

Panel: Cheaper, Better Wastewater Treatment Options Are Available For Chatham

by Alan Pollock

CHATHAM — By using a decentralized approach to sewage treatment and focusing only on the parts of town that require nitrogen removal, Chatham can build a better wastewater mousetrap – for far less money. That's the opinion of a panel of experts who spoke before a crowded meeting room at the community center Saturday morning.

The event was sponsored by Chatham Concerned Taxpayers, with the express intent of finding a wastewater solution that is less expensive than the \$300 million sewer system and treatment plant upgrade currently being planned. First to speak was Valerie Nelson, the director of the Coalition for Alternative Wastewater Treatment, and a former Gloucester city councilor. Nelson said her group was created to encourage communities to move away from centralized sewer systems, which she said can cause aquifers to fall and stream beds to dry up, as happened around Boston because of the massive Deer Island treatment plant.

A mixture of smaller-scale treatment systems and neighborhood plants is “not only more cost effective, but actually environmentally superior,” she said. Technology is advancing quickly with these systems, and communities don't have to settle for “cookie-cutter” sewer systems to meet their wastewater needs, Nelson said. There are signs that state environmental regulators are increasingly open to these new technologies, she added.

Environmental consultant Patrick Lucey of Victoria, British Columbia, said as an aquatic ecologist and taxonomist, he sees the negative effects from conventional wastewater treatment systems.

“You don't want to know what I know, because I don't sleep anymore. We have truly messed things up on this planet,” he said. At the center of the problem is the human tendency to destroy the natural environment to build human infrastructure. “We have to completely undo that design approach,” he said. Lucey favors the creation of closed-loop urban water and energy systems that recover and reuse water resources. When done properly, these systems not only cost less to build and operate, but can even generate revenue for a community, he said.

The best system for Chatham, according to former EPA wastewater expert Jim Kreissl, is a mixed system of neighborhood “cluster” systems, on-

site nitrogen-removing septic systems and a small sewer system. Now an environmental consultant, Kreissl said the most expensive part of a centralized sewer system like the one planned for Chatham is the network of pipes and pumping stations.

“Collection is where the big money is,” he said. Using a decentralized system means fewer sewer pipes, and reduces the problem of clear water infiltration, where clean groundwater is drawn into leaky sewer pipes, treated and discharged along with the waste.

Kreissl estimated that it would cost taxpayers about \$60,000 to connect the typical property to a new sewer system, including the cost of building the plant and extending the sewer lines. If the waste is treated on-site using a nitrogen-removing system, the cost is more like \$20,000, he said. Connecting to medium-sized cluster system is around \$15,000, he added.

Centralized sewer systems are particularly wasteful when they are used to connect an entire community, rather than just the areas which most seriously need nutrient control, Kreissl said. The only reason to sewer an entire town “is to get more people paying for the system,” he said. “Why fix something that's not broken?”

Environmentally, it is preferable to treat wastewater and return it to the earth close to where it was drawn out, to avoid stressing the aquifer, he added.

Environmental engineer Pio Lombardo of Newton, Mass., said his company's “Nitrex” technology uses a wood fiber-based filter to remove as much nitrogen from wastewater as a traditional wastewater plant would remove, at much lower cost and in smaller-scale applications. Several Nitrex systems are currently in operation on Cape Cod, including one in Mashpee that services 20 houses and a small commercial development. The maintenance costs are about \$8,000 annually, most of which is for water quality monitoring to ensure the system is working well, Lombardo said. A similar Nitrex system off Brackett Road in Eastham handles 10,000 gallons of waste per day, reducing nitrogen to less than 2 mg/L, a very low amount.

While the technology has been tested at the county's alternative septic system test center for several years, no long-term data exists yet to show its effectiveness. But Lombardo said time will show that his system is “a silver bullet” when it comes to municipal wastewater management.

The Nitrex filter has another potential application: it can be used as a “permeable reactive barrier,” or PRB, installed underground along the shoreline to capture nitrogen just before it enters sensitive bays and estuaries. Used this way, the filter captures nutrients from all sources, not just wastewater, Lombardo said. A small PRB has been installed at the Waquoit Bay National Estuarine Research Reserve in Falmouth, and seems to be showing a reduction in nitrogen entering the bay in the shoreline directly adjacent to the barrier, he said.

The final panelist to speak was State Rep. Matt Patrick, D-Falmouth. Patrick said it's not easy to stop a sewer project that's like “a freight train that seems to be running full speed ahead,” but the message of better, cheaper wastewater solution is one that will resonate with voters.

“They will back you up if you bring these questions to the fore,” Patrick said. The issue is a social one, not just an environmental one, he said. Working people on the Cape will not be able to afford expensive sewer betterments and higher taxes, which will drive them away.

“You're going to make Cape Cod a gated community. Those people won't be able to live here,” Patrick said.

PRBs and other Nitrex technologies are not yet permitted by state environmental officials, but they are already proving they can do the job, he said. State officials were expected to visit the Waquoit Bay reserve this week to see the system in action, he said. Patrick said he and other members of the Cape Cod legislative delegation plan to encourage the state to step up its investigation and approval of the technology so that towns like Chatham can consider a full range of optio