

Phase 1/1A Sewer Project

Neighborhood Meeting; Wednesday, June 7, 2023

Question and Answers Session

Question: Is it possible to isolate and quantify the effect of fertilizer and nitrite loading separately?

Answer: Quantification and isolation of non-point source nutrient loading (e.g. septic systems, agricultural and residential fertilizer, etc.) is historically difficult to determine. Testing at each property and/or individual private septic system would be necessary to determine the exact level of nutrient loading these systems are contributing to nitrate contamination. The Comprehensive Wastewater Management Plan (CWMP) therefore utilized Board of Health Title 5 inspection records to determine the failure rates of the Town's septic systems and used that as a gauge for septic system contribution to nitrate contamination.

Question: What is the history of nitrate contamination levels at each of the wells annually since 1985? Does the data indicate fertilizer/septic issues over time or at specific wells such as Wells 2, 4, 6, 7, and 9 in the Raymond Road South Study Area?

Answer: Historical data on nitrate contamination at the Town's public drinking water supply wells is not readily available. There are, however, documented reports dating back to the 1970s/1980s, on file in Town detailing concerns for this.

Question: What is the % of Deerfield Loam in the following areas: 1) Landham Road Study Area, 2) Raymond Road South Study Area, 3) Raymond Road South Sub Area A, and 4) Raymond Road South Sub Area B?

Answer: The % of Deerfield Loam by area for the Landham Road Study Area, Raymond Road South Study Area, Raymond Road South Sub Area A, and Raymond Road South Sub Area B, are as follows:

- 1) Landham Road Study Area: 18%
- 2) Raymond Road South Study Area: 15%
- 3) Raymond Road South Sub Area A: 5%
- 4) Raymond Road South Sub Area B: 52%

Question: How were Title 5 failure rates calculated by the Final CWMP/SEIR?

Answer: Title 5 failure rates were calculated based on available Board of Health Title 5 inspection records. Since Title 5 inspection records were not readily available for every septic system in the Town, Title 5 failure rates were projected for each Study Area based on the number of recorded Title 5 failures in the area versus the number of available Title 5 inspection records.

It should be noted that septic system **replacements** where Title 5 inspections were either not available or did not result in a recorded Title 5 failure were **NOT** taken into account when calculating Title 5 failure rates. Title 5 failure rates were calculated only based on recorded Title 5 **failures**, as indicated in the Board of Health Title 5 inspection records.

Question: Are the Title 5 "failure rates" as calculated by the Final CWMP/SEIR meaningfully indicative of the risk septic system pose to drinking water?

Answer: Title 5 failures indicate septic systems that are not sufficiently treating wastewater effluent before discharging to groundwater. Therefore, Title 5 failure rates, especially in Study Areas within watersheds and aquifers that are

hydraulically linked to the Town's public water supply wells, should be considered indicative of the risk septic systems in those areas can pose to drinking water.

It is important to note, that contamination of groundwater resources can happen without having an on-site wastewater system failure. For instance, in highly permeable sandy soils septic discharges may flow quickly into the aquifer or nearby stream. Also, what may be considered a "properly operating" on-site septic system does not remove (treat) for all contaminants-nitrate being just one example. Consider PFAS, personal care products, pharmaceuticals as other examples that are not fully treated before reaching groundwater resources. There are limitations to what an on-site septic can treat for. The discharge from on-site septic systems leaches to the groundwater and can bring whatever pollutants that were put into the system that were not fully treated to the water resources.

Question: Have the following alternatives been seriously considered? For residential on-site septic systems, perhaps more frequent pumping and inspections? For Route 20, perhaps more advanced on-site septic systems serving a business area with subsidies from the Town to encourage business development and improvement of older existing septic systems?

Answer: As part of the CWMP, wastewater treatment and disposal alternatives were considered for the entire Town. For Study Areas outside of the Needs Areas selected for Phases 1, 1A, 2, 3 & 4, an Onsite Septage Management Plan was recommended, which includes more frequent pumping and inspections of existing septic systems as well as the potential for more advanced onsite septic systems. These alternatives were also considered for the Needs Areas selected for Phases 1, 1A, 2, 3 & 4, but the CWMP ultimately recommended a sewer collection system for these areas as being more beneficial to the preservation and protection of the major target of the Town's drinking water supplies. Additionally, various environmental resources are protected. An additional benefit of the sewer aside from the major goals is the sewer may support some economic development in the Route 20 commercial Corridor.

Question: Is the risk reduction with sewer/wastewater treatment system worth the incremental cost?

Answer: The CWMP recommends the proposed sewer collection system and wastewater treatment plant for the Needs Areas selected for Phases 1, 1A, 2, 3, & 4 because it is believed that the benefits (i.e. risk reduction to the Town's major drinking water sources and various environmental resources are most definitely worth the incremental costs for preservation and protection of these resources. The incremental cost of sewer versus the costs to repair a contaminated drinking water source is minimal. In addition, the aesthetic value alone with protection of the Historic Districts' properties in the Town Center along Route 20/Union Avenue areas (high groundwater in these areas will force large mounded leach fields during repairs/upgrades/replacement of existing on-site wastewater systems) are worth the incremental cost.

Question: Is there any anticipation that the current system will be out of compliance in the near future?

Answer: This is specific to each individual on-site septic system. Chapter 2 of the CWMP Report discusses this in greater detail. The CWMP is a proactive planning project and the Town is under no regulatory order to complete. The CWMP allows the Town to plan for the near term and future with the identification and preparation for potential challenges like, on-site septic system failures, threats to drinking water resources and the environment, additional growth needs and potential for economic development. With the completed CWMP, the Town can develop strategies to mitigate risks and threats, enhance resilience, and ensure sustainable development, while also maintaining fiscal responsibilities for all.

Question: Are systems constructed prior to 1995 considered by the study to be a 'failed system'?

Answer: No. Specific data on the failures are filed in the Sudbury Board of Health Office. All records were reviewed to document failures in the CWMP. Chapter 2 of the CWMP Report documents all of this data.

Question: What is the installation cost per household to connect?

Answer: It would be difficult to gauge at this time the cost for each household to connect to the system. We are still very early in the planning process and the cost can vary depending on several factors, including specific location, distance from the existing sewer line and complexity. The project team will also review grant funding opportunities to potentially off-set some of the cost. Preliminary costs will be developed and shared as the planning process progresses and more specific Project information is readily available.

Question: How does a height/depth plan work into this?

Answer: Sewer systems typically rely on gravity to transport wastewater from higher elevation areas to lower elevation treatment facilities. The height and depth of the terrain affect the feasibility and efficiency of the gravity flow. When planning a sewer project, the topography needs to be considered to ensure that the sewer lines maintain proper slope gradients for effective flow.

Question: How were the boundaries for the project established?

Answer: The Comprehensive Wastewater Management Plan studied the entire Town and reviewed factors including density, existing wastewater treatment infrastructure, environmental concerns, public health considerations, and the potential for future development. The Comprehensive Wastewater Management Plan assesses the technical, financial, and environmental feasibility of installing a sewer system. It involved evaluating the topography, soil conditions, hydrology, potential routes, required treatment capacity, and cost estimates for construction, operation, and maintenance. The boundaries are not set in stone but have provided a starting point for discussion and consideration. The CWMP Report fully details this process in Chapter 4 and is available on the Town's website.

Question: What would be the life expectancy and capacity of the leaching field at the middle school/ how long would this infrastructure last/ serve the town?

Answer: The life expectancy of a leaching field/groundwater discharge field for a municipal sewer system can differ depending on various factors. However, with proper maintenance and care, a well-designed and constructed leaching field is expected to last for an extended period of time. The recommendation for a membrane bio-reactor treatment system provides a high (micro or ultrafiltration) level of filtering ensuring particulates won't be discharged clogging the system such as what happens with an onsite system.

Question: How will this affect Hop Brook?

Answer: If the Town moves forward with the Phase 1/1A project, Hop Brook would benefit by the removal of harmful pollutants, pathogens, and contaminants, resulting in improved water quality. Nutrient pollution, particularly excess nitrogen and phosphorus, can have detrimental effects on water bodies, leading to issues like eutrophication and harmful algal blooms. Sewer systems that include advanced treatment processes can help remove or reduce nutrient loads from wastewater before its discharge, thereby mitigating the negative impacts on local waterways. The project is anticipated to have a positive effect on Hop Brook, the Concord River, and the Merrimack River.

Question: How much will this cost the town, households, and what is the funding plan?

Answer: At this point in time, preliminary estimates for the capital costs of the Project have been estimated in the \$63M range for the purpose of applying for federal and state monies. As the planning progresses and more details of the Project are known, such as surveys delineating topographic conditions, state requirements for permits are identified, responses to state and federal grant applications are known and more, costs will be calculated and updated as the Project progresses. This will include developing individual cost estimates for each property included in the Project.

Question: Placement of the pump station is listed across from a pond, are conservation/wetland regulations being waived?

Answer: No, the Town would need to follow the same process for permitting through the Conservation Commission, Board of Health, and the Massachusetts Department of Environmental Protection. This application generally includes the project design, an environmental impact statement, and other required documentation.

Question: Is the Town of Sudbury Select Board ready to commit the cost?

Answer: At this time, definitive costs have not been developed as there is more detailed information needed during this planning process. As explained in previous responses, costs will be developed as more information is known specific to the Project, permits required, state and federal funding requests are known, as well additional information that is specific to the Projects' sites. The Sudbury Select Board unanimously voted to accept the CWMP, which includes very preliminary costs estimates. Nothing beyond this step has been taken.

Question: Would the sewer line be under water, what is the experience with that?

Answer: At this time of the planning process, we do not know which sections of sewer, if any will be underwater. If there is any section of sewer that may cross a stream, etc., there are provisions that apply and provide a safe and reliable method to do so. It is not uncommon to use techniques such as directional drilling and/or dewatering measures to address the construction impacts of groundwater. This also requires significant permitting from both the Conservation Commission and MassDEP, which will mandate specific methods of construction to ensure safe and reliable conditions. Refer to Chapter 7, page 7-16 of the CWMP Report for specific information relative to this. Sewer pipe is designed to be watertight from the inside out and the outside in. We have experience using a pressure pipe for deep sections of sewer that may be underwater that is a thicker pipe and a more robust gasket at each joint.

Question: What's the risk of failure at any one of these places?

Answer: There is always a risk with any water or wastewater project, especially when crossing a body of water or near source water. To mitigate the risks, a thorough review of site-specific conditions including soil type, presence of other utilities, depth, and length of the crossing, among other factors is performed. The pipeline is thoroughly tested and inspected before, during, and after installation to ensure its integrity. Refer to Chapter 7, page 7-16 of the CWMP Report for specific information relative to safe and reliable construction in and around water resources. MassDEP has specific standards to be met for any lengths of pipe that are located in the vicinity of a drinking water supply.

Question: Is there a plan to have a resident/town led committee to assist in the planning and outreach regarding this project?

Answer: At this time, this has not been determined. It is a great suggestion for the Select Board and DPW as the Project moves forward.

Question: How many individual homes are on the planned route, and what % of the town is covered by this project?

Answer: Specifically, for Needs Areas 1 and 1A, there are approximately 300 parcels, that include both residential and non-residential. This is about 4 percent of the overall Town parcels per the assessor Database records. Chapter 4 of the CWMP Report fully details this statistical data for each Study Area evaluated and this encompasses the whole Town. Both areas identified as needing an off-site wastewater solution, as well as those areas recommended to remain with on-site wastewater systems are detailed.

Question: What is the cost to the Town of Sudbury and the individual property owners?

Answer: As is stated in several previous sections, final costs have not been estimated as there continues to be significant planning efforts that need to be completed. Once the planning is complete, preliminary design phases will begin to estimate costs, both capital and operation and maintenance. The costs will be an ongoing calculation as the design progresses. In the final design phases, we will have a better idea of the cost to the Town of Sudbury and what individual property owners might incur.

Question: How will this be funded?

Answer: The project team is continually reviewing grant opportunities, low-interest Massachusetts State Revolving Fund (SRF) programs, as well as funding from the Town depending upon the approval through a future Town Meeting vote. The CWMP itself was funded through the SRF Program at 1.5 percent interest over 20 years.

Question: Why is this project being done if nothing right now is out of compliance?

Answer: It is important to note that existing on-site septic systems do not have to be in failure mode to impact groundwater resources. The on-site systems do not filter ALL pollutants out of the raw wastewater before discharging back into the ground and eventually reaching groundwater/water resources. A major concern with on-site septic systems that are operating in the resource areas for the Town's drinking water supplies are of utmost concern. There is potential for degradation from on-site discharge to impact these areas, which will significantly impact the Town's drinking water. Refer to Chapters 2 and 4 of the CWMP Report for full details. The CWMP planning considers protection and preservation of the Town's drinking water supplies as its ultimate goal with the sewer plan included therein.

In addition to the preservation and protection of the drinking water resources in Town, the CWMP plan includes provisions for the protection of public health for the community, as well as a multitude of provisions to provide protection for the proposed infrastructure's long-term sustainability itself. Refer to the Executive Summary and Chapter 2 of the CWMP for lengthy discussions on this subject.

Question: What are the specific long-term benefits?

Answer: The long-term benefits include most importantly the preservation and protection of the Town's major drinking water supplies. The sewer plan included in the CWMP provides improved public health with the proper treating and disposing of wastewater, thus reducing the risk of diseases caused by pathogens in sewage. Properly treated wastewater is environmentally sound in its protection of the physical environment. While the main goal of the CWMP is to preserve and protect the Town's major drinking water supplies, an additional benefit may be seen with economic development in the Route 20 Corridor portions of the Needs Areas. Wastewater infrastructure in this commercial corridor may serve to provide those non-residential parcels with the ability to fully utilize their properties to the full potential allowed under zoning, thus generating additional tax revenue for the Town. This additional revenue serves to lessen the tax burden on the residential areas of Town.

Question: Why is this system preferable to what is in place now?

Answer: Again, this speaks to the response above that on-site septic systems do not treat all pollutants, thus have the potential to degrade groundwater resources and/or the environment. Even a properly operating on-site septic system has the potential to degrade the groundwater resources with pollutants that are not treated fully. A Municipal sewer system is designed with state mandated treatment capabilities (Groundwater Discharge Permit limits detail the limits mandated) to eliminate the potential for any discharge to impact public health and/or the environment. Refer to Chapter 2 of the CWMP Report for a more detailed discussion on this topic.

Question: When will design become more concrete in the timeline, and when will public input be sought?

Answer: We will consistently be performing outreach and engaging the community throughout the life of the Project. The Town has created a website, www.sudburysewerproject.com, to ensure that all information relating to the Project is gathered in one convenient place for all to access. An email distribution list, located at sudbury.ma.us/cwmp/email, has been established and we ask that anyone interested in the Project subscribe for updates, If you have a question, you can reach us at sewerproject@sudbury.ma.us.

We will also be posting information on our social media pages, facebook.com/SudburyDPW and are planning on attending various community events to discuss the proposed project that will be advertised and posted well ahead of the event.