

**Cape Cod 208 Area Water Quality Planning
Upper Cape West and South Working Group**

**Meeting One
Tuesday, September 24, 2013
Falmouth Town Hall - 59 Town Hall Square, Falmouth, MA 02540**

DRAFT SUMMARY NOTES

ACTION ITEMS

The following action items were captured during the meeting:

- Create a distinct chronology for MMR
- Get greater clarity about how to fold MMR into the process
- Address the threshold/"*de minimis*" issue
- Incorporate the sticky notes that were posted on the chronologies
- Address the seasonal baseline issue
- Check on the potentially incorrect eelgrass data
- When referring to the amount of nitrogen that needs to be removed to achieve TMDL, list the units in absolute kilograms or pounds as well as relative percentages
- Distribute the group members' email addresses to all members

WELCOME AND INTRODUCTIONS

Ms. Patty Daley of the Cape Cod Commission opened the meeting with a welcome. All of the representatives around the table introduced themselves. Appendix A contains a list of the group members who were in attendance.

REVIEW OF GOALS AND PROCESS

Ms. Patty Daley, Cape Cod Commission (Commission), introduced the goals of the meeting and provided background on the process of updating the 208 plan. The process will focus on 21st century problems such as nitrogen, phosphorus, growth, and Title 5 limitations. Ms. Daley stated that the goal of today's meeting was: To review and develop shared understanding of the characteristics of these watersheds, the work done to date, existing data and information available, and how to apply all of this to planning for water quality improvements for these watersheds moving forward.

Ms. Daley explained that the Planning Process: will be watershed based, will engage stakeholders, and maximize the benefits of local planning. She stated that the Commission is not searching for an optimal plan for the Cape, but rather seeking to generate a series of approaches in each watershed that meet water quality standards.

Ms. Daley reviewed the 208 Planning Process, including the following basic timeline:

- July – Goals, Work Plan, and Roles

- August – Affordability/Financing
- September (now) – Baseline conditions
- October – Technology Options Review
- December – Watershed Scenarios

Ms. Daley noted the other groups and organizations involved in the process: the Advisory Board; the Regulatory, Legal and Institutional Work Group; the Technical Advisory Committee of the Cape Cod Water Protection Collaborative which will give input on the potential technologies; and, the Technical Panel, comprised of state, national, and international experts who will give high-level review of the potential technologies.

LOCAL PROGRESS TO DATE

Ms. Daley reviewed the chronologies for Falmouth, Sandwich, and Bourne. The chronologies include notation of: regulatory/town meeting actions, appropriations, reports/studies, infrastructure/plan implementation, and negative votes/stopped actions.

Working Group members were given time to examine timelines of water-quality developments for the Upper Cape West and South towns (Falmouth, Sandwich, and Bourne). Mr. Thompson, the facilitator, asked the Working Group to provide input about amendments and additions that should be made to the timelines. Working Group members provided the following input:

- Create a separate chronology for the Massachusetts Military Reservation (MMR); add the Base's history of sewerage.
- Clarify exactly how many square miles of the watershed are covered by MMR.
- Correct the mistake on the Sandwich chronology regarding Fiddler's Cove.
- Include stormwater in the process.
 - The Commission responded that it will be looking at stormwater, fertilizers, and other issues. They will be covered in more detail later in the meeting.
- Although the Cape Cod Canal watershed is a direct discharge watershed, the Canal needs attention because it could be seen as a watershed to Upper Buzzard's Bay, which is experiencing higher nutrient levels and plankton blooms.
 - The Commission responded that, while this process focuses on embayment areas, they will be planning holistically to include the direct discharge watersheds as well.
- Change the title of the "Nitrogen removal required" slide in the presentation to reflect the fact that the slide only denotes embayments which have been previously studied; there will be other embayments that will need action and this should be made clearer on the slide.
- Other specific notes and corrections were listed on sticky notes collected by the Commission.
- Address the "*de minimis*" factor where one small parcel of a watershed nicks into another town. Set a definite limit in order to decide when a town should be involved.

Further comments on MMR

The working group discussed MMR in more detail. The group did not have exact specifications, but MMR might comprise a quarter or a third of the watershed. Group members voiced their appreciation that an MMR representative is part of the Working Group. The working group agreed

that it and the Commission need to get clarity on how they will fold MMR into the 208 update process. Group members also mentioned that the base cemetery should be considered in the planning. Ms. Daley added that there has been a study of the wastewater treatment plant at the Base and discussion of possible municipal use. There may be opportunities for disposal sites and the plant.

BASELINE CONDITIONS

Ms. Daley and the Cape Cod Commission presented slides on the water quality challenges the Cape faces, and some of the data the Commission uses for its modeling and analysis. The working group members were asked to identify anything they believed was missing from the data, as well as any differences of opinion they had with the Commissions' analysis or approach. The Upper Cape West and South towns encompass 44.7 square miles. Ms. Daley noted that the watersheds included in Falmouth's WWMP were not reflected in these slides.

Mr. Jay Detjens of the Commission covered the natural features slide and GIS layers, including information about the Sagamore Lens Water Table, cranberry bogs, DEP wetlands layer, vernal pools, and the 2013 SLOSH (Sea, Lake and Overland Surges from Hurricanes) update. Ms. Daley and Mr. Detjens introduced the managed surfaces slide and GIS layers and explained that this category includes man-made and natural surfaces including lawns and pavement. Tracking lawns helps them figure out where fertilizer might be in use. The managed ground use layer includes structures, driveways, roads, gravel pits, and other disturbed areas. Ms. Daley described the different layers included in the regulatory maps, including Growth Incentive Zones. There is one growth incentive zone in this watershed, in Bourne. Mr. Detjens discussed the land use change layers that show how much growth has occurred from 1951 to 1971 and to 1999. These data come from UMass Dartmouth. Mr. Detjens walked through the density maps and explained that density is measured in dwelling units per acre in a quarter mile grid. Density is important primarily because it markedly impacts the cost of collecting wastewater for treatment. Collecting from individual units can be up to 70% of the cost of treatment. Density will play into how new growth occurs on the Cape.

Ms. Daley and Mr. Detjens turned next to buildout. Ms. Daley explained every buildout that is done produces very different outcomes depending on the assumptions and parameters used. The Commission has done a Cape-wide buildout for this process because they need to have a standardized measurement for planning across watersheds. The Commission has estimated that 30% growth across the Cape will increase capital costs by 40%. The buildout that they will be using in this process takes into account current zoning about new growth on undeveloped lots and the redevelopment potential of built lots. Ms. Daley noted that the Cape needs growth for its economic health, while also determining how to meet water quality requirements in the future.

A group member asked if the Commission thinks that 30% growth is the most likely number. Ms. Daley responded that between 20%-30% looks likely in most towns. Group members asked if the 40% increase in costs referred to sewerage and if it covered operation and maintenance costs. Ms. Daley responded that this number was based on sewerage, but the Commission is open to many different solutions; 40% only includes capital costs not operation and maintenance. A working group member commented that buildout will be impacted by what motivations people have to move to the Cape in the future, including employment opportunities, commuter rail, and other factors. Ms. Daley made a

distinction between population and buildout of buildings. Homeowners may decide that the Cape is a desirable place to build a second home, which would not translate into year-round population numbers.

Ms. Daley discussed demographics and stated that this area has a population of 16,516. The data comes from the 2010 census. Ms. Daley stated that, related to demographics, home value will affect what types of wastewater solutions are affordable for Cape Codders and how the issue is framed to the State and Federal government. Mr. Detjens explained that seasonality is one of the main demographic issues. The Commission has been analyzing many different pieces of data over the years to get a sense of seasonality, but given the complexities of measurement, it does not have a completely accurate picture of the issue. A working group member added that seasonality is complicated by the fact that some people who live here in the summer rent their house in the winter, so there is still someone living there year-round. Working group members requested that the Commission clarify whether the 16,516 population number includes the people living on MMR or not. A working group member stated that the population of MMR might change in the future with privatization and with the military encouraging people to live off base.

Ms. Daley described the key challenges facing Cape Cod and the Upper Cape West and South area with regard to wastewater treatment and water quality. She explained that the Massachusetts Estuaries Project (MEP) provides water quality, nutrient loading, and hydrodynamic information,. Ms. Daley explained the distinction between non-controllable nitrogen loads that cannot be impacted by the 208 plan versus controllable nitrogen loads available for reduction. A working group member asked whether the working group would be discussing the MEP numbers as part of this process. Ms. Daley responded that some watershed groups will be having a deeper discussion about them. For the purposes of this planning effort, the Commission will be aiming to meet the TMDLs that are based on the MEP work. The MEP was peer reviewed and found accurate for planning purposes. Regulatory law also requires that we meet the TMDLs based upon the MEP.

The working group discussed the seasonal nature of water quality and ecological problems, including source reduction versus seasonal reduction and the need to treat peak flows. A group member noted that the seasonal nature of the problem needs to be understood as part of the baseline data. The group member stated that, for example, Falmouth experiences more serious water quality issues during the summer months, which may mean that a shellfish aquaculture installation may be a good solution, even though it is not active in the winter. Ms. Daley responded that ecological solutions are being discussed in other towns as well and the Commission is interested in alternative options like this.

Mr. Detjens displayed GIS layers that specified the locations of the water quality testing stations used for the MEP studies. Ms. Daley described the change over time in water quality conditions in the Upper Cape West and South area, showing GIS layers for pre-colonial, present, and buildout conditions. In most instances the upper reaches of the embayments have diminishing water quality with current and anticipated development.

Mr. Detjens displayed GIS layers for the estimated extent of eelgrass in 1951, 1995, and 2012. He explained that the presence of eelgrass correlates well with the health of the ecosystem. The 2012 layer showed that there was no eelgrass on the south and west shores. The working group members discussed the extent of eelgrass in these areas and agreed that some eelgrass exists along the south and west shores. They requested that the Commission verify the data for the GIS layer. Ms. Daley explained that phosphorus is the main water quality problem in the Cape's lakes and ponds. The GIS layer includes information about which ponds are eutrophic (most impacted), mesotrophic, and oligotrophic (least impacted).

Mr. Detjens explained that the Title 5 compliance GIS layer displays locations where homes have applied for a loan or assistance to make system repairs. It also displays places where there has been a potential Title 5 compliance issue. A working group member commented Title 5 currently only takes into account bacteria levels, not nitrogen load although in the future Title 5 may cover the latter as well. Mr. Detjens displayed both the existing and proposed infrastructure GIS layers. He clarified that an attenuated area is an area where they have already installed natural attenuation strategies such as catch basins, leaching chambers, etc. The infrastructure GIS layers are a work in progress so he asked the working group members to share their knowledge of local infrastructure projects with the Commission. A working group member pointed out that many of the infrastructure projects listed do not serve a nitrogen reduction function. Ms. Daley responded that this layer simply tries to capture all water quality projects. Another participant added that it is helpful to be aware of all infrastructure projects because existing infrastructure can sometimes be modified to be nitrogen-reducing. Group members also discussed the issue of affordability, noting that it is important to be aware of the impacts the 208 update will have on lower income homes.

A working group member raised the issue of nutrient recovery, stating that, although the discussion thus far has mainly revolved around removing nutrients, resources recovery should play a bigger part in the working group's conversation. Working group members also raised concerns about whether the 208 update would take into account water pollution sources such as pharmaceuticals.

NEXT STEPS

Ms. Daley reviewed the framework for the upcoming second and third meetings. She discussed the technologies matrix and explained that it will be dealt with more thoroughly in meeting two. The technologies are arranged by scale, including: site/parcel level, neighborhood, watershed, and Cape-wide. The Technical Advisory Committee of the Cape Cod Water Protection Collaborative and the Technical Panel are reviewing the technologies. They will identify the land use characteristics for which each technology is appropriate, what levels of nitrogen removal each might achieve, and the lifecycle costs. Information about each of the technologies will be distributed before the second meeting.

Ms. Daley also walked through the steps through which the group will progress during the three meetings:

1. Discussing target goals so we know the goals we need to reach.
2. Looking at high nitrogen reduction areas, Title 5 problem areas, and pond recharge areas.

3. Examining solutions that are easier to implement, such as fertilizer management and stormwater mitigation. Golf courses are already doing a lot of fertilizer management, and every town on the Cape is engaged in an active stormwater mitigation process.
4. Discussing innovative and lower-cost solutions, such as permeable reactive barriers, inlet/culvert openings, constructed wetlands, and dredging.
5. Looking at alternative on-site options such as eco toilets, I/A technologies and shared systems, among others.
6. Examining priority collection/high-density areas like village centers, economic centers, etc.
7. Considering supplemental sewerage.

She stated that the Commission will attempt to look at all potentially feasible options rather than going straight to sewerage. A group member asked where shellfish fit in to these numbered steps. Ms. Daley responded that they fall under number four: innovative and lower-cost solutions.

A group member raised the issue of Cape Cod's aging population and commented that this population may not readily pay increased taxes for something that will primarily affect future generations. Group members commented that affordability will have to be at the forefront of the whole process and, in order to instill altruism throughout the Cape population, the process will have to encourage everyone to work together and take ownership over the issue. For instance, encouraging all citizens to make sure they're not over-fertilizing will help save everyone money down the line.

A group member asked how energy-use issues would be included in the planning process. Ms. Daley responded that the discussion of lifecycle operation and maintenance will touch on energy issues. Additionally, the Commission is working with the Harvard Graduate School of Design, Zofnass program, to create a framework that will help the working group rank each of the technologies and solutions in terms of their sustainability and energy use. Ms. Daley also added that while the Commission is required by regulation to comply with the TMDLs, the working group has input over how significant a role sustainability will play in the 208 update process. Working group members agreed that, during the process, they should consider the large-scale environmental issues at stake, in addition to local water quality issues. A group member reminded everyone that one of Falmouth's town goals is to reduce their carbon footprint by 50% over time.

OPERATING PROTOCOLS

Mr. Thompson reviewed a draft of the operating protocols and asked the group for their feedback. In addition to the official protocols, Mr. Thompson added a few other guidelines:

- Share the floor and other common courtesies
- First, listen to understand
- Keep "beginner's mind." Let expertise inform, not constrain
- Seek opportunities for mutual gain

Mr. Thompson confirmed that working group members could send any comments on the protocols to him and that all of the meeting summaries will be available on the website.

PUBLIC COMMENTS

A participant asked if public comment periods would become more limited as the process progresses. Mr. Thompson replied that meetings two and three would also include a public comment segment at the end. A participant asked what they should do if they feel that there is an interest group who should be at the table but is not present. Mr. Thompson replied that they should inform him and the Commission.

Appendix A Attendance

| Name | Affiliation |
|------------------|---|
| Cynthia Coffin | Bourne Board of Health |
| Steve Carr | Pocasset Golf Club |
| Matt Toomey | Town of Bourne |
| Hilda Maingay | FEAT |
| Ron Zweig | WQMC |
| Earle Barnhart | [Can't read] |
| Karrin Petersen | Buzzard's Bay Coalition |
| Virginia Valiela | WQMC |
| Nathan Jones | Town of Sandwich |
| Michael Ciaranca | JBCC, CMMRD |
| Thomas Porece | Decon |
| Wesley Ewell | Bourne Wastewater Coordinator |
| Cheryl Holden | F.A.C.E.S. |
| Gerald Potamis | Falmouth DPW |
| Sia Karplus | Resident / Science Wares |
| Charles Passios | Golf |
| Sallie Riggs | Bourne WW Committee |
| Mark Rasmussen | BBC |
| Dan Milz | PhD Candidate, University of Illinois |
| <i>Staff</i> | |
| Patty Daley | Deputy Director, Cape Cod Commission |
| Jay Detjens | GIS Analyst, Cape Cod Commission |
| Doug Thompson | Facilitator, Consensus Building Institute |
| Carly Inkpen | Facilitator, Consensus Building Institute |