




## Memorandum

**Date:** February 13, 2026

**To:** William Young, Water Superintendent, Bridgewater, MA

**From:** Helen Gordon, P.E., Principal, Apex Companies, LLC   
Kevin Rathbun, Senior Project Engineer, Apex Companies, LLC

**CC:** Azu Etoniru, DPW Director, Town of Bridgewater, MA

**Subject:** Encompass Health Rehabilitation Development  
Water System Impact Analysis

### Background

Apex Companies, LLC (Apex) reviewed the proposed development for the Encompass Health Rehabilitation facility near Lakeshore Center to determine its anticipated impact on the Town of Bridgewater's (Town's) water system. Apex utilized the Town's calibrated hydraulic model to estimate anticipated pressures and fire flows at and adjacent to the proposed development.

Apex's analysis is based on correspondence and project documentation, including Design Development Plans and a Project Narrative dated July 25, 2025 prepared by Kimley-Horn and Associates, Inc. The plans show a proposed 8-inch PVC water main with hydrants, gate valves, tapping sleeves and valves, one 4-inch PVC domestic water service, and one 8-inch PVC fire service for the development.

Apex understands that this project is currently undergoing the approval process. The intent of this analysis is to determine whether its impacts on the Town's water system require mitigation or any specific action from the Water Department.

### Water Impact Analysis

The applicant proposes to construct a two-story rehabilitation facility containing a total of 80 bedrooms, approximately 96 bathrooms, various administrative offices, and rehabilitation exercise and equipment rooms. The applicant provided Apex with water consumption data for a comparable Encompass Rehabilitation Facility in Ludlow, MA reporting an average-day demand (ADD) of 2,106 gallons per day (gpd) and a maximum-day demand (MDD) of 3,547 gpd. Apex scaled this consumption based on the building size and configuration to estimate an ADD of 2,443 gpd for the proposed development. Using the Town's average MDD-to-ADD ratio of 1.48 from 2018-2025, Apex estimated an MDD of 3,615 gpd for the proposed development.

### System Capacity

Apex completed a Water System Master Plan (WSMP) for the Town in 2024, which indicated little or no marginal supply capacity against projected demands. This indicates the Town may face a supply deficit if its sources decline in production, sources are offline, or during particularly high demand years.

The WSMP included data from 2018 through 2022. Apex updated the WSMP supply and demand analysis to include average- and maximum-day pumping data from 2023-2025 as presented below.

Table 1 – Estimated Water System Demands

	ADD (MGD)	MDD <sup>1</sup> (MGD)
<b>2018-2025 Average</b>	1.614	2.389
<b>With Development</b>	1.616	2.393

1. The highest MDD in the 2018-2025 data period occurred in 2020 at 2.851 MGD.

According to the Town’s current Water Management Act (WMA) Permit, the Town’s is authorized to withdrawal an average volume of 1.86 MGD through the year 2030. Table 2 below shows that with the proposed development, the Town will have an estimated 0.364 MGD of their permitted withdrawal volume remaining.

Table 2 – WMA Remaining Withdrawal Volume

Permitted Withdrawal Volume (MGD)	ADD with Development (MGD)	Remaining Withdrawal Volume (MGD)
1.860	1.616	0.244

The Town’s maximum permitted daily withdrawal from its active wells is 2.870 MGD. However, due to declining well quality and production capacities, the Town is only able to produce approximately 1.266 MGD. Table 3 below compares the projected MDD, including the estimated development demand, to the Town’s current treatment and supply capacities. Currently, the Town does not have adequate supply capacity to meet the estimated MDD.

Table 3 – Maximum Supply vs. Demand

	MDD with Development (MGD)	Remaining Surplus or (Deficit) (MGD)
Max Permitted Withdrawal: 2.870 MGD	2.393	0.477
Current Supply Capacity: 1.266 MGD	2.393	(1.127)

**These results indicate that without increasing its current supply capacity, the Town cannot meet its MDD.** The Town experienced a significant and prolonged supply deficit in the summer and fall of 2025 which resulted in declining water storage tank levels. The Town subsequently completed the installation of a temporary interconnection with the Town of Middleborough in January of 2026, which remains in use as of the date of this memorandum. **Any additional demands increase both the likelihood and severity of experiencing supply deficits in subsequent summers.**

Water systems must provide adequate supply at all times. As such, it is customary to assess supply in the context of “firm capacity”, or the total water supply capacity when the largest source is offline. The Town’s largest well yield is at Carver Pond Well 2 with an approved maximum day yield of 0.58 MGD. Subtracting this value from the 0.477 MGD surplus noted in Table 3 (at maximum treatment capacity) yields a deficit of 0.103 MGD. Therefore, in addition to restoring full permitted capacity at the existing wells, the Town would need to secure an additional 0.103 MGD to achieve firm capacity.

**Apex recommends that the Town construct treatment upgrades for the Plymouth Street Wells and perform redevelopment or well replacements at the Carver Pond and High Street WTP sources.**

### Anticipated Service Pressures

According to Massachusetts Department of Environmental Protection (MassDEP) guidelines, the typical working pressure in the distribution system should range from 60 to 80 pounds per square inch (psi) and not less than 35 psi under typical service conditions. Additionally, Massachusetts plumbing code states that pressure reducing valves are required for buildings with static pressures over 80 psi.

Elevations for the proposed development range from approximately 68 feet to 73 feet on the North American Vertical Datum of 1988 (NAVD 88). Apex added the proposed water mains and demands to the hydraulic model and performed steady state simulations at typical minimum tank levels, as well as the minimum tank levels observed during the summer 2025 deficit noted above. According to the hydraulic model results, service pressures are estimated to be approximately 71 psi at typical minimum tank levels and approximately 55 psi at the minimum tank levels observed during the summer 2025 deficit. These results indicate the anticipated static pressures meet state guidelines without the use of a booster pump or pressure reducing devices.

### Fire Flow Availability

In accordance with MassDEP guidelines, water systems must maintain a minimum pressure of 20 psi in the distribution system during emergency conditions. Apex conducted available fire flow analyses for the proposed development using typical minimum tank levels, as well as the minimum tank levels observed during the supply deficit in summer 2025.

The hydraulic modeling results indicate available fire flows of approximately 1,500-1,700 gallons per minute (gpm) for the development with typical minimum tank levels and approximately 1,200-1,350 gpm with the minimum tank levels observed during the summer 2025 deficit.

### Conclusions and Recommendations

The hydraulic modeling results project anticipated service pressures within MassDEP guidelines and available fire flows of approximately 1,500-1,700 gpm throughout the development with typical minimum tank levels. Apex recommends the Town confirm with the Fire Department that the available fire flow is adequate for the proposed building type and occupancy.

**Apex's supply and demand analysis indicates that the Town does not have adequate supply capacity to meet current demands at this time. Apex recommends the Town pursue treatment at Plymouth Street and complete well redevelopment or replacement to improve supply capacity at the Carver Pond and High Street WTPs prior to approving additional developments for construction.** Once complete, Apex recommends updating the supply versus demand analysis to determine whether an additional source is required to provide redundancy for its largest source (Well 2).

**Apex recommends that the Town consider a moratorium on future development if it is unable to achieve and maintain a surplus in available water system capacity. The Town recently completed an intermunicipal agreement for a temporary interconnection with Middleborough to help stabilize water storage tank elevations. In parallel, the Town is pursuing emergency treatment installation at the Plymouth Street Wells and evaluating a potential transmission main interconnection to obtain supply from the desalination facility located in Dighton. The desalination interconnection has the potential to provide additional supply beyond the Town's current water withdrawal permit limit.**