new growth to have a net environmental benefit, including examples of how this approach has been utilized in discreet areas across Cape Cod.

REGIONAL OPPORTUNITIES

Opportunities for regional management of septage are ongoing. The Cape Cod Commission, through District Local Technical Assistance (DLTA) funds, is supporting a study of regional septage needs, as well as a study of processing septage, food waste and other biosolids at Joint Base Cape Cod (JBCC).

POLICY

TRIPLE BOTTOM LINE APPROACH

Comments received on the draft plan placed emphasis on the need to consider benefits and detriments to the environment, economy and society of decisions and urged the Section 208 Plan Update to require such an approach.

One premise of the Section 208 Plan Update has always been that decisions on technology selection must be made locally in order to address community goals and gain support for implementation. As described above and in the Section 208 Plan Update, the recommended scenario development approach considers both traditional and non-traditional technologies that address nitrogen at the source, in the groundwater, and in the water body. As described in the

section on decision support tools above, WatershedMVP will provide a pathway for communities to evaluate scenarios with consideration to cost, community, and confidence in technology. Local stakeholders should determine the importance of each of these three categories to their community and make decisions accordingly. That decision is not one that can be made at the regional level.

TARGETED WATERSHED MANAGEMENT PLANS

Targeted Watershed Management Plans (TWMPs) are a concept originally described in the 2013 "Guidance for Cape Cod Commission Review of Local Wastewater Management Plans" as part of the RWMP. This approach allows for a single watershed solution to proceed through regulatory review rather than require a town-wide CWMP. Targeted watersheds can be located in one or more towns; therefore, Targeted Nutrient Management Plan (TNMP) minimum performance standards would apply to shared watersheds or watersheds within a single town and would focus on the plans ability to address the nutrient impairments caused by that particular watershed. The guidance document specifies that the Cape Cod Commission will review and approve TWMPs for the purposes of qualifying such plans and related infrastructure for SRF eligibility; however, it requires that all municipalities with jurisdiction over land within that watershed either be a party to the application or be party to a binding agreement that specifies responsibilities.

WATERSHED PERMITS

As described above, the Section 208 Plan Update recommends that MassDEP establish a watershed permit. A watershed permit would create the ability to approve a range of technologies as part of one comprehensive permit. The Section 208 Plan Update recommends an adaptive management plan within which performance thresholds are established and monitoring is built in to the plan to determine if goals are being met. The watershed permit would identify triggers for the implementation of alternate approaches for underperforming technologies that are part of a watershed solution. MassDEP is expected to promulgate regulations on watershed permitting in March 2015.

NITROGEN SENSITIVE WATERSHEDS

In addition, the Section 208 Plan Update suggests the designation of nitrogen sensitive watersheds, with the understanding that, although an imperfect solution, MassDEP has sufficient discretion to designate these areas in a way that does not create consequences that are detrimental to implementation.

THE CAPE COD REGIONAL POLICY PLAN AND CONSISTENCY WITH THE SECTION 208 PLAN UPDATE

The Cape Cod Regional Policy Plan (RPP), against which local wastewater and water quality plans are evaluated, along with other developments of regional impact (DRIs), is currently undergoing its five year review. During this review all current policies, including the fair share and no-net nitrogen policies, will be considered for potential amendment to align with the recommendations of the Section 208 Plan Update.

The goals of the 2015 RPP update are:

- Develop a land use strategy for the region,
- Facilitate the local comprehensive planning process,
- Simplify the regulatory process, and
- Create a framework for regional capital planning.

Consistency with the Section 208 Plan Update is important to take advantage of funding opportunities for local projects. In its order on the settlement agreement related to the CLF v. US EPA lawsuit regarding Cape Cod water quality impairments, the US District Court mandates that US EPA "ensure that projects funded through the Massachusetts Clean Water State Revolving Fund are consistent with relevant plans developed in accordance with the Clean Water Act."

Other technology-specific regulatory reform will likely be necessary to implement some of the technologies presented in the Technologies Matrix (for example: the use of shellfish as a tool for restoring water quality must be balanced with the responsibility of the Massachusetts Division of Marine Fisheries to monitor shellfish resources and protect public health). It is expected that these issues will be identified through the work of the monitoring committee and development of the watershed permits.