

Nitrex Sewer Scenario Could Save \$200 Million in Mashpee

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An engineer told the Mashpee Sewer Commission Tuesday night that using an alternative wastewater treatment system throughout town could shave around \$200 million off the projected price tag to clean up the water quality in Mashpee's bays, but several crucial questions about the technology remain unanswered.

Pio S. Lombardo, of the Newton-based environmental engineering firm Lombardo Associates, made a hard sell on the potential cost-savings offered by the Nitrex technology during his presentation on four different ways it could be used in Mashpee.

He estimated that one method, installing 33 medium-sized treatment systems to treat clusters of houses in neighborhoods around town, would cost \$216 million, or about \$35,000 per housing unit.

In contrast, a more traditional method using widespread sewer systems and a large new wastewater treatment plant would cost \$409 million, or about \$63,000 per household, he said. To develop the estimate for the traditional method, he said he used figures from the recently approved New Silver Beach treatment system in Falmouth, which will cost \$10.7 million to service 231 properties, or about \$46,000 each.

However, while controlled tests and short-term usage have shown the Nitrex system to be as effective in removing polluting nutrients from wastewater as any traditional method, there is no long-term data for the systems on Cape Cod, a fact to which Mr. Lombardo readily admitted.

Mr. Lombardo said he will need significant additional research on how the groundwater moves if the town wants to use an underground barrier that treats water passing through it or a pump and treat system that pulls water out of the ground to treat it, two of the other applications of the Nitrex system.

However, F. Thomas Fudala, chairman of the Mashpee Sewer Commission, said the detailed cost figures may be putting "the cart before the horse," because what is needed first is a scenario that can bring the town into compliance with the federal- and state-mandated water quality standards that are forcing the town to act.

Treatment more advanced than standard septic systems, which are used at the vast majority of Mashpee residences, is needed to remove nitrogen from the wastewater. Nitrogen is polluting the town's bays and rivers by fueling unnatural levels of algae growth. Algae smothers other aquatic plants and uses up oxygen needed by all aquatic life.

The project, however, may prove to be the most expensive capital project in Mashpee's history so far.

The costs presented at the commission meeting Tuesday night are the first hard figures offered by an engineer under contract with the town, though they are in line with the numbers mentioned in passing by town officials and others involved in the sewer project.

Mr. Lombardo's presentation was a draft of his final proposal, which will offer the sewer commission one or two specific scenarios that can be tested to see if they will remove enough nitrogen from wastewater to meet the regulatory requirements and clean up the town's bays.

The town's other consulting engineering firm for the sewer project, Stearns and Wheler, will present four other scenarios using the more traditional systems at another sewer commission meeting on Tuesday night.

From these scenarios, and following extensive regulatory review and opportunities for public comment, the town's final plan will be selected.

Like Mr. Lombardo, Stearns and Wheler would be in the position to make a considerable profit if one of its plans is chosen. The national engineering firm not only plans sewer systems, but designs and installs the plants as well.

Mr. Fudala said in an interview Wednesday that he takes the pitches from both consultants "with a grain of salt," and has found that they often keep each other in check.

Mr. Lombardo, however, is promoting a product that may be both very risky and extremely advantageous for the town.

Mr. Fudala said he is most enticed by the Nitrex proposals because of the potential savings and because it is a simpler arrangement. In addition to possibly saving thousands of dollars per household, instead of running massive sewer pipes around

would keep the systems local and likely force the financing onto the townwide tax base, he said. The cost savings come in part from not needing to lay a few hundred miles of sewer pipe, which can cost more than \$350 per foot.

Mr. Fudala added that, while there is a shortage of results on how well the technology removes nitrogen, at the county test center on the Massachusetts Military Reservation and at a mixed-use development in Mashpee, Nitrex has cut nitrogen levels down lower than most of the small wastewater treatment facilities in town.

The four ways to use Nitrex—in clusters, at individual homes, as a groundwater filter, and at a plant that treats water pumped from the ground—range in cost but each could be used to remove enough nitrogen to clean up Mashpee’s bays, Mr. Lombardo said. A combination of the four would likely be the most practical and cost efficient, he said.

Using Nitrex at individual homes has the advantage of salvaging the existing septic systems that are in good condition, Mr. Lombardo said. It would, however, require substantial operations and maintenance costs and would create difficult regulatory problems for the town to ensure that everyone is using theirs and that they are each running properly.

“How do you know when they are broken?” Mr. Fudala said.

Mr. Lombardo said the electrical pumps used at the onsite systems are the most common part to fail.

In addition to the further studies needed to use the filter and the pumping methods, both would also require extensive and difficult permitting. For the filters in particular, which would work best if installed along the shoreline to prevent nitrogen from reaching the waterways, environmental regulations would pose a problem.

Mr. Lombardo said the pump and treat method would be best to use at “hot spots” of concentrated nitrogen. But finding the hot spots is the problem, Mr. Fudala said.

The town will be developing its final plan over the next year, Mr. Fudala said, but it will take many years after that to implement, so even though the filters and pump and treat methods may not be options now, they may be more practical in the future when more data is available on how the groundwater moves under Mashpee.