

# Section 1

## Introduction

### 1.1 Project Background

The Town of Littleton is conducting a sewer needs assessment project in order to preserve its water and land resources, and to promote smart economic growth.

The Town has evaluated installing sewers in the Littleton Common area for a number of years, with wastewater planning efforts dating as far back as 2010. During the October 2019 Special Town Meeting, residents of Littleton passed two significant articles related to the Sewer Project.

- The Home Rule Petition authorized by May 6, 2019 Annual Town Meeting was amended to transfer the supervision and control of the sewer district from the Board of Selectmen to the Board of Water Commissioners. On January 13th, 2020, the Littleton Board of Selectmen unanimously voted to petition their state legislators to amend the special act and officially assign supervision and control of the sewer district to the Board of Water Commissioners.
- The Board of Selectmen, in consultation with the Board of Water Commissioners, were authorized to select and purchase land for the purpose of a sewer treatment facility.

### 1.2 March 2020 Peer Review

The Board of Water Commissioners and Littleton Electric Light and Water Department (LELWD) hired CDM Smith to conduct a peer review of key sewer efforts completed prior to October 2019. CDM Smith's scope included reviewing a hydrogeologic evaluation, a wastewater treatment facility siting analysis, and a finance plan.

#### 1.2.1 Hydrogeologic Evaluation

CDM Smith reviewed the Hydrogeologic Evaluation Report submitted to the Massachusetts Department of Environmental Protection (MassDEP) in 2018 for the purpose of obtaining a groundwater discharge permit at the Littleton High School property (the Site). Effluent from the proposed treatment facility was proposed to be recharged at this site. CDM Smith's review noted the combination of high hydraulic conductivity values with high recharge values utilized in the groundwater model estimated less mounding at the site, which could present a risk to the Town, if not confirmed. The values chosen for these two parameters were based on limited data and therefore carried a high degree of uncertainty. The review included a recommendation for further field verification testing, use of more conservative estimates, if needed, and conducting a sensitivity analysis before making final recommendations as to recharge area capacity and impacts.

Hydrogeologic recommendations included:

- Perform slug testing of two wells and analyze the results to estimate hydraulic conductivity. If the results of the hydraulic testing determined hydraulic conductivities to be significantly lower than those used in the analysis documented in the Hydrogeologic Evaluation Report, it was recommended that the groundwater model calibration be revisited and treated effluent recharge scenarios be re-run to determine a more reasonable estimate of the site recharge capacity. It was recommended LELWD invest in the preparation of hydraulic groundwater maps showing geographically the simulated depth to water contours for both present-day and future (with treated effluent recharge) conditions.

LELWD moved forward with CDM Smith’s recommendation to perform two additional field slug tests at the discharge site. Results of these slug tests performed in March 2020 determined that the 250 ft/day hydraulic conductivity value used in the topmost layer of the groundwater model documented in the Hydrogeologic Evaluation Report is likely appropriate to represent this formation and the predicted response to recharge at the proposed Littleton High School site is reasonable.

### **1.2.2 Wastewater Treatment Facility Siting Analysis**

CDM Smith reviewed sewer planning documents including parcel inventory maps and tables, and siting analysis memoranda. The siting analysis was performed to identify locations within Town that may be suitable to host the proposed Community Water and Energy Resource Center (CWERC). The first phase of evaluation used GIS to eliminate parcels from consideration. Factors were then used to narrow down the recommended sites. CDM Smith provided comments on the rating categories and on the individual sites considered. Overall, the peer review found that some important siting considerations were not included in the rating system, in particular the site selection was exclusive of any cost considerations.

CDM Smith recommended that the LELWD define the purpose of the Town’s future wastewater project to help better determine the sewer service area. It was recommended that the Town identify environmental and water quality factors in addition to economic factors as part of the wastewater planning process. This includes a full town-wide needs assessment. Once the wastewater needs areas are identified, the Town would have a more complete understanding of their anticipated wastewater flows and they could evaluate appropriate collection and treatment system technologies. After technologies are chosen, a siting analysis could be performed for the wastewater treatment facility (WWTF).

This recommended town-wide analysis is the best option for the Town to develop their Recommended Plan that meets the needs of the community from both the water quality and economic perspectives and has led to the Sewer Needs Assessment Project.

### **1.2.3 Peer Review of Finance Plan Summary**

CDM Smith’s review determined that overall the finance plan appears to be optimistic in regard to potential revenue streams that will fund a major portion of the program as proposed. The overall project cost is reduced based on several projected grants, which are not confirmed to be received. The status of those grants is unclear as well as the constraints on their use that may exist. The

proposed betterment values and sewer user rates were significantly higher than the state average and the opt-in and opt-out policy to connect to the wastewater system will also reduce the customer base and decrease the affordability of the project finances.

CDM Smith recommended that the Town perform a detailed cost estimate for the finance plan components, review the economic impacts of the opt-in/opt-out policy, see if the needs assessment identifies areas to potentially increase users of the sewer system, and review reliability/viability of grant funding. These items are being reviewed as part of the Sewer Needs Assessment Project.

## 1.3 Scope of Work

The scope of work included in the Sewer Needs Assessment Project includes six (6) tasks.

- Task 1 - Review and Confirm Wastewater Needs
- Task 2 – Review Collection and Treatment System Technologies
- Task 3 – Siting of Wastewater Treatment Facility
- Task 4 – Identify Alternatives for Needs Areas
- Task 5 – Develop Recommended Plan
- Task 6 – Technical Memorandum

## 1.4 Project Data

The Town of Littleton provided CDM Smith with datasets to complete the Sewer Needs Assessment Project. Data included the following:

- Water Quality Data was provided for the Clean Lakes Commission sampling from 2016-2019.
- Littleton Water Department sampling results were also provided for the Littleton Drinking Water Wells from 2017-2019.
- Littleton Water Customer Usage data was provided by parcel for 2015-2019.
- GIS layers:
  - Littleton Common Sewer District
  - Existing Sewer System Infrastructure
  - Aquifer Zone Overlay
  - Drinking Water Well Locations
  - Drinking Water Distribution System

- Water Resource Zoning Overlay District
- Littleton Base Zoning
- Recently Revised Zone II for Beaver Brook Wells
- Wastewater Treatment Facilities (Package Plants) located in Littleton

Additional GIS layers that were obtained from MassGIS include the following:

- Assessor's Parcel Mapping
- Landuse
- Zone II layer

## 1.5 Project Interviews

CDM Smith conducted interviews as part of the Sewer Needs Assessment Project. Meeting minutes from the following interviews can be found in Appendix A.

- Town Planner, Maren Toohill, on April 14, 2020
- Conservation Commission on June 11, 2020
- Board of Health on June 18, 2020

## 1.6 Sewer Working Group

A Sewer Working Group was created by the Littleton Water Department to review, evaluate, and present information to the Board of Water Commissioners. The members meet on a regular basis and participated in meetings throughout the Sewer Needs Assessment Project. The members of the Working Group as of August 13, 2020 include:

- Bruce Trumbull, Board of Water Commissioners
- Dick Taylor, Board of Water Commissioners
- Chase Gerbig, Board of Selectman
- Paul Glavey, Board of Selectman
- George Sanders, Resident
- Nina Nazarian, Town Administrator
- Chris Stoddard, Littleton Highway Director
- Nick Lawler, LELWD General Manager
- Dave Ketchen, LELWD Assistant General Manager

- Kevin Hunt, LELWD Water System Manager
- Corey Godfrey, LELWD Environmental Analyst
- Paul Denaro, LELWD Production Supervisor