



BARNSTABLE
Water Resources



**Town of Barnstable
Comprehensive Wastewater Management Plan
Ad Hoc Committee**

Meeting Minutes

Date: December 16, 2024

Location: Selectman's Conference Room, Town Hall, Second Floor

The meeting will be televised live via Xfinity Channel 8 or high-definition Channel 1072. It may also be accessed via the Government Access Channel live stream on the Town of Barnstable's website:

<http://streaming85.townofbarnstable.us/CablecastPublicSite/watch/1?channel=1>

Committee Members Present:

Scott Horsley, Chair; Brian Hughes, Vice Chair; Tom Cambareri; Zee Crocker; Rob O'Leary; Louise O'Neil; Glenn Snell; Kris Clark, Town Council

Committee Members Absent:

Butch Roberts; Paul Neary, Town Council; Gordon Starr, Town Council

Others in Attendance:

Dan Santos, Director, Department of Public Works; Rob Steen, Assistant Director, Department of Public Works; Griffin Beaudoin, Town Engineer, Department of Public Works; Amber Unruh, Special Projects Manager, Department of Public Works; Michelle Trask, Director's Executive Administrative Assistant, Department of Public Works; Chris Gadd, Communications Assistant, Department of Public Works.

Members of the public including John Lynch from Centerville and Bruce Walton of the Innovative/Alternative Onsite Wastewater Treatment Systems (I/A OWTS) Task Force and resident of Centerville.

Agenda:

Call to Order

Scott Horsley, Chair, called the December 16, 2024 meeting of the Comprehensive Wastewater Management Plan (CWMP) Ad Hoc Committee to order at 5:01 PM. The meeting of the CWMP Ad Hoc Committee was held in person in the Selectman's Conference Room, Town Hall.

Administrative Items

a) Meeting Recording

Chris Gadd, Communications Assistant, Department of Public Works, read the notice of meeting recording.

b) Roll Call

Chris Gadd, Communications Assistant, Department of Public Works, conducted a roll call from the committee. The attendance of members is reflected above.

Scott Horsley, Chair, invites members of the public to introduce themselves if they wish. In attendance were John Lynch from Centerville and Bruce Walton from Centerville.

c) Approval of November 18, 2024 Minutes

Scott Horsley, chair, moves to discuss the November 18, 2024 meeting minutes. Hearing no requested edits, Councilor Clark moves to approve the minutes. Brian Hughes, Vice Chair, seconds. The committee unanimously approves the November 18, 2024 meeting minutes.

d) Next Meeting

Scott Horsley, Chair, opens the discussion of when to hold the next meeting. After some discussion, it was decided that the next meeting of the committee will be on Tuesday January 28, 2025 at 6:00 PM. Scott Horsley asks Rob O'Leary if he would be able to give a presentation on that date, to which Rob O'Leary replies he can but the presenter from Rob O'Leary's organization will be presenting remotely. Scott Horsley inquires about the rules pertaining to remote presenters. Chris Gadd responds that presenters can be remote.

Details of the context of the next meeting will be discussed after the evening's presentation.

Presentation on Enhanced Innovative & Alternative (EIA) Septic Systems

Scott Horsley, Chair, invites Zee Crocker to present on Enhanced Innovative & Alternative (EIA) Septic Systems.

Zee begins his presentation with background information about the underlying issue. As a Town, we are under a mandate to address estuary protection. Water protection can be addressed but is not the pressing topic. Zee highlights this by stating the concern is not with sharks in the ocean but with jellyfish in the estuaries. Oysters raised in Hyannis Harbor have had to be destroyed for the past three years, which Zee attributes to water quality.

Zee shows a map of land use on Cape Cod and explains that as people have come to Cape Cod, the issue of water quality has increased.

Zee shows a map of estuaries on Cape Cod and notes there are very few (4) that are good, and the rest are bad.

Zee continues and discusses the changes to Massachusetts Title 5 Regulations, including designated Nitrogen Sensitive Areas (NSA). Most of Cape Cod is in an assumed or likely NSA, including all of the Town of Barnstable.

Zee presents a graph showing data from a monitoring well in Osterville. The graph shows the nitrogen level from 1960 at approximately 0.2 mg/L, rising to over 2.5 mg/L in 2000. While this is one well, it is believed to be relatively representative of data across the town. Rising levels of nitrogen indicate rising levels of wastewater. While this appears troubling, it is essential for everyone to understand the issue as we work to address it.

Zee shows a map of Cape Cod highlighting areas that are sewered and areas that have cesspools and Title 5 systems. Areas of open space are also included on the map. The map shows a widespread problem throughout Cape Cod, with Barnstable having the only significant area being sewered.

Zee illustrates the necessity of addressing wastewater by sharing an article from the Wall Street Journal (Friday, March 22, 2024) that references a passage from the Old Testament (Deuteronomy 23:12-13) describing how to address waste by what can be interpreted as a Title 5/cesspool system. We are at the golden age of distributed wastewater treatment technology.

Zee continues by highlighting changing regulations across the region including Tisbury requiring installation of enhanced nitrogen removing systems upon house sales, upgrades, new constructions, and additions. This is something that should be considered by every town in the region, regardless of what else is done. Mashpee has also implemented new septic regulations.

The regulations released by MassDEP are still being evaluated for the implications that they will bring in terms of expansion and growth. Even if the plan is accepted, we must look at new constructions, additions, and other effects of a growing population on Cape Cod.

Zee then discusses the approval process by MassDEP and how it affects the timing of implementation. There are three levels of approval:

- Pilot: Up to 12 systems, run for two years.
- Provisional: 50 systems, run for three years
- General Approval

The main system, which Zee will discuss in further detail later, is approximately one year away from general approval, mainly due to minor tweaks from the developers. Zee notes that he and his organization, Barnstable Clean Water Coalition (BCWC), do not have a vested interest in the technology being approved. The technology is the best available that BCWC found. This process included using data from the Massachusetts Alternative Septic System Test Center (MASSTC).

Zee begins an examination of Shubael Pond and recent efforts by BCWC to study alternative septic systems in the area. He notes that harmful algal blooms have occurred, and the Town conducted alum treatment in Spring 2023. While alternative septic systems are being installed, there is a lack of comprehensive testing being done. This is addressed in a paper that was handed out during the meeting and will be posted to the Ad Hoc Committee page on Barnstable Water Resources (<https://barnstablewaterresources.com/ad-hoc-committee/>).

Zee shows a map produced by the United States Geological Survey (USGS) that identifies every septic system or cesspool in the Three Bays Watershed. Another map shows where BCWC conducted their demonstration around Shubael Pond. The area was purposefully picked as one with quarter-acre zoning, a working-class neighborhood, and small lots to show that alternative systems on small lots could still be successful.

Zee shows a picture of the system that was installed in the Shubael Pond area. He explains that this system is “everything in one box” for a traditional (1,500-2,000 gallons) residence. This system can handle up to four bedrooms. Zee explains that this system was chosen for numerous qualities, including best-in-class performance, low cost (compared to municipal sewer), modular structure allowing expansion of capabilities and size, and low maintenance. Zee explains that the chamber on top contains a layer of limestone rocks and plastic discs for circulation. The only part of the tank that is a working part is the air pump which allows for circulation of air, causing nitrification. The second section of the tank contains wood chips that provide a carbon source for an anoxic environment, tricking the bacteria into respirating nitrogen. Any wood chip works. Evidence shows that the limestone element lasts between 40-70 years. Woodchips last approximately two decades. Zee notes a test conducted by Ken Foreman of the Marine Biological Labs who placed woodchips into a similar device 15 years ago and the chips continue to work through the present day and are not rotting. The structure of the system allows for an element such as the woodchips to be suctioned out, just like with a septic tank, and replaced.

- Brian Hughes, Vice Chair, inquires if additional/emerging technology could be added to the system.

- Zee responds that additional technology could be added to the tail-end of the system. These can be used to address contaminants of emerging concern (CECs), but those additions still need to be tested.

Zee continues, noting that the system has real-time monitoring, which is relayed to the business owner in the event an issue occurs.

- Rob O’Leary asks what the difference is between the demonstrated system and a classic Title 5 system.
 - Zee explains that there is still a septic tank in front of the system, which holds the solids. The liquids flow into this system. After the liquid passes through, it is sent to a traditional leaching field.
 - Rob Steen, Assistant Director, Department of Public Works, notes that if the system were to be inoperable, there is still a Title 5 system because of the setup, which is not the case in other I/A technologies.
- Rob O’Leary further asks about the space the system would occupy.
 - Scott notes that the lots chosen were small on purpose, and most lots in town are larger.
 - Zee adds that Title 5 mandates excess space, which is designed for the purpose of adding additional technologies such as this.
- Scott notes ongoing testing of solids that may result in MassDEP reducing the size requirement of leaching fields.
 - Rob Steen asks when an opinion on the issue will be heard.
 - Zee states data on the issue is later in the presentation.
- Rob O’Leary asks if the system can be added to the existing Title 5.
 - Scott responds that this was the course of action taken in the neighborhood demonstration.
 - Zee adds that approximately 60% of systems that were part of the demonstration were able to utilize existing, recycled parts such as the septic tank or leaching field. Because of this there is variable pricing, which will be discussed later.
- Glenn Snell inquires what the size of the tank is.
 - Zee responds that the pictured tank is either 1,500 or 2,000 gallons and about half the size of the table in the room.
 - Griffin Beaudoin, Town Engineer, Department of Public Works, notes it is about the size of a normal septic tank, approximately 5’x8’.

Zee continues his presentation by providing details of the Town’s CWMP, noting that there will be lots of “white space”, properties who will not be included in the plan and don’t get treated. BCWC has spent

time looking into ways to address these areas. There is an assumption that non-sewered property owners may want to have a form of treatment on their property. Zee acknowledges the plan is always changing.

Zee shows a map of Cotuit Bay and indicates an interest in areas where the property is close to the water and has a near-immediate effect on water quality. Even though areas may not be included in the Massachusetts Estuary Project Load modeling, it will still be helpful to look at ways to address water quality by using I/A systems. Zee notes that much of the usage in the Cotuit Bay area comes during the summer months, which is expected for the community. He also notes that people living next to the water have a higher likelihood of being able to afford an I/A system.

- Rob Steen notes a recent effort by the Department of Public Works (DPW) to investigate differences between various distances from a water body and if there is a scientific, measurable difference between distances. He asks if the 400 feet that the BCWC utilized was arbitrary or based on some set of data.
 - Zee responds that the 400 feet was not based on data and instead was looked at as the “first step” in the process.
- Rob further expounds that there will likely come a time for the committee to decide where to deploy a system and if there is anything “magical” about certain distances. He remarks that with phosphorus there is a difference at 300 feet. From a nitrogen perspective there is a conversation to be had about what distances are most beneficial.
 - Scott adds that he feels closer is better.
 - Rob Steen agrees that intuitively that feels right, but there is no proof of that.
- Scott adds that, similar to Tisbury and Wellfleet, it may be worthwhile to tie the upgrades to a homeowner initiative such as additions or new constructions. This would not be restricted to distance from water bodies.
 - Rob Steen agrees and notes prior personal experience with replacing a cesspool with a Title 5 system. He reiterates the desire to have a known distance.
- Scott brings up past conversations regarding present value benefits and a return on investment. Thinking about water quality, closer is better. If we can affect change in 3 years versus 30 years, go after the 3-year items.
 - Dan Santos, Director, Department of Public Works, agrees that any nitrogen removed is good. The question is what percentage of nitrogen in a watershed is being removed. The removal of 2% of nitrogen may not make an appreciable difference in the water body, but the removal of 30% would make a significant difference.
 - Zee notes that recent dredging of Cotuit Bay likely changes the math provided.
 - Dan informs Zee that the last look at dredging showed roughly 2% change.

- Amber Unruh, Special Projects Manager, Department of Public Works, adds that the change was insignificant to the water quality.
- Dan adds that the dredging is helpful
- Zee responds that little numbers add up so there's little reason to limit a policy to an area.

Zee shows a time-to-travel map of the Three Bays Watershed, which he acknowledges is a “blunt instrument” and is limited in showing specifics. To Zee, the areas with a less-than-ten-year time-to-travel are low-hanging fruit that should be focused on.

- Rob Steen notes that, even on the same pond, travel times can vary vastly based on which side of the pond you look at.
- Dan asks what the source of the map is.
 - Zee responds it comes from the USGS. Zee acknowledges that USGS is not perfect and cites flow around Shubael Pond that was modeled as going one way but actually going another way. A lot of testing should be done to understand the specifics outside of the model.
- Brian asks if Zee is proposing that the regulation be based upon proximity to, or travel time to, water.
 - Zee responds that it potentially makes sense, but it would likely not be an easy delineation. The committee needs to work smart as well as hard in evaluating these proposals. It will be important to target areas that are the first to contribute to the watersheds, not those that would have an effect in 50+ years.
 - Rob Steen adds that the question is exactly what the committee will chew on, after looking at the various technologies. It will be up to the committee to determine where the target area is, what policies should be enacted, and the timeline for these policies. These are all policy decisions that will have to go before the Town Council or the Board of Health for their deliberation and approval.
 - Zee elaborates that, as a nonprofit, their goal is to look at options and present ideas.
- Tom Cambareri adds that it is smart to look at the issue in this way, to look at ways to remove nitrogen from the out of the embayment. Certainly, this drives a big cost, but the goal is clean water. The chances are the closer to the water you are, the higher the chance of taking nitrogen out by implementing these measures.
- Rob O’Leary asks for clarification on the map and the speed at which groundwater moves.
 - Scott responds that the speed of the water is not a major factor, it is the distance to water that affects the time-to-travel as shown on the map. There is some confusion as some areas indicated as being next to water also have high travel times.

- Rob O’Leary asks about the volume of the affected areas. Some areas on the map are highly developed while others are not. When looking at this, it seems we must focus on both the speed at which the change can come as well as the volume of the changes.
 - Zee responds that it is a fair point. One thing to consider is the question of the Town receiving credit for water taken out of wells, such as the Marstons Mills River that COMM pulls nitrogen loaded water out of.

- Scott notes that one of the advantages of I/A technology over sewer is density. The cost of sewer is heavily influenced by the density of the area being sewerred, meanwhile there is no difference in cost for I/A systems pertaining to density.

- Rob Steen adds that phase three of the CWMP was designed specifically to be further in the future. Alternative work and I/A systems can potentially make the phase three area less important. Some of this may get driven by freshwater needs. Phase three being in years 20-30 allows time to look at alternatives and technologies. Phase three is the least dense, furthest away, and is the most topologically difficult area to sewer. The area is in the plan as it needs to be addressed, but the 5-year updates provide an opportunity to look at alternatives.
 - Zee responds that he believes there should be some mandate to replace existing septic systems with I/A systems and tie it to construction and realty upgrades as previously mentioned. Oyster Harbor, where Zee resides, does not get any upgrades but would still benefit from this plan.
 - Rob Steen clarifies that the reason a proposal like Zee’s did not happen at the onset of the CWMP is that an I/A system addressing nitrogen was not ready for deployment. Additionally, a sewer pipe cannot go across a drawbridge. As technology develops, we can go back and review areas and proposals such as Zee’s.

Zee continues his presentation noting the importance of lessons learned at Shubael Pond. He notes there was 11 mg/L of Nitrogen in the groundwater, which is very high. He references the previously shown graph showing that levels were at 0.2 in the 1960s. The initial model shows water going into the pond, but data shows it is coming out of the pond, solidifying the idea that models are not always correct. Several data points are used by BCWC and USGS for the area and aid the continued monitoring of the area. Zee hopes to get further information about the effects of rain and other factors, what change could occur in groundwater over time. If the math works out, a system that reduces 95% of the nitrogen could get the 11 mg/L down to 1 mg/L (or less). There are implications for recharge and wide adoption.

Zee provides additional details on how often monitoring is occurring, noting that the bulk of the work is done by MASSTC for monitoring of individual systems and USGS for groundwater testing.

Zee shares that there are many partners in this process, including the town.

Zee shows a graph providing data on the median influent and effluent around Shubael Pond. The influent numbers are “extraordinarily high” (87.4 mg/L), much higher than MassDEP’s numbers (35-45 mg/L). The effluent numbers are low (2.9 mg/L).

- Scott notes that this graph integrates summer and winter data. There will be seasonal variabilities, so it is good this graph shows the average.
- Zee notes that the data presented is included in the articles provided to the committee.

Zee shows a graph providing a look at nitrogen removal per year based on water usage. It is a lot, more than we would think. It is good to use this data as a benchmark.

Zee shares a slide providing an overview of published communications regarding I/A systems.

Zee shows a graph listing multiple I/A systems and the removal of nitrogen occurring from each. Zee notes a major issue for the public is lack of knowledge about where to go and who to ask for help. He brings up work from MASSTC for Falmouth, MA which is the data presented on the slide. Zee notes the data is not easy to read, but essentially says the system being used by BCWC is more consistent when compared to other systems. That is part of the reason BCWC chose that system to conduct their tests with.

Zee notes there are additional tools on the MASSTC website that will look at different technologies and allow comparisons between them.

Zee continues his presentation by discussing how the cost of I/A systems can be paid for. This includes a state tax credit limited to full-time residents, lasts four years, and provides up to \$18,000. Not everyone will earn enough to obtain this credit and not everyone is a full-time resident, a requirement for the credit.

Zee provides a breakdown of possible subsidizations and comparisons between sewer and I/A systems. He acknowledges that the numbers being used may not be the most accurate or fair, but they provide a good look at the costs. The \$20,000 Capped cost to Homeowner for sewer connections is based on the \$10,000 sewer assessment and an approximate cost to complete the connection.

Zee shows a graph that shows a similar cost comparison which includes State Revolving Funds (SRF) and Town taxes. Zee notes the access to SRF is unknown at this time, along with access to other grants or loans, so the data presented is hypothetical. Zee requests Scott to provide additional information on how Wellfleet is approaching using SRF funds for I/A systems, which is a critical part of the funding and should be looked at.

- Scott explains that Wellfleet has been successful twice for I/A upgrades, which is the only time the state has allowed SRF funds for onsite systems. When Wellfleet first approached MassDEP, it was not permitted. Wellfleet then asked the question of “Why not?” and started working with MassDEP to get the funds available. Wellfleet is looking at similar cost sharing issues.
- Rob O’Leary questions if there is anywhere else in the state aside from this region that is looking at I/A systems.
 - Scott responds that most of the activity is in the southeast region of Massachusetts. This comes because of nitrogen being primarily from marine waters, and the North Shore having adequate flushing to mitigate the problem.
- Dan notes that SRF is a loan that still needs to be paid for and questions how this process will work for installations on private property.
 - Zee notes this is a big question, how does the state expect to pay for something on private property? We will need to cut regulatory grounds to maintain, monitor, and fund these systems. One disconnect is the idea that, because the system is installed in a household, it only impacts that household. This is incorrect as the effluent returns to the ground and becomes a community issue. He notes that Long Island recently passed a \$6 billion bill to pay for I/A systems.
- Rob O’Leary asks to clarify that, for Tisbury and Wellfleet, the state agreed to use SRF funding and inquired if that was a policy decision or a one-off situation.
 - Scott Horsley responds that Tisbury is not included in this as they don’t have SRF funding yet. The question of using SRF money for private property has been interesting. Wellfleet agreed that the SRF funding can be used to fund the equipment but cannot be used to pay for the installation. Installation will be paid for either by the homeowner or other town financing. The example Wellfleet referenced was grinder pumps in Falmouth, which were initially unable to be under the umbrella of SRF loans.
- Rob Steen notes, in Barnstable, grinder pumps are paid for through betterment. They are not paid by SRF.
 - Griffin adds that to use SRF the town would need an easement over grinder pumps and maintain them.
 - Rob Steen notes there is not a clean path yet, there is work that needs to be done for funding. He segues into a concern over perception of an “either/or” situation. This also feeds into how SRF loans work, as communities are limited to \$50 million per year. The upgrades to the Water Pollution Control Facility are covered by SRF so any additional funding needs would cut into the funding limit for other projects. In an ideal world the state would set up a traditional SRF loan fund and an alternative SRF fund that would be exclusive of each other. They would not be able to cross funds. This would incentivize SRF loans instead of competing for them.

- Rob O’Leary notes that the fight for resources will occur regardless, as different parts of the state attempt to go for the same funds, and these parts of the state may feel it unfair if communities on Cape Cod get more funding than they are entitled to.
- Dan notes the benefit of an SRF loan is an attractive interest rate, but not always. When the market is attractive, SRF loan interest rates can be higher. The other issue is the Cape Cod Collaborative (CCC) pays a subsidy to SRF-eligible projects. Does that apply to this?
 - Scott believes that would be the case, but it has not happened yet.
 - Rob Steen responds to the “competition” comment, noting that the Town is in the fight now. In the last year the Town had the #1 and #3 projects in the state. We are competing well, and it seems that MassDEP has recognized an issue and is putting financial resources into it. Everything discussed needs to be thought out and decided but it is above the Town’s authority.
- Scott noted confusion about the \$18,000 tax credit and readings of the legislation seem to indicate a reduction of the credit for projects that receive state funding. This is something that will be essential to get clarification on and evaluate as a committee.

Zee shares a slide with a cost breakdown of I/A systems in phase three of the CWMP. The data is split into four categories: Properties with Accessory Dwelling Units (ADUs), properties owned by residents of the town, properties owned by non-residents, and properties qualifying for low-income programs. The data for each category includes the cost via a town tax credit, a state tax credit, town subsidy, and homeowner cost.

- Dan asks why the tax credit would be assessed on the value and not on the cost.
 - Zee responds that you get value based on what the assessment is. ADUs add a lot of value to a property.
- Dan asks why you are getting credit for the benefit instead of what is being paid out.
 - Scott believes the \$18,000 is made based on the payment.
- Dan questions where the \$22,000 is coming from.
 - Zee clarifies that the Town, as an incentive, would offer the tax credit. The Town would get this money back over time. This process would also result in the creation of a housing unit which is valuable. He is only playing around with ideas at this time.
- Rob Steen requests clarification on the ADU Option and Residential Option numbers.
 - Zee responds that the Residential Option is “regular” homes, without an ADU and with full-time residents. Approximately 61% of properties in phase three are owned by full-time residents.

Zee continues that the Residential Option-Town Subsidy listed (\$21,422) would need to be funded in some way and amounts to \$19 million. The Residential Option-Homeowner Cost (\$6,578) was calculated at 14.5% of the total cost, which is the same math used to calculate the cost of the sewer. He emphasizes that these numbers can change, and he is trying to look at different options and playing around with numbers. The Non-Resident Option-Town or County Funding Assistance (\$30,000) is the possibility of the Town making a deal with a bank or other entity but still being paid for by the property owner.

- Rob Steen requests to clarify what would be entailed from the Non-Resident Option-Town or County Funding Assistance and that it's not the receipt of a check but instead a 0% interest loan or something similar.
 - Zee confirms that is correct and notes it is difficult as this column is non-residents who still pay taxes. Fairness between residents and non-residents plays a key role in this.
- Rob O'Leary asks why the distinction was made between residents and non-residents.
 - Zee responds that it is because non-residents do not get the \$18,000 tax credit.
 - Scott clarifies you must be a full-time resident to get the tax credit.
- Scott notes that tax credits are attractive because they are the only option with money actually coming into the town. Everything else, such as homeowner taxes, SRF loans, and rental income is just recycled through the community. The tax credits come from off-Cape and go directly into the community. Scott notes discussion about how best to optimize getting the tax credit as it is the only "free" money.

Zee continues that the final category presented is low-income, which he utilized Barnstable County numbers to calculate. Anyone earning less than \$75,000 is categorized as such. For these individuals, it's proposed for the town to cover the entire cost. Zee acknowledges this is overly generous and some individuals may be able to get money back from the state tax credit or otherwise mitigate the cost slightly. When combining the subsidized properties, the cost is around \$35 million, compared to the \$210 million for sewer that the town would pay for. As a town in good financial shape, it may be possible to afford some version of the presented plan and save money.

- Rob Steen notes that the conversation is not purely financial. There are other issues that will drive solutions. On top of everything, we must make the regulatory plan work. It is not a one-for-one swap out. This approach provides a construct to look at options, but there are aspects of phase three that will likely have to be kept. At some point there will need to be a discussion around future pollutants and how to deal with them.
- Zee notes that ADUs reduce the amount of nitrogen removed via I/A systems, so more work is needed to combat that.
- Dan clarifies that an ADU is not just a bedroom.

- Zee verifies that an ADU is a separate structure and notes that the rules for ADUs are not established yet.
- Dan raises concern about lifecycle costs. A sewer system will last longer than a septic system.
 - Zee disagrees with that analysis and points to the reuse of septic tanks at Shubael Pond by BCWC.
- Dan notes that down the road the system will need to be replaced.
 - Zee agrees but states he doesn't know when it will need to be replaced.
- Dan raises the concern of the lifecycle being ignored.
 - Zee states he is not ignoring the lifecycle but does not agree with the 25-year swap out. The failure point of Title 5 systems is the leaching field. If the system produces nearly potable water, which this system does, the failure point resulting in operation and maintenance costs is not what is anticipated by the DPW. All elements of the system, aside from the concrete, can be swapped out.
- Rob Steen identifies that, even if the concrete remains, there is a cost associated with replacing the various elements of the system. The disagreement stems from a debate on the extent of that cost.
 - Zee explains he has not seen firm numbers on the extent of cost.
- Dan notes it appears the data includes a cost of \$0 for usage costs.
 - Zee rebukes that he is not counting the cost as \$0 and is also not treating the cost of municipal treatment as \$0 as there is a cost there.
- Dan notes that users of the municipal treatment system are paying for the service.
 - Zee indicates his assumption that the costs (between replacement of I/A parts and use of the municipal sewer) are approximately equal.
 - Scott notes a prior conversation with John Smith from NitROE® about how to realistically calculate the lifecycle costs. He expresses interest in working with DPW to determine the lifespan of certain elements such as concrete tanks and PVC piping while adhering to engineering standards. He notes there are many septic tanks on Cape Cod that are over 50 years old but is unsure of the “right” numbers.
 - Griffin notes that leaching systems are typically the point of failure for a septic system.
 - Zee notes he is not trivializing the operations/maintenance costs and acknowledges it is something to be looked at.
- Rob Steen ponders if the replacement of parts is an operations/maintenance cost or a recurring capital cost. Operations/maintenance is an entirely different conversation. The discussion at hand lends itself to recurring capital costs, both the timeframe of the cost and the anticipated

value of the costs. This has not been addressed in these presentations. Regardless of these factors, there is a recurring cost that will come at some point as nothing lasts forever.

- Zee redirects his response to Bruce Walton from the Innovative/Alternative Onsite Wastewater Treatment Systems (I/A OWTS) Task Force who explains that after similar previous discussions, replacement costs are part of the cost analysis submitted by Bruce and his team last winter.
- Zee notes this is a topic that needs more discussion.
- Brian asks if the leach field will last longer when using an I/A system.
 - Rob Steen responds that there is no proof, but it is hypothesized that the leach field will last longer in an I/A system.
- Brian asks if that reduces the cost
 - Rob Steen replies that it would potentially reduce the cost.
 - Scott adds that, in addition to lasting longer, the size of the leaching field may also be reduced.
- Rob poses a hypothetical of whether reducing the size of the leaching field works in tandem with or against the life cycle of the leaching field.
 - Scott notes that Brian Baumgart at Joint Base Cape Cod recently submitted a report to MassDEP on this exact issue.
 - Zee notes familiarity with the report, and that the numbers appear to allow the system to go back to a leaching pit that would last “almost forever” as the end product being put into the pit/field is essentially water. He notes that a lot of work is needed to further study this information, and he is not taking the initial indications as fact. The work is being done.
- Tom asks if Zee and his team have looked at disinfection of the bacteria from leaching fields.
 - Zee responds that yes, they have, it is one of the main reasons why a leaching field clogs up.

Zee continues his presentation and shows a map of everyone in the Three Bays Watershed who could possibly get an ADU. There is a lot of potential for ADUs.

Zee displays a chart of Contaminants of Emerging Concern (CEC) and the effects when processed with drip systems, shallow drain fields, and conventional activated sludge treatment. These numbers come from MASSTC.

- Brian requests clarification on the chart and what it is showing.
 - Rob O’Leary notes it shows the removal of the listed compounds.

- Zee responds that conventional activated sludge is a standard municipal treatment plant. There are a variety of effects across the different CECs, so the idea of not getting anything from I/A systems regarding CECs is incorrect, probably. More work needs to be done. PFAS is another conversation entirely. As a nonprofit, BCWC's mantra is "let's not let 'perfect' be the enemy of good". There's no way to reduce everything to zero, but it's worthwhile if we get systems that can do a lot. He also adds the affordability of these systems and notes it is a key concern.

Zee continues to the next slide, which shows the effect of cost and space. If the space could be shrunk by 70%, such as what's been occurring at Joint Base Cape Cod, it equates to an equal amount of cost saving. Zee notes that to achieve the best results, production of the I/A systems needs to be scaled up. Until that is achieved, there isn't much that can be done. This includes many regulatory and real-world questions, including cost. As I/A systems scale up, costs can be expected to go down. He adds that 10% of the cost of I/A systems is engineering costs. However, the process is almost always replacing or adding on to an existing Title 5 system. There are ways to optimize and save money.

- Scott adds that recent conversations in Wellfleet pertain to health regulations pertaining to real estate transfers. There is consideration to give homeowners a year to implement. The idea is to batch a larger number of systems that can then be bid, ultimately saving money on engineering costs.

Zee continues his presentation by noting several challenges to implementing I/A technologies. He notes there is a lack of suppliers. A proprietary system from MASSTC was used at Shubael Pond and was quickly overwhelmed by a waterflow slightly outside of the average 110 gallons per day. He continues down the list, noting regulatory approval, costs, needs for trained personnel, and maintenance costs. He highlights the discussion of working with sewer plans, pertaining to the issue of an existing septic system failing but being sewered in the near future.

- Rob Steen notes there are two mandates for this committee. The first is to write the 5-year update to the CWMP. The second is to "tee-up" policy discussions to be brought to Town Council (or other appropriate board/committee/commission), as the policies are decided by them, not the committee. These discussions should be compiled and brought to the Town Council in a manner of their choosing.
- Scott adds that the committee basically poses the question.
- Rob agrees and notes the committee does not have the authority to make the decision. What we do is bring them up to Town Council and our proposed recommendations, but it is ultimately up to them.

Zee advances to the next slide, showing opportunities of I/A systems including lower cost, rapid installation, targeted locations, and workforce job creation.

Zee concludes his presentation by stating we should do this, and we should do this quickly.

- Councilor Clark inquires if this presentation will be made available to the public.
 - Zee responds yes, Chris Gadd already has a copy and requests it be added to the Ad Hoc Committee webpage.
 - Chris agrees and will work on getting the webpage updated.
 - Zee also requests the papers he handed out to the committee be added to the webpage.
 - Chris agrees.

- Dan inquires if there will be an opportunity for members of the public to ask questions.
 - Scott indicates there will be and inquires if any member of the public in attendance has a question.
 - John Lynch of Centerville asks how far in advance the I/A discussion will reach, noting that properties in phase 1 are already connecting to sewer, and if a property owner wished to use I/A instead of sewer it's "tough luck".
 - Scott responds that the focus has been on phase three, but there is discussion about using I/A in some areas sooner.
 - Councilor Clark adds that this could be applied to properties not scheduled to receive sewer at all.

- Scott further adds that the models produced and used for the calculations are the best they can be but may not be entirely accurate. There may need to be more than just sewer needed to accomplish the goals of the CWMP.
 - Rob Steen notes he has always looked at the CWMP as the minimum to be done. We now have tools that weren't available five years ago. How do we employ those tools to do more?

- Zee notes the timing issue of looking at phase three. Septic systems fail all the time, and the average property in phase three was built in 1977. By the time sewer gets there, septic will likely have been replaced. Looking at the model we can get to properties sooner and have a quicker impact due to shorter time-to-travel.
 - Rob Steen notes an interesting conversation to be held by the committee. There are ways to accomplish what Zee is noting, such as requiring white spaces (not sewer under CWMP) to not put back a Title 5 after failure, or honing this down to those properties in nitrogen-sensitive watersheds not being able to put back Title 5s, or honing to certain distances away from waterbodies not allowing Title 5s. Part of the conversation is the various recommendations to Town Council. The conversation will focus on how and where to employ the technology. There is also the perspective of the average resident who does not have proximity to the issue like those around the table.

Committee Check In

- Rob O’Leary inquires if the Town has the authority to strengthen the requirements.
 - Rob Steen responds that the Board of Health previously would not approve an I/A system related policy without general approval of the technologies from the state, which did not exist when the CWMP was first implemented. He credits the BCWC with doing a large amount of work to get these technologies approved and are about one year away from having the technology generally approved. The committee will need to have the Board of Health come in and have a discussion with them about what they are willing to do. The Board of Health does have the authority to implement these policies.
- Scott notes that the approval letters from MassDEP include a number indicating credit for nitrogen removed. The credit is the monitoring data, according to sources at MassDEP. The data is collected and sent to MassDEP, and we get the credit produced by monitoring data.
 - Dan notes that the Town’s watershed permit does not include this.
 - Scott states it could be on an amended basis.
- Rob Steen notes further discussion to be had of whether to include I/A systems in the watershed permit or just do them because they benefit the community. By not including this in the watershed permit, there is more freedom. If the committee decides it wants to do more, it is understood this is possible.
 - Scott notes Tisbury as being a great example of this as they do not have a watershed permit but have been doing this for three years because they wanted to clean up the water.
 - Rob Steen agrees that doing it outside of the watershed permit is the approach to take.
- Rob O’Leary asks to clarify that it is the Board of Health who would have the authority to make the plan happen.
 - Rob Steen indicates that yes, the Board of Health are the ones with that authority.

Scott Horsley moves the discussion to future meeting topics. There was a discussion of multiple meetings focused on I/A technologies. He questions the group if they would like to continue the I/A discussion in more detail in January, or if they would like to have a presentation on growth from Rob O’Leary.

Rob O’Leary makes a recommendation to combine the two into one meeting. We may not need the whole time for just one item.

- Scott notes the new law regarding ADUs being put into effect this spring. It will be beneficial to discuss this, but he is unsure of who to invite.
 - Rob Steen responds that we could invite James Kupfer, Director, Barnstable Planning Board, to discuss ADUs.
- Scott asks if we would add him to the January agenda.

- Rob Steen notes a concern on time, if too many presentations or discussions are included in one meeting, it stifles the communication that is a key facet of the committee.
- Scott suggests having the presentation on growth at the January meeting and inviting James Kupfer to the February meeting. If there is time in the meeting, we can return to the I/A discussion.
 - Rob notes there will definitely be a return to the I/A discussion. Today's presentation was about what they can do, we now need to discuss whether we want to use them and to what extent.
- Scott asks who can talk to James Kupfer.
 - Griffin indicates he is already in conversation with him, and he has already been made aware of being asked to speak to the committee. He will coordinate with James to invite him to the meeting.
 - Rob inquires if that is for the January or February meeting.
 - Scott responds he would like to have the conversation about growth and ADUs in January as they are complementary. Rob O'Leary previously noted his discussion will likely not take the whole time.
- Griffin asks Scott what he would like James to address.
 - Scott indicates he would like information on the new state law, the Town's existing by-law, and how it affects I/A systems and affordable housing. James Kupfer will likely be interested in, and have input on, the conversation about growth scheduled for that meeting.
 - Rob Steen notes that James Kupfer is currently developing a local comprehensive plan, and it will be good for him to be aware of what this group is discussing.
- Brian Hughes asks if anyone knows if the new state laws will supersede the Town's regulations.
 - Councilor Clark responds that the state law will supersede the Town regulations. There will be a discussion with the Planning Board to bring the Town's regulations into compliance with the State. She also notes that she hasn't heard much "appetite" for ADUs due to the cost to construct. It is not the hot-ticket item as previously expected.

Dan returns to a previous topic, noting that funding for the County's Aquifund program comes from SRF. Scott responds that this leads back to the topic of tax legislation. He is unsure of who the committee would bring in to discuss. Rob Steen notes that Mark Milne, Director, Finance Division, Town of Barnstable would be a good person to discuss the legislation. That could be earmarked for February or March.

Brian points out that there are seven meetings remaining until we need to make a presentation to the Town Council.

- Chris Gadd corrects this, stating that there are seven more months, but the number of meetings is at the discretion of the Chair and Vice Chair. While meetings are currently held monthly, this could be increased in frequency to whatever is needed.
- Scott Horsley, Chair, suggests that at the next meeting we review the original list of topics presented by Rob Steen at the first meeting of the committee.
- Rob Steen provides additional information on the update to the report, namely that parts of the report are perfunctory, such as statistics and data, and won't need to be written by the committee. The hope is to have a draft by early summer of this information for review by the committee.

Councilor Clark suggests compiling a short-list to bring to Town Council. August is budget season, and we don't want to overwhelm the Council. A series of presentations may be worthwhile, letting the Town Council know there are decisions coming down the line, but spreading the information out.

Brian asks if there is something anticipated out of the committee that would request funding for the upcoming fiscal year.

- Councilor Clark responds that she does not, but once budget meetings occur there is not much room left on the agenda. Town Council meetings already go until 1AM.

Rob Steen states that the original intent is for the committee to be done with discussions by the end of August. They can then be brought to Town Council in September through November, for submittal to MassDEP at the end of December.

- Rob asks Councilor Clark if this plan seems adequate.
 - Councilor Clark responds that it seems fine and was just noting that budget season is not a good time to bring in a weighty project and it may benefit from not being dumped all at once.
- Rob Steen notes previous workshops conducted for Town Council in Spring 2024 and could possibly hold a workshop in July or August to inform leadership of where the committee is heading.

Scott notes that for those less familiar with I/A technology, the MASSTC website (<https://www.masstc.org/>) is pretty good and is user-friendly. He suggests visiting this site. He also recommends visiting the Town website on I/A systems (<https://barnstablewaterresources.com/innovative-alternative-onsite-wastewater-treatment-systems/>). It is likely to be a significant part of future discussions.

Brain asks to clarify the end of the committee, which he understands is December 2025.

- Rob Steen responds that it is his understanding that the committee will end at the end of December.

Matters Not Reasonably Anticipated by the Chair

No matters were heard.

Motion to Adjourn

Rob O’Leary moves to adjourn the meeting. Brian Hughes, Vice Chair, seconds. The committee voted unanimously. The meeting is adjourned at 6:50 PM.

Next Meeting: Tuesday, January 28, 2025 at 6:00 PM

Respectfully submitted by Christopher Gadd, Communications Assistant, Barnstable Department of Public Works