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Kurt Zemba, Chairman
Old Lyme WPCA

February 6, 2014

RE: Concerns with Draft Coastal Wastewater Management Plan Dec. 12, 2013

Dear Mr. Zemba,
The following represents the major concerns I have at this time with the proposed December 12, 2013 plan by Woodward and Curran and. If an alternative effluent collection system is shown to be the most cost effective, further consideration of other attached growth effluent treatment options may also be necessary.

Background:
I've worked for 30 years at the national level to build a bridge across the knowledge gulf that exists between professionals who work in backyards with onsite septic systems and large municipal engineering firms who design sewers and treatment plants appropriate for cities. Developing alternative sewers uses a mixture of both skills and expertise. The proposed Coastal Wastewater Management plan by Woodard and Curran reflects the challenge of joining onsite with municipal. The Old Saybrook WPCA and facility plan exemplifies the challenge of a large municipal engineering firm trying to design the simplest of onsite systems. This same firm did not even respond to Old Lyme's RFQ.

Challenges we face with the proposed plan:

1. The annual cost cannot be absorbed and paid as an additional "flush tax" without devaluing many of the properties because the annual cost to be paid by residents buying the home cannot be increased by the proposed $3,000 to $4,000. Assuming a 4% interest rate, the property could be devalued by $75,000 to keep the same annual cost that includes the mortgage. This devaluation will in turn affect the grand list property values in Old Lyme and result in an increase in the mil rate required to maintain public services. Alternative technologies and designs that are both lower in cost and less expensive to operate are therefore critical not only for those served, but for the entire town.

2. The chosen solution includes seven neighborhood lift stations near the shoreline. This is necessary to minimize the depth of the gravity sewers, because of the need to minimize their depth and the infiltration of groundwater when lines and manholes are below the water table. These lift stations are not good neighbors

and pose a serious risk to the beach communities, which have a zero tolerance for sewage overflow. The first and most significant problem is the potential frequency and severity of the impacts on the beaches and thus the recreation and fisheries. Last year's failure from a new Point of Woods lift station gives us a clue as to what to expect even with the newest and most advanced design. Second is the impact of hurricane storm surges and determining how these stations must be designed with reasonable specifications set to withstand these events. Alternatives that eliminate these lift stations have not been seriously considered and therefore the plan is incomplete.

3. The proposed design of onsite components, essential to alternative collection systems, requires substantial experience and familiarity with the latest design possibilities and equipment. The currently proposed designs and the maintenance plans suggest a lack of experience with the technology and overly conservative assumptions to compensate for this uncertainty. This is due to the larger firm's history of being skilled in the design of larger more complex and expensive components, such as lift stations, but with very limited experience designing lower cost onsite components. Larger firms also rightly see much higher risks and lower compensation for specifying the onsite components. There is also a tendency to try to modify established designs they use for larger systems to make them work for onsite use. You cannot downsize a municipal lift station for someone's onsite pumping unit. The attached letter from Shoreline Sanitation Inc. provides a very conservative estimate of the average cost for onsite work they do every day. Turnkey installation and hookup is $10,000 vs. the $13,500 to $20,250 estimated by Woodard and Currans (See Attached Tables). While I'm sure the response will be that we are comparing apples and carrots, Shoreline Sanitation Inc. works with national leaders in this industry and is therefore applying state-of-the-art designs and equipment proven over the last 30 years. Their average cost estimate is based on installing 100 tanks and hookups. While some sites may be more challenging than others, the average cost estimate addresses the variability and reduced cost of this component.

4. The lack of understanding of simple onsite pretreatment, specifically septic tank operations, extends to the projected need for maintenance. The result is a highly inflated life-cycle cost. While Woodard and Curran attended a meeting where the WPCA discussed Old Lyme's mandatory pumping program of seven years, this historical practice was completely ignored in the proposed plan. The plan also does not reflect local pumping costs or rates and uses a two-year pumping frequency, thus tripling the cost of this maintenance vs. the towns mandatory pumping ordinance (See Table 1 below). Contributing to the inflated operating costs are the use of 3,500 gallon tanks in the design, which would cost each homeowner $525 to pump according to Shoreline Sanitation Inc. rates. Clearly, the plan does not reflect national practice, design, or local maintenance and treatment facilities, which is well established.

Table 1 STEG and STEP Maintenance Cost

Septic Tank Maintenance Cost using Old Lyme WPCA Ordiance			
Number of Tanks		1392	tanks
Frequency *		7	years
Cost to pump	$	295	By Shoreline Sanitation
Total $ per Year	$	58,663	
Cost per Home	$	42.14	per year

* Consistent with Water Environment Research Foundatin Fact Sheet C3
=$56-$84 per year annualized cost with pump replacement (STEP) every 10 years

5. It's not clear why vacuum sewers are not applicable as recent design guidance by Water Environment Research Foundation recommends maximums sustained uphill grade to 30 to 40 feet with lines extending out 15,000 feet. If Woodard and Curran is not familiar with this technology, the WPCA needs to find experts who can at least assess its costs, benefits, operational characteristics, and limitations. While it may not be as cost effective as a STEP system, it will eliminate the shoreline neighborhood lift station and therefore deserves consideration.

6. Not all areas addressed in the plan are equal in density and it's likely that some of the service areas, such as in White Sands, can be handled onsite or very nearby. The lowest cost solution is likely a mix of technology and not everything needs to be connected to one pipe and one treatment plant. Professionally managed systems for a few vs. sewers for all must be considered. This mix was initially considered in the LAI proposal and while not appropriate for the two higher density communities, it should not be rejected for White Sands.

I've worked on a state task force in Illinois, and federal task forces such as TVA and I established national demonstration programs for USEPA to try to overcome the obstacle we are seeing with the proposed plan. I do not believe the WPCA can afford to pursue alternative collection systems without working with national experts familiar with this technology and comfortable integrating onsite components with centralize or cluster treatment. The initial plan by LAI indicates this potential and if it was fully expanded we would also see the economy of scale that comes with this approach. Woodard and Curran is doing the best they can to invent alternative collection technology and has demonstrated they are not aware or associated with the national experts or organizations publishing this guidance. They do not seem to even be open to gathering local data from the WPCA or from local experts such as Shoreline Sanitation Inc., which helps Old Lyme maintain these onsite pretreatment tanks.

Given that the proposed plan is too expensive and puts the town at risk financially and environmentally, further work is required that includes:

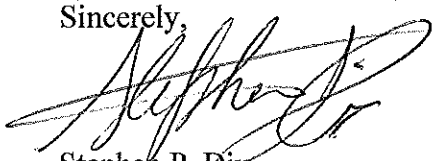
1. Integration of national standards for design of alternative collection systems, integrating real local cost for construction and maintenance.

2. Expert planning of collection designs that eliminate neighborhood lift stations that pose a risk to the beaches and could be crippled by storm surges from hurricanes. This includes vacuum sewers and STEP.

3. Work done by those with an extensive track record in the design and operation of these alterative systems. It appears that Woodard and Curran must either partners with a firm with this experience or the WPCA must hire a firm with this expertise to complete this plan.

4. Given the diversity of development and density more than one technology and solution should be evaluated for some areas, especially for White Sands. This should not be limited to wastewater collection and treatment but should also consider other needs and solutions that integrate a central drinking water supply.

Sincerely,



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