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**Minutes of the Commission Meeting – Excerpt  
Held on November 20, 2014  
At the Katharine Cornell Theater  
Spring Street, Tisbury, MA**

## **SMART WASTEWATER MANAGEMENT**

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**Jon Snyder**, Chairman of the Tisbury Board of Selectmen, welcomed the attendees noting that wastewater management is a critical issue on the Island.

**Fred Hancock**, MVC Chairman, said wastewater management is an important issue that the Commission is concerned about and introduced Paul Niedzwiecki the Executive Director of the Cape Cod Commission.

### **1.1 Cape Cod Commission Executive Director's Presentation**

**Paul Niedzwiecki** presented the Water Quality Planning Process being carried out by the Cape Cod Commission. He noted that the two regional planning authorities in the state with regulatory authority are the MVC and the Cape Cod Commission.

#### Background

- Tonight's talk is on wastewater and what is being done on Cape Cod. The threat is the nitrogen contained in the wastewater that leaves our homes.
- Few towns on the Cape have been able to develop wastewater management plans and even fewer have succeeded in getting them approved at Town Meeting.
- In January 2013, the Governor designated the Cape Cod Commission as the regional body to update the 208 Plan.
- The Federal Clean Water Act was established in 1972. It did a good job in dealing with point pollution, cleaned up the pollutants that were coming out of pipes. However, it was not so effective in dealing with non-point pollution.
- Now the Cape is seeing the degradation of Cape Cod Bay and also seeing it in the estuaries on the southern side of the Cape. Many of the estuaries are dead or dying. In many of the bays, shellfish no longer grow naturally.
- The Massachusetts Estuaries Project (MEP) is funded by the Commonwealth and works with the Cape Cod Commission, with the information feeding local planning.
- There are 216,000 people who live year round on the Cape, in addition to about 6 million summer residents and visitors. For example, in Chatham 70% of the tax base comes from second homeowners.
- About 3% of the properties on the Cape are connected to treatment facilities, accounting for 11% of the wastewater flow.
- The Cape has 105 watersheds; 57 drain into an estuary or an embayment and 32 cross town boundaries. Plans need to be designed to cover all watersheds.
- The Massachusetts Estuaries Project (MEP) provides very good science on nitrogen. 80% of the manageable nitrogen on Cape Cod comes from on-site wastewater.

- The plans typically came up with expensive proposals involving sewerage, after which people questioned both the underlying science and the engineering proposals, resulting in proposals not getting approved at Town Meeting; in some cases, it got more than 50%, but not the needed two thirds. Often, the discussion would focus on alternative treatments, many of which were unproven.
- The process became very predictable, so the Cape Cod Commission realized it needed to look at barriers to implementation and have a different kind of community discussion.

#### The Cape Cod 208 Water Quality Plan

- The DEP has a contract with the Cape Cod Commission for the CCC to prepare a Water Quality Plan for Cape Cod, an update of a previous plan prepared by the CCC called a "208" plan after the relevant section of the federal Clean Water Act.
- The Cape Cod Commission noted that there are many different engineering strategies out there and concluded that they needed to collect and review these possible solutions.
- The CCC wanted to portray information regionally so they put together a GIS program with interactive mapping, namely a WatershedMVC (Multi-Variant Planner) that allows drawing a polygon around an area, calculating the nitrogen loading, and evaluating the effectiveness of various possible nitrogen-reduction techniques.
- In order to be successful, the CCC had to factor in social acceptability, so triple bottom line modeling [dealing with social, environmental and financial analysis] was done.
- A hot-button issue on the Cape is the degraded water quality in the Three Bays area in the Town of Barnstable and that is not just an ecological issue but also an economic issue. Nitrogen-affected areas saw a 7% drop in property values for every 1% drop in nitrogen. When the value of more expensive properties declines, it shifts the tax burden onto the rest of the population.
- The planning effort included the development of tools to facilitate the discussion.
- On August 20, 2014 a draft version of the Water Quality Plan report was put out for public comments which are due by November 21, 2014. It has 218 pages and 8 chapters.
- One chapter looks at available technologies, and includes a technology matrix that was developed showing every possible solution to remove nitrogen, how much nitrogen would be removed, the cost per pound for nitrogen removal, and what strategies could make the solution successful. Some technologies are not currently permissible, to protect consumers. The technology matrix now feeds the process. The performance range for a lot of the alternatives is very wide.
- Density drives the affordability of various approaches to wastewater management. Generally, when houses are less than 150' apart, traditional sewerage is the most cost effective approach.
- A key question is whether some of the non-traditional strategies would be effective in less dense areas. These non-traditional approaches include eco-toilets, innovative alternative septic systems, permeable reactive barriers, and oyster and shellfish farming. Some of these technologies are rising to the top, and are ready to be piloted.
- The study looked at technologies by setting up two teams to look at 57 watersheds, one using collection systems and one using other systems. The first looked at a traditional approach using sewers and wastewater treatment plants. The second looked at non-

traditional methods. It will be up to each community to define the success of the strategies with respect to reliability of performance, cost, and social acceptance.

- One chapter looks at regulations. The DEP is under a March 15, 2015 deadline to produce regulations for water performance and that is pushing the type of regulatory reform that needs to happen. The Conservation Law Foundation had launched a lawsuit to require addressing water quality issues on Cape Cod: the case was settled last Monday.
- The CCC is looking at changing its DRI process. They now have regulatory review of capital facilities of regional impact. They are looking at setting up a process for plans to be developed with municipalities, and then the CCC would sign off and not require further review. This regulatory change could make huge differences.
- The growth management chapter of the Plan talks about some of the potential problems and clearly addresses the problem of sprawl. It looks at discreet areas where more density is probably a good thing. As an example, there is a 55 acre parcel in Sandwich that is surrounded on three sides by residential. If the town develops the 55 acres, it will stimulate the commercial and residential tax base and bring wastewater management.
- The costs and financing chapter look at how to be smarter about asking for revenue that will help to solve the issue and be affordable. It discusses the possibility of 0% loans, available for 7 years, and with 25% principal forgiveness in sensitive watersheds.
- The process for being successful with wastewater management includes the collection of information that is housed centrally, is available to the public, and a monitoring program is needed to monitor performance. Barnstable County is lucky as they have the ability to fund the collection of data.
- The main recommendations include:
  - More information, centrally housed and available to the public, including monitoring of innovative alternative systems
  - Supporting town efforts. The Cape doesn't need more organizations, just better coordination.
  - Coming up with how to deal with the high costs. Their goal is to find a way that half the cost would come from state and federal sources.
  - Carrying out regulatory reform, such as better managing fertilizer and stormwater runoff.

## **1.2 Questions for the Executive Director of the Cape Cod Commission**

Question: What does he envision for Martha's Vineyard in terms of need for wastewater management?

- Paul Niedzwiecki said he is not familiar enough with the technical side for Martha's Vineyard.
- Martha's Vineyard has fewer watersheds than Cape Cod but most watersheds on the Island are shared.
- The biggest issue is how do you cooperate and at an acceptable cost.
- Cape Cod might be able to pilot some of the alternatives in remote areas that could help the Vineyard.
- Hopefully the Cape Cod Commission will make more resources available especially for the non-traditional strategies.

Question: Nitrogen removal in watersheds is a recent problem, in the last 5 to 10 years. Do you see recent technologies that are more viable?

- Cape Cod saw a 400% increase in population between 1950 and 1990.
- We saw a pristine environment that existed for hundreds of years decline in just one generation.
- Most of the financial investments have been channeled into traditional, proven technologies.
- There are some advantages in some of the on-site systems that are now being seen. We need to see more research to understand the effectiveness of technological improvements.
- An adaptive management approach will provide a flexible plan allowing traditional and non-traditional methods to come together. This will allow for trying out non-traditional techniques and testing their effectiveness to allow making decisions in a few years as to whether these potentially less expensive techniques can be used, or do we have to use more costly traditional techniques.
- The Cape's 208 Plan sets up a framework to hopefully have newer technologies coming forward.

Question: The Cape Cod Commission has a repository for data. Is it possible for Martha's Vineyard to join in and to come up with innovative technologies here that would be accepted by the DEP? Does he have any suggestions on how Martha's Vineyard can access federal and state funding for wastewater management?

- The Cape Cod Commission will share all its information and is happy to do so. In general, what the CCC has, the MVC has as well.
- They would be happy to do a workshop about tools on the Vineyard.
- The Cape can help the Vineyard by piloting innovative alternative technologies, and identifying sources of funding for non-traditional techniques.
- Regulatory reforms are moving forward in Falmouth and they have a target wastewater plan.
- Accepting the 208 Plan as a background will assist in bringing projects forward to Town Meeting that are more affordable and more in reach and therefore more likely to be approved.
- The 208 Plan is not a substitute for a Comprehensive Wastewater Management Plan (CWMP). It doesn't have that level of detail. Towns will still need to hire engineers to prepare CWMPs.
- They are looking at the possibility of targeted Wastewater Management Plans dealing with a single watershed as a way to move forward, without requiring a Comprehensive Wastewater Management Plan for the whole municipality.
- Martha's Vineyard will be able to benefit from the framework the Cape Cod Commission has set up.

Question: Are there any other communities in the world that have been faced with wastewater management challenges and have been successful with wastewater plans?

- In the United States it has been mainly a traditional approach.
- Europe looks at wastewater differently and the CCC tried to incorporate that into the 208 Plan, but the strategies need to be proven.

Question: Does he have any thoughts about advocacy for better regulations, such as a nitrogen component to a Title 5 system approval?

- The Clean Water Act standard is for swimmable and fishable waters.
- Enforcement has always been difficult. There is a conflict between federal and state enforcement. The 208 Plan has become a way to make enforcement issues realistic.
- In shared watersheds, towns are asked to resolve the percentage their town contributes to that watershed. The Cape Cod Commission tried to develop collaboration in and among towns with shared watersheds.
- Towns will be need to voluntarily set up wastewater management agencies, or the DEP could require establishment of Water Pollution Abatement Districts, which could be more costly and lead to more difficult enforcement issues.

Question: What is the cost to resolve the issues?

- The initial estimate for the cost of compliance is \$6 to \$8 billion to fix the whole problem Cape wide, removing enough nitrogen to meet water quality standards.
- That cost will be spread over two generations and hopefully the cost can be brought down over time.
- We need new ways to deal with the issues that take into consideration a coastal community that is also a seasonal community.
- We need to look at remediation efforts at the pond level. Were the problem to be solved tomorrow, what would the impact be on the ponds in the next ten years?
- Estuaries and embayments are smaller on the Cape and the Islands than in Chesapeake Bay.
- The question is source reduction or remediation. On the Cape, a large percentage is second homes which create a peak flow issue. Remediation in coastal communities has to be as good as source reduction.

Question: Between public perception and research what are the wide gaps?

- Most people believe if they don't live on the coast they are not part of the problem.
- There is a need for basic knowledge and information. The Cape Cod Commission hopes to have a FAQ format for the public.
- There are misconceptions about the nature of the problem, who is responsible, the basic science of how estuaries are degraded, and a misconception about the economics of the environment.

Question: What technologies are you excited about?

- Falmouth has 17 watersheds and multiple fingers. Falmouth is looking at permeable reactive barriers which needs to be piloted and then they have to determine where they work well.
- Shellfish in some areas can increase the water body's natural capacity.
- They are also looking at "fertigation" [application of fertilizers, soil amendments, or other water-soluble products through an irrigation system.] for golf courses, floating wetlands, and whether abandoned cranberry bogs can be used to treat nitrogen.
- Falmouth appropriated \$2.5 million to look at innovative alternative technologies. Permeable reactive barriers had shown some promise but the feedback from a Falmouth installation has not been great.

- He is not a proponent of any one process as that can be an impediment to planning and town acceptance.

Question: Is wastewater management an education problem?

- Not any longer. The Cape Cod Chamber of Commerce understands the connection between education and the economy.
- Wastewater ranks as one of the top three issues on the Cape with the public.

Question: Is wastewater management a political ownership issue?

- It is not just a Board of Health issue. We need to convince selectmen that it is their responsibility.
- Long term thinking is needed, 10 to 20 years and planning needs to start now, environmentally and fiscally. If planning starts now it will be less expensive in the end.
- The 208 Plan program on the Cape was the last opportunity as a regional agency to plan.
- There are community leaders with stewardship.

Question: From an engineering and materials perspective, there are alternatives such as the use of woodchips to soak up nitrogen in septic systems. The DEP has shown they are completely unfamiliar in using woodchips but it has been done. It is the one hundred million not billion dollar solution that has to be done. Has he looked at this solution?

- The Cape Cod Commission is looking at everything available such as black box denitrifiers and soil-based non-proprietary nitrogen-reducing Title 5 systems.
- On the regulatory side, the federal EPA is now more embracing of alternative strategies than the state DEP. However in the last 18 months, the state DEP has made a change in the opposite direction and he is hopeful the DEP will become more embracing of these new technologies.

Question: The Selectmen have to accept the responsibility but who does the work in our small towns?

- The Department of Public Works can be a big contributor.
- The Selectmen have to appropriate the monies to hire engineering firms.
- There has to be a game plan.
- Hopefully the Cape Cod Commission work will help the Vineyard.

**Mark London** added the following.

- The MVC has been communicating with the Cape Cod Commission on the issue of wastewater management and water quality in coastal ponds for many years.
- The land use analysis and water quality planning for the MEP process is done by the MVC. Martha's Vineyard is not quite as far advanced as Cape Cod in getting final MEP reports from the state.
- For several watersheds where we have MEP results, town committees are working on identifying possible solutions, and there is a lot of interest on Martha's Vineyard in water quality issues. The challenge, in the next five years, will be moving from analysis and strategizing to implementation.
- A lot of what the Cape Cod Commission has done should be very beneficial for the Vineyard. Since much of Martha's Vineyard has too low a density for sewerage to be

economically viable, non-traditional methods will be especially helpful for Martha's Vineyard.

**Paul Niedzwiecki** concluded by noting that transferring the knowledge from the Cape Cod Commission to the MVC is not difficult and can happen quickly. He also noted that there has been a steady decline of atmospheric nitrogen over the last ten years and the Cape Cod Commission is studying that as well.

**Fred Hancock**, Chairman recessed this portion of the meeting at 6:55 p.m.

## **IN ATTENDANCE**

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Commissioners: (P= Present; A= Appointed; E= Elected)

P Tripp Barnes (E-Tisbury)	- Leonard Jason (A-County)
P John Breckenridge (E-Oak Bluffs)	P James Joyce (A-Edgartown)
P Christina Brown (E-Edgartown)	P Joan Malkin (A-Chilmark)
- Harold Chapdelaine (A-Tisbury)	- W. Karl McLaurin (A-Governor)
- Madeline Fisher (E-Edgartown)	- Katherine Newman (A-Aquinnah)
P Josh Goldstein (E-Tisbury)	P Doug Sederholm (E-Chilmark)
P Erik Hammarlund (E-West Tisbury)	P Linda Sibley (E-West Tisbury)
P Fred Hancock (A- Oak Buffs)	P James Vercruysse (A-Aquinnah)

Staff: Mark London (Executive Director), Bill Veno (Senior Planner), Paul Foley (DRI Planner), Christine Flynn (Economic Development and Affordable Housing), Priscilla Leclerc (Transportation Planner), Jo-Ann Taylor (Coastal Planner), Sheri Caseau (Water Resource Planner), Christine Seidel (GIS Specialist).

There were about eighty people in attendance.

**Chairman Fred Hancock** called the meeting to order at 5:30 p.m.