



TOWN OF SHERBORN
19 Washington Street
Sherborn, MA 01770

Eric Johnson, *Chair*
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Mr. Michael Busby
MassHousing
One Beacon Street
Boston, Massachusetts 02108

**RE: Proposed 40B—Washington Street Sherborn Homes
Sherborn, MA
MH ID No. 1260**

Dear Mr. Busby:

This letter is in response to your letter of February 24, 2025, soliciting comments from the Sherborn community regarding the proposed 40B project "Washington Street Sherborn Homes". Please note that we requested additional time to respond and in subsequent communications, we agreed to a revised April 22nd deadline. We thank you for your flexibility in this matter.

This letter summarizes background information about Sherborn relevant to the project, the Select Board's overall analysis, and a summary of the issues and concerns raised by municipal boards and committees.

Two maps are attached at the end of the letter for visual reference:

Reference Map 1 is an overview of the entire 18.53-acre parcel owned by Mr. Murchison. His development plan has three phases, dividing this property as follows:

- Four building lots (1 - 4) along Greenwood St., permitted under local zoning regulations. Sale of these lots is underway.
- Two building lots (1 and 2) with frontage on Washington St. for two single family homes to be permitted under local zoning regulations.
- "Washington Street Sherborn Homes", the proposed 40B development of 2 duplexes on 4.6 acres (lot 3), which is the subject of this letter.

Reference Map 2 is the proposed site plan of the "Washington Street Sherborn Homes" project, the subject of this comment letter.

The Appendix includes the verbatim board and committee reports submitted to the Select Board.

I. Background

As you review these comments, we trust that you will bear in mind the specific local conditions in Sherborn that define our approach to all projects that increase housing density, including affordable housing:

Sherborn has no municipal water or wastewater infrastructure. Almost all the Town's residents are served by private wells for water and private septic systems with leaching fields for waste collection and wastewater dissipation. Most of Sherborn, including the property in question, sits on shallow bedrock covered by a thin overburden of soil with frequent wetlands, so siting of septic leaching fields is challenging and critical to maintaining clean well water resources. Thus, when evaluating any new development, all the septic fields in the immediate area need to be considered, to protect the well water safety and health of project residents and existing abutters.

Despite these challenges, Sherborn fully supports affordable and diverse housing development. Our Housing Production Plan (HPP) approved in 2016 and updated in 2022, as well as our 2019 Master Plan, place great emphasis on the need for diverse and affordable housing options.

In 2018, Sherborn adopted a zoning bylaw change that facilitates and encourages accessory dwelling units (ADUs) in single family homes or farms, and we anticipate adoption of the new State law allowing ADUs by right at our Town Meeting later this month. In addition, Sherborn has adopted an "inclusionary zoning" bylaw that requires all new developments of 6 or more units to either include 10% affordable units, or contribute to an Affordable Housing Trust devoted to investment in affordable housing in town. Sherborn has established the "Affordable Housing Trust" to manage funds generated by the inclusionary bylaw and from other sources, to support affordable housing investments by the town.

Sherborn has taken concrete steps toward fulfilling its affordable housing goals. There are currently 48 housing units listed on the SHI: 24 rental and 24 ownership. Eight (8) additional SHI units will be added as current approved 40B projects are completed. In hopes of fulfilling our affordable housing goal of at least 157 (10%) total SHI units without compromising groundwater safety, in 2021 the Sherborn ZBA approved a Comprehensive Permit for a 120-unit Local Initiative 40B rental project in the North end of Sherborn, made possible by a proposed future extension of MWRA water & sewer infrastructure from the adjacent communities, Framingham and Natick. In 2024, a North Sherborn Water and Sewer District was established by the MA legislature and Governor to serve this limited area. The town and the potential project developer are currently in the process of obtaining required approvals (MWRA, MEPA, etc.) and finalizing inter-municipal agreements with the adjacent communities. Note that the proposed Washington Street project is not in the vicinity of the NSWSD and would have no access to MWRA water or sewer.

Despite these efforts, Sherborn is currently not in "Safe Harbor". The proposed project, "Washington Street Sherborn Homes", would add one more affordable housing unit in Sherborn.

II. Select Board Summary and Analysis

Eligibility. The Washington Street Sherborn Homes project appears to be eligible for consideration under Ch. 40B. The development is consistent with the goals and recommendations of Sherborn's Master Plan and Housing Production Plan, in that it responds to the need for more affordable and diverse housing options. It will add one SHI unit as well as 3 smaller "market rate" units that will be relatively affordable in a town dominated by larger, more expensive homes.

We trust that EOHCD will determine whether the Applicant's organizational and financial structure meets the general eligibility standards of the MassHousing program.

Site control. The Applicant now owns the large 18.53-acre parcel between Washington and Greenwood Streets. Approximately 4.6 acres of that parcel will be occupied by Washington Street Sherborn Homes.

Siting and compatibility with surrounding neighborhood. Washington Street is a state highway (Route 16). At the project site, Route 16 is a 2-lane road winding through a forested environment characterized by widely spaced, 1-2 story single-family homes and small farms. The proposed duplexes will be visually compatible with single family homes in the surrounding neighborhood. The buildings will be separated from Greenwood Street abutters by a heavily forested, elevated ridge of land. Thus, they will be out of the sightline of most nearby houses.

The placement of the project on Route 16 is compatible with the general development principle of concentrating development along transportation corridors. However, this location has the same accessibility and pedestrian safety issues as do all residences along this high-traffic road (see below).

Design and layout. The preliminary layout plans show a proposed 2-building footprint whose placement is constrained by wetlands that cross the parcel. The building design is generally compatible with homes in Sherborn and the region.

Public health concerns. Given the dependence on well water of almost all Sherborn residents, the safety of well water is always a concern in Sherborn. There is mounting evidence that groundwater quality is increasingly threatened by nitrogen and chemical contaminants that are known to come primarily from septic system effluent. Thus, the impact of any new septic systems on groundwater resources is a major concern of Sherborn regulatory boards.

Most private wells in Sherborn draw water from deep, unmapped crevasses in the bedrock. A water supply sufficient for a single family home often requires a very deep well (down to 800 ft. or more). Well water quality depends in part on the filtration of wastewater through overburden soils, that remove contaminants from septic effluents before they percolate into cracks in the bedrock below. Thus, the thickness and composition of overburden soils is critical to septic system function. Relevance to the proposed project is detailed in the analyses that follow.

Environmental impacts. The project site has extensive natural wetlands connected to a wetland resource area on an adjacent property. It is critical to maintain wetland resources to ensure

protection of private and public water supplies of the entire area, as well as stormwater management and wildlife habitat support. A specific concern is that the project as proposed involves disturbance of some wetland buffer zone areas.

Analysis of surface water flow in this area after periods of extreme precipitation should also be part of the ZBA review process. It should be noted that current regulations don't take into account the projected future increases in precipitation due to climate change, and planning of stormwater management features along those lines is recommended.

Energy use and sustainability. The Applicant is applauded for the goal of a net-zero energy goal with carbon-neutral features including energy conservation measures and solar panels. The plan does not show proposed locations of solar installations. It will be important to maximize use of rooftops and paved parking areas for solar arrays. Any ground-mounted solar panels must be placed in locations that preserve the existing tree cover.

Public Safety.

Fire Safety – Sherborn lacks a municipal water or fire hydrant system, so responding fire fighters rely on specialized pumper and hose trucks connected to neighborhood ponds or water tanks.

Traffic Safety – The proposed development is located on Route 16, a busy road that handles heavy vehicular through-traffic from surrounding communities toward Route 135, Route 9 and the Mass Pike. This stretch of Route 16 is a 2-lane, curved country road with no sidewalks. Driveway design and landscaping should ensure safe sight lines for vehicular ingress and egress of project residents, as well as passing vehicles. It should be noted that like all residents along this road, the project residents would be entirely dependent on their cars to get to stores, services or other amenities. Assuming that future residents may include families with children, the final project design should include a turnoff area for a safe school bus stop.

Pedestrian and Bicycle Safety - There are currently no safe pedestrian or bicycle routes in or out of the project site, other than a rocky hiking trail along an easement to Greenwood Street. The applicant is committed to maintaining the trail easement across the property. It is understood that the exact location may be altered, but the easement must continue to provide a pleasant and safe route for pedestrians and residents.

Washington St. (Route 16) in this area has no sidewalks or bicycle lanes. Old Orchard Street intersects Washington Street at a distance from the driveway of this proposed project, across from one of the separate building lots owned by this developer. The final plan should include a walkway that allows project residents of all ages and abilities to walk to a point directly opposite Old Orchard Rd, where they could cross to the sidewalks of the adjoining Orchard Road neighborhood and the Bailey Trail system. Pedestrian crossings at this dangerous site will occur and should be anticipated. A crosswalk with user-activated flashing light could serve this project, as well as the adjacent lots and users of the trail easement, to connect to walking opportunities in nearby neighborhoods.

Public school system impacts. The Sherborn community welcomes addition of diverse and affordable housing options in town and will welcome more diversity in its school population as a benefit to our entire community.

III. Summaries of Comments from Town Boards and Committees.

The key comments and concerns are summarized below. (Please also refer to the Appendix). The Select Board unanimously supports the inclusion of all comments, but specific opinions expressed should be attributed to the originating Board/Committee.

Planning Board

The Planning Board is supportive of the project for several reasons:

- It fits within the goals of the 2022 Housing Production Plan in providing diverse housing options and adding an affordable housing unit to the Town's Subsidized Housing Inventory.
- The inclusion of energy efficient features and sustainable practices are positive aspects of the project.
- Construction of smaller homes and duplex styles provide more naturally affordable options and can help preserve open space.
- The two duplex buildings will harmoniously fit within the landscape, with the visual impact of two single family homes.

Board of Health

The Board of Health raised concerns about the project's septic system plans and projected impacts on drinking water quality.

- The site has shallow soils overall, offering less filtering and cleansing potential for septic system effluent. The depth of soil above bedrock and depth to groundwater is crucial, because septic systems rely heavily on the soil above groundwater for decontaminating the discharged wastewaters. Naturally deposited soils above high groundwater at the site (i.e., the water table) are shallow, measuring between 2.9 and 3.3 feet thick. This does not meet either Sherborn's requirement for the minimum separation between the soil absorption system and groundwater (5 feet) nor the State's Title 5 requirement (4 feet).
- A mounded soil absorption system is planned, to increase the separation to groundwater. Mounded soil absorption systems are substandard for preventing groundwater contamination.
- The proposed septic system is close to wetlands, providing another conduit for contaminants to reach groundwater resources of the larger area.

Groundwater Protection Committee

The GPC has two broad areas of concern regarding the proposal:

- Some GPC comments mirror those of the Board of Health. The hydrogeologic realities of the site raise concerns about the ability of the proposed septic system to adequately filter septic effluent and maintain the quality of local groundwater resources.
- The GPC also focused on documented increases in presence and concentrations of septic contaminants of concern in Sherborn private and public drinking water wells – especially nitrates and PFAS. They cite their recent detailed report documenting the elevated

frequency and levels of these chemicals which are generally found in areas of higher septic system density (see link below). They cite elevated levels of nitrate in samples from private wells located in neighborhoods surrounding the proposed 40B project, as documented in Sherborn BoH files.

<https://www.sherbornma.org/DocumentCenter/View/3347/Groundwater-Protection-Committee-letter-to-Select-Board---Nitrate-PFAS-Septic-Density-92624-pdf>

Conservation Commission

Conservation Commission concerns focused on protecting the ecological and water resource values of the wetlands on the site.

- They note that local regulations require a 125-foot separation between the septic field and wetland resources. The proposed septic field is partly in the wetland buffer zone, at the edge of the vernal pool, and entirely upgradient to both the wetland and vernal pool. Thus, septic outflow will likely have a negative impact on wetland water quality.
- Removing vegetation adjacent to the vernal pool may increase sun exposure, disrupting its ecological function.
- Significant grading within the vernal pool and wetland buffer zones may cause erosion and alter stormwater flow, potentially degrading both.
- Adjusting the locations and/or configuration of buildings and the septic field could protect wetland water quality and prevent pollution.

IV. Select Board Conclusion

The Select Board, along with other town boards and officials, supports the addition of diverse housing options in Sherborn. The duplex building design proposed is visually consistent with the surrounding low-density suburban environment. The tentative layout concentrates disturbance on the small developable area available on this parcel, but adjustments to better protect the wetlands should be explored.

The limiting factor in Sherborn is always the lack of either municipal water or sewer. The vast majority of residents of the town are dependent on groundwater resources, which are limited by hydrogeology over which we have little or no control. Thus, our ongoing challenge is to comply with State mandates as well as our desire for more housing options, while protecting public and environmental health. We hope our analysis of this proposal accurately reflects that challenge.

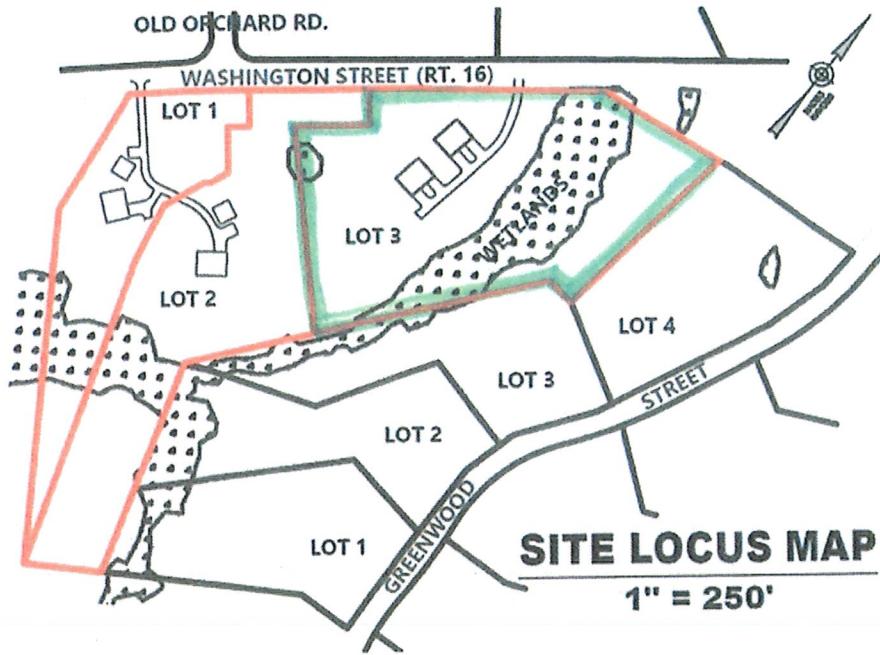
Once again, we are grateful for your willingness to allow delayed submission of this letter, and we thank you in advance for your consideration and review of the Town of Sherborn's comments and concerns regarding this project.

Sincerely,

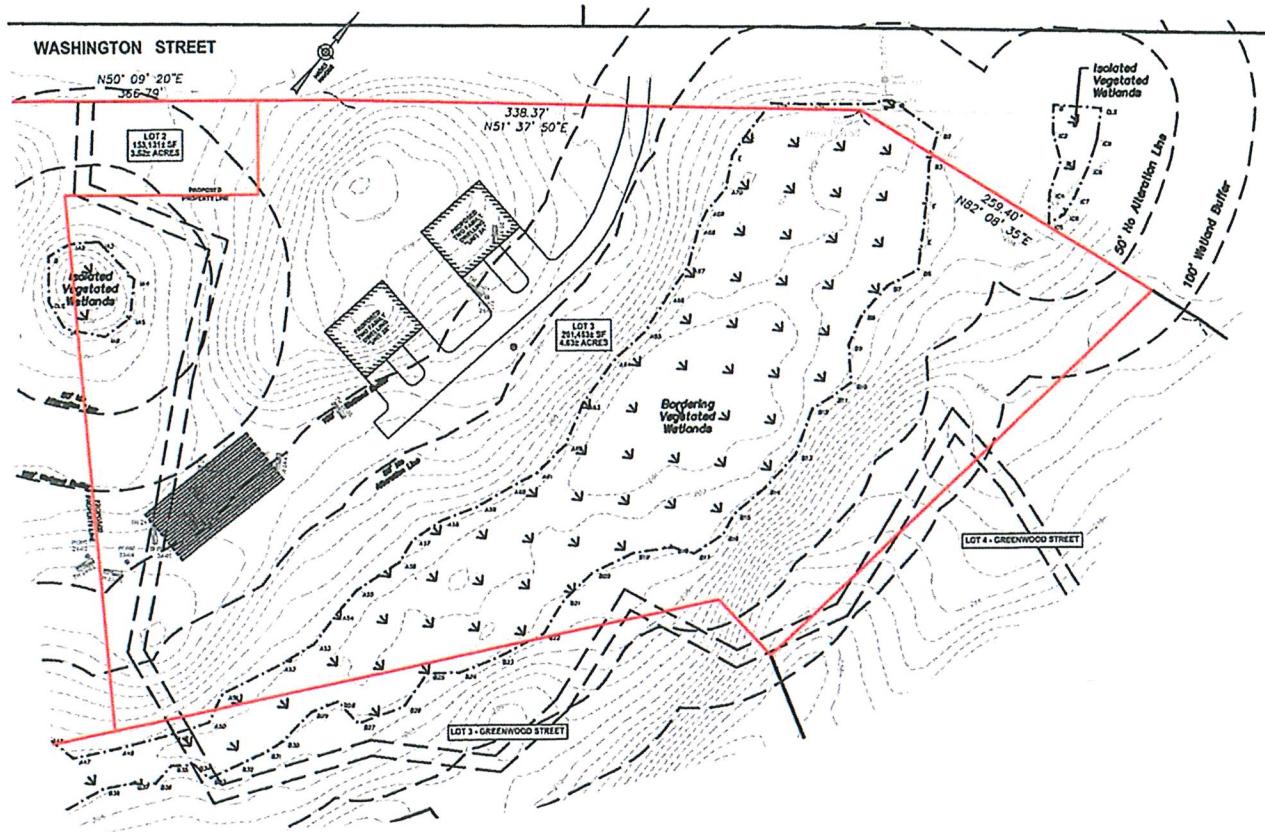
Marian Neutra
Sherborn Select Board

cc: Robert Murchison

Reference Map 1



Reference Map 2



Appendix:
Letters to the Select Board from Town Boards and Committees

Planning Board

Board of Health

Groundwater Protection Committee

Conservation Commission

To: Sherborn Select Board, SB (Eric Johnson, Chair)

Date: April 2, 2025

From: Sherborn Groundwater Protection Committee, GPC (T Trainor, Chair)

Subject: Comments for the SB and MassHousing on the proposed 40B 4-unit Washington Street Homes.

The GPC held a public meeting on Wed March 12th at which time we discussed the recent Select Board request to all town boards/committees for comments on the proposed Washington Street Homes 4-unit 40B development. What follows here is a summary of the initial concerns raised by GPC members at that meeting, one of whom attended the site visit on March 26th. Documents posted to the Town's Land Development webpage for this project as of 4-1-25 were reviewed.

Please know that the GPC continues to be concerned with the acute lack of affordable housing within our community. We encourage the Select Board and all Town residents to redouble efforts to find ways of adding, in a safe and compatible manner, more diverse and affordable housing stock. But the town's lack of a modern public water supply along with no central modern wastewater disposal system, to serve the entire community, bring challenges in constructing more dense developments. With the creation within the past few months of the North Sherborn Water and Sewer District (NSWSD) we do look forward in the coming years to the town meeting the 10% goal of affordable housing units through connecting new multifamily housing developments to safe and reliable municipal water and sewer infrastructure within the NSWSD (MWRA water and sewer lines, through adjacent towns facilities).

Please see our initial comments here, for your consideration in preparing your letter to MassHousing on this project. Three topics of concern were identified with the proposed development:

1. Increase of Septic Density (Number of Housing Units on Septic per acre) in the RB, 2-acre zoning area of Sherborn.

The GPC in a letter to the Select Board of 9-26-24 (included here as Appendix 1) outlined our general concerns of increasing concentrations of two common septic contaminants in Sherborn private and public drinking water wells – nitrate and PFAS. As described therein, we believe that areas of higher septic density in Sherborn are most impacted by this groundwater quality degradation. Our most densely developed area of town, the RA zoning area, 1-acre min lot sizes, showed in one study the highest levels of MA PFAS6 in private wells (Table V, Appendix 1), as compared to the less dense RB, RC zones (2- and 3-acre min lot sizes).

The realization of septic density issues related to groundwater quality are not new, indeed back in 1977 the US EPA reported that a septic system density exceeding 40 systems per square mile (1 system per 16 acres, **or a septic density of only 0.063**) to be at risk of groundwater contamination and considered septic system density to be the most important control of contamination risk from septic systems (ref: [US EPA, 1977, Report to Congress](#)).

The attached GPC comment letter to the Select Board regarding Nitrates, PFAS and Septic Density summarizes a study conducted in 2022 in Sherborn by RCAP Solutions where 41 private wells in Sherborn were tested. 39 percent of the homes tested had Nitrate concentrations at or above 2 ppm. Medical professionals are now finding that exposures from drinking water containing greater than 2 mg/L nitrate concentrations is detrimental to human health.

The relatively new 36-unit development at the Fields of Sherborn on Washington Street shows increasing nitrate levels at its public water supply wells each year in just 4 years of existence. And it is notable that the hydrogeology of the Fields development property is more appropriate for a septic system than the proposed Washington Street Homes property. Depth to groundwater at the Fields property was on the order of 11 to 20 feet below the ground surface, and the soils were noted to be very permeable glacial outwash. Constant Head Borehole Field Permeability testing was conducted to determine hydraulic conductivity for the Fields project.

Specific to this proposed housing development, placing 4 units of housing on 4.6 acres of land translates to a septic housing unit density of 4/4.6, or 0.87 – much higher than the 1 unit per 2 acres, or 0.50 septic density level that currently exists for this RB area. We recommend that septic density be considered and minimized for all new developments in town, following current zoning regulations:

Septic Density/Sherborn Zoning:

RA, min 1-acre lot size, septic density = 1.0

RB, min 2-acre lot size, septic density = 0.5

RC, min 3-acre lot size, septic density = 0.33

Notwithstanding current state MassDEP Title V septic design regulations, and associated Sherborn Board of Health septic regulations, placing a higher density of homes on septic tanks in Sherborn is unsustainable for our town, and will likely require more residents to invest in costly water treatment systems and future maintenance/testing for their private wells, or if ignored, risk unhealthy exposures.

The current 40B proposal is to be developed on a 4.6-acre parcel, that was originally part of a larger 18.53-acre lot. Presented here are two maps (Figures 1 and 2) that indicate the septic densities involved (now approved 6 lots, two with accessory dwelling units):

Figure 1:

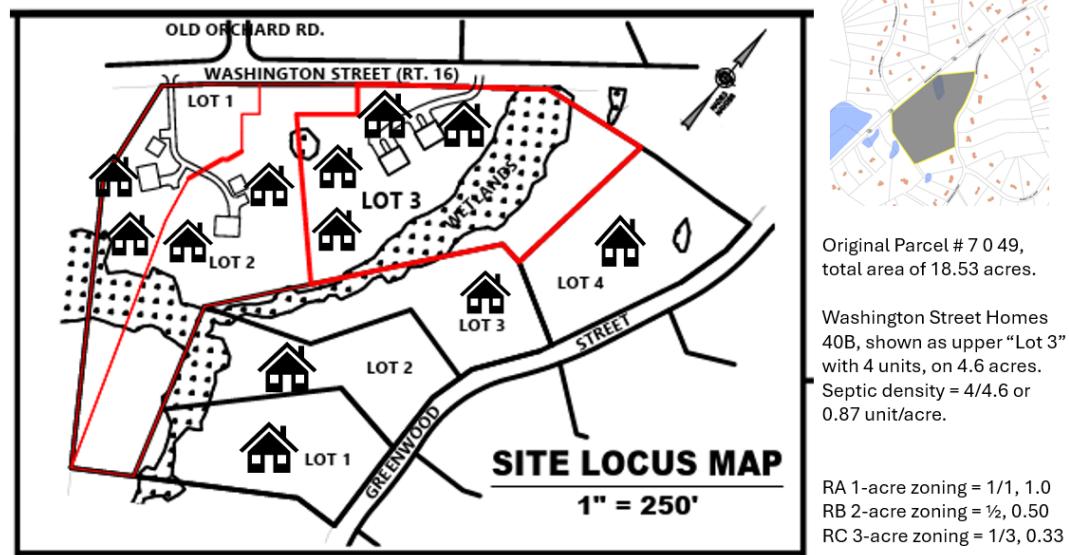


Figure 2:



Original Parcel # 70 49, total area of 18.53 acres.

Total # of housing units now planned or approved for this total area: 12 units.

Resulting septic density of approx. $12/18.53 = 0.65$ unit/acre.

Current Sherborn Zoning:

RA 1-acre zoning = 1/1, 1.0 unit/acre

RB 2-acre zoning = $\frac{1}{2}$, 0.50 unit/acre

RC 3-acre zoning = $\frac{1}{3}$, 0.33 unit/acre

2. Limited Distance to Groundwater for Proposed shared septic leach field.

As shown on the septic plans sent to the Board of Health for this project, test pits at the area of the one proposed leach field for the 4 proposed homes on Washington Street indicate seasonal high water table levels of only 3 feet below the ground surface. We assume the BOH will share with the Select Board in their comment letter more detailed concerns on this topic but suffice to say that maximizing the separation of leach fields to groundwater is paramount in protecting drinking water quality. The artificial mounding of leach fields to meet minimum 4- or 5-ft separation distances, while allowed under certain regulations, are not equivalent to naturally deposited soils, and should be considered for use primarily to bring existing homes with failed septic systems into compliance.

In addition, the depth to bedrock in a test pit within the proposed septic system (TP 24-02) encountered bedrock at 3.5 feet, suggesting that shallow bedrock exists in the area of the site. Shallow overburden soils reduce the treatment efficiency of the natural soils and could exacerbate communication between the septic leachate and the nearby private water supplies. Contaminants travel through fractures in the bedrock at a rapid rate and could reach nearby water supply wells. Additionally, bedrock does not provide the natural treatment processes (biodegradation and filtration, e.g.) of the septic discharge that soil provides.

3. Nitrate Concerns

In addition to the town-wide nitrogen (nitrate) GPC concerns noted above, a resident of the town did a separate and comprehensive study of nitrate and septic issues in Sherborn, and submitted it to the Zoning Board of Appeals, and the document is now posted on the ZBA Land development website (Meredith Wesolowski, May 20, 2024,

<https://www.sherbornma.org/DocumentCenter/View/2491/A-brief-description-of-Sherborns-residents-land-water-and-regulations-May-20-2024>).

Documented and elevated levels of nitrate from private well testing records in the BoH files for homes located in neighborhoods surrounding the proposed 40B project are summarized as figures 15 and 16, on pages 22 and 23 of this 2024 document, which we encourage the Select Board to review this. Several wells in these neighborhoods now have nitrate levels above background levels, even in an area of septic densities at 0.50 (RB 2-acre zoning).

4. PFAS Concerns

As described in the GPC's letter to the Select Board regarding Nitrates and PFAS (attached), MassDEP is concerned with the growing number of private and public water supplies that contain elevated PFAS6 concentrations and conducted a free testing program of private wells in Massachusetts towns where 60% or more of the town relies on private wells for drinking water.

In Sherborn, 62% of the wells tested had detectable concentrations of PFAS6, and 15% of the Sherborn wells tested showed PFAS6 concentrations above the current MassDEP drinking water standard of 20 ppt PFAS6. Since that time, the EPA has lowered its drinking water standards to 4 ppt for the more commonly detected PFAS compounds.

MassDEP and other states' environmental governing authorities have become aware that the primary source of PFAS to groundwater and the drinking water supplies is from septic systems, including significant contributions from residential/household septic systems due to the use of many household products that contain PFAS. Unlike many environmental contaminants, PFAS are called "forever chemicals" because they are engineered recalcitrant chemicals that do not readily break down in the environment through natural biodegradation and other processes as many other chemicals eventually do.

Summary

In summary, the GPC remains concerned about increasing septic density trends in Sherborn, and in some cases about the existing septic density in many areas of Town, including the vicinity of the subject Washington Street Homes development. The site-specific geology, depth to groundwater and other factors need to be considered. In addition, we are concerned about the already documented elevated levels of nitrate from private well testing records in the BoH files for homes located in neighborhoods surrounding the proposed 40B project.



Board of Health

TOWN HALL • 19 WASHINGTON ST. • SHERBORN, MASSACHUSETTS 01770
508-651-7852 • FAX 508-651-7868

MEMORANDUM

TO: MassHousing (Massachusetts Housing Finance Agency)
Sherborn Select Board

FROM: Sherborn Board of Health (BoH)

DATE: April 15, 2025

RE: Comments on Washington Street Sherborn Homes – 40B Project Eligibility and
Public Health Concerns

INTRODUCTION

The Sherborn Board of Health (BoH) takes seriously its responsibility to provide input to MassHousing's decision-making process regarding the suitability and viability of the proposed Washington Street Sherborn Homes project. It is not the role of the BoH to promote or oppose development but rather to guide each project to be supportive of healthful conditions for future residents of the project and for surrounding residents.

For housing developed under Chapter 40B and for market-rate housing, this comes in the form of reviewing the subsurface soil absorption system for robust design and performance in light of site specific conditions. The greatest risk to drinking water in Sherborn comes from inadequate or ineffective wastewater treatment contaminating shared groundwater resources.

An overarching concern of the BoH is that it be permitted to exercise local regulations for this project due to Sherborn's atypical combination of water supply issues, widespread septic system use, shallow unsaturated soils, and extensive wetlands. ***It would not be equitable to reduce public health protections for residents of an affordable housing project.***

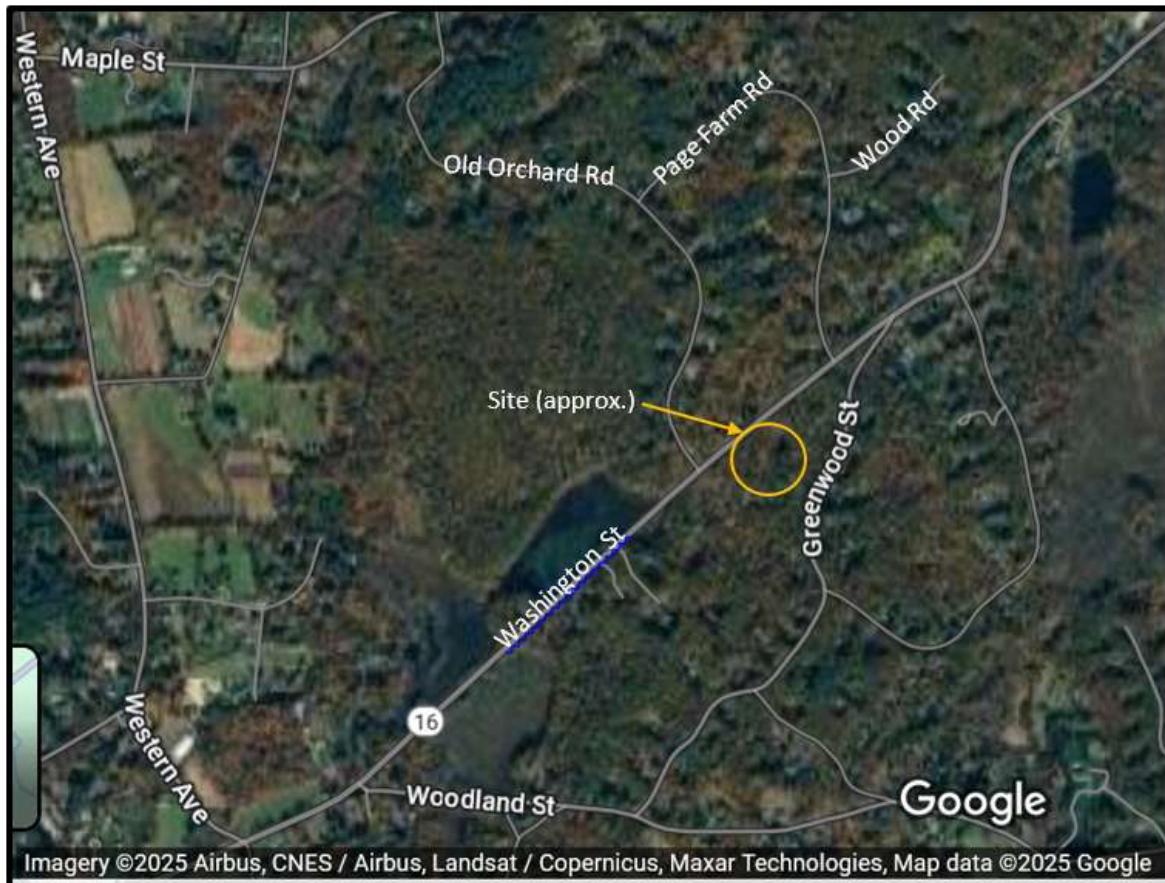
Title 1 of the State Environmental Code, 310 CMR 11.02, makes the following declaration about the appropriateness and right of local public health rules and regulations:

“Unless otherwise expressly provided in any other title, the legally designated health authority of any city, town, county or other legally constituted governmental unit within the Commonwealth having the usual powers and duties of the board of health may, as it considers necessary to promote and protect the health and wellbeing of the particular locality under its jurisdiction, adopt under its own legal power as exists in the General Laws any rules or regulations containing requirements stricter than those contained in this code. Nor should the existence of this code limit or otherwise affect the power of any health authority with respect to any matter for which this code makes no provision.”

Key BoH concerns about the project, including background information, are presented in the remainder of this memorandum.

SUBPAR SEPTIC EFFLUENT MANAGEMENT

Based on this aerial view of the proposed project's location, it may not strike one as an area with environmental quality challenges. However, as a municipality that is and must be constantly attentive to the status of its groundwater supply, *the project's septic system plans, which were submitted to the BoH for review in early March of 2025, pose significant concern about impacts on drinking water quality.*



Surveys and monitoring studies have shown that the risk of surface and groundwater contamination from septic systems correlates with conditions of shallow water tables and close proximity to surface waters and/or fractured bedrock. All 3 of these conditions are met for this site.

In Sherborn, groundwater withdrawal for drinking water and sewage discharge both take place on a project's property. Diminishing septic system regulations to the minimum provisions of

Title 5 for 40B projects creates health inequities for residents of affordable developments, given more rigorous local standards apply to market rate housing across the Town. Future residents of this project, along with their neighbors, should be assured the same protections afforded to all residents.

Although still under review, key BoH concerns about the proposed septic system are identified and summarized in the table below. Background and supporting information follows.

Site or Septic System Characteristics	Risks Posed to Public Health	Sherborn's Standard of Protection for a Water Supply Area
<i>Shallow depth to groundwater beneath the septic system</i>		
Naturally deposited soils above high groundwater at the site (i.e., the water table) are shallow, measuring between 2.9 and 3.3 feet thick. This does <u>not</u> meet either Sherborn's requirement for the minimum separation between the soil absorption system ¹ and groundwater (5 feet) nor the State's Title 5 requirement (4-feet). ²	<p>The most commonly recommended means of reducing bacterial and other pollutant transport into groundwater is to increase distances of soil absorption systems to the water table, thus increasing the chances for capture/removal (by filtering or sorption) and treatment of pathogens and other contaminants.</p> <p>Over time, the filtering and sorption capacity of soils can be depleted so greater soil thickness is important for longer term treatment performance.</p> <p>Furthermore, when pathogens carried in septic effluent reach saturated soil conditions (i.e., the water table) more quickly, they are likely to survive long enough to become a health concern where groundwater is used as drinking water. A 'drying out' period is important for attenuation of pathogens (bacteria, virus, fungus).</p>	Sherborn requires at least 5-feet of naturally deposited soils between the bottom of the soil absorption system and groundwater by reason of the additional cleansing it can provide for septic effluent before it reaches drinking water resources. Adding supplemental innovative or alternative treatment processes are another option, but are more costly to install, to operate properly and effectively, and to maintain.

¹ A soil absorption system is also known as a leaching field or SAS.

² Title 5 requires 4 feet of separation between the bottom of the septic leaching field and maximum high groundwater. Sherborn requires 5 feet, because more soil depth increases the filtering of inorganic chemical contaminants, and allows for the attenuation of biological contaminants introduced by septic discharge. This is appropriate for Sherborn in light of the proximity of drinking water wells. Title 5 is written as a minimum standard suited to minimum risk situations such as municipalities with few septic systems and fully served by a municipal water supply.

Site or Septic System Characteristics	Risks Posed to Public Health	Sherborn's Standard of Protection for a Water Supply Area
<i>Mounded soil absorption systems are subpar for preventing groundwater contamination</i>		
A mounded soil absorption system is planned to increase the separation to groundwater. The material required for use in a mounded system (e.g., Title 5 sand/gravel) is uniformly coarse in order to promote more rapid infiltration of the septic effluent into the ground.	Mounded soil absorption systems are substandard for preventing groundwater contamination. In comparison, more finely textured and complex-composition naturally deposited soils have the ability to filter, absorb, and limit/prevent the transport of microbes and other contaminants to groundwater.	For preservation of drinking water quality, Sherborn only permits the use of mounded systems for repairs/upgrades serving existing homes when site conditions offer no viable alternatives. ³

EXISTING EVIDENCE OF SEPTIC IMPACTS

The concerns identified above are not unfounded:

- In downtown Sherborn (which is also somewhat sparsely developed), one small public water supply that is required by MassDEP to conduct and report routine testing, nitrate levels have nearly reached the drinking water quality limit.
- Through a recent compilation and analysis of nitrate data contained in local BoH records, the following graphic illustrations of that data highlight septic impacts on local groundwater quality.⁴

Nitrate content of groundwater, which is the focus of these illustrations, is considered a definitive marker of septic influence. There is a wide array of other drinking water contaminants of concern, but their presence is less predictable and thus more difficult and costly to track. Nitrate's detection can be used as a proxy for other contaminants.

³ Title 5 allows for mounded systems whereby clean granular sand is specified for use to build up the distance to groundwater. However, sand is intended to disperse effluent and thus also helps viruses and other pollutants present in the septic effluent to migrate farther. Sand is less effective at treatment than naturally deposited soils, since it lacks soil microbes critical to degrading pathogens and the physical/chemical complexity for capturing and filtering nutrients (which, when present, would provide superior biochemical treatment of wastewater).

⁴ Report titled “Preliminary Septic Capacity and Well Water Quality for Properties Surrounding Map 7, Parcel 49”, Meredith Wesolowski, April 18, 2024.

The study area is largely focused on the subdivision to the north of the site (encompassing Old Orchard Road, Page Farm Road, and Wood Road) and Greenwood Street towards Washington Street. As can be seen in the following graphical displays about nitrate levels in the wells of residences, there is a difference in nitrogen levels being detected in the drinking water for each of these areas, with the Greenwood Street area results being generally higher.

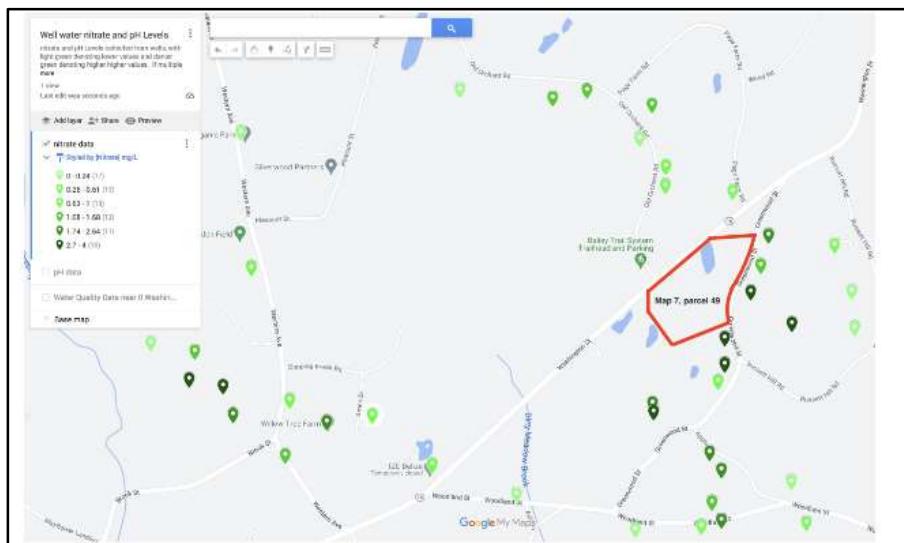


Figure 3: Google-Maps generated locations of surrounding developed properties (green markers) with one or more collected water quality reports. Note that the area directly west of Map 7, parcel 49 includes MassDEP-designated protected wetlands & Town forest and is largely undeveloped. The shade of green reflects the highest detected nitrate level, darkening with increasing mg/L.

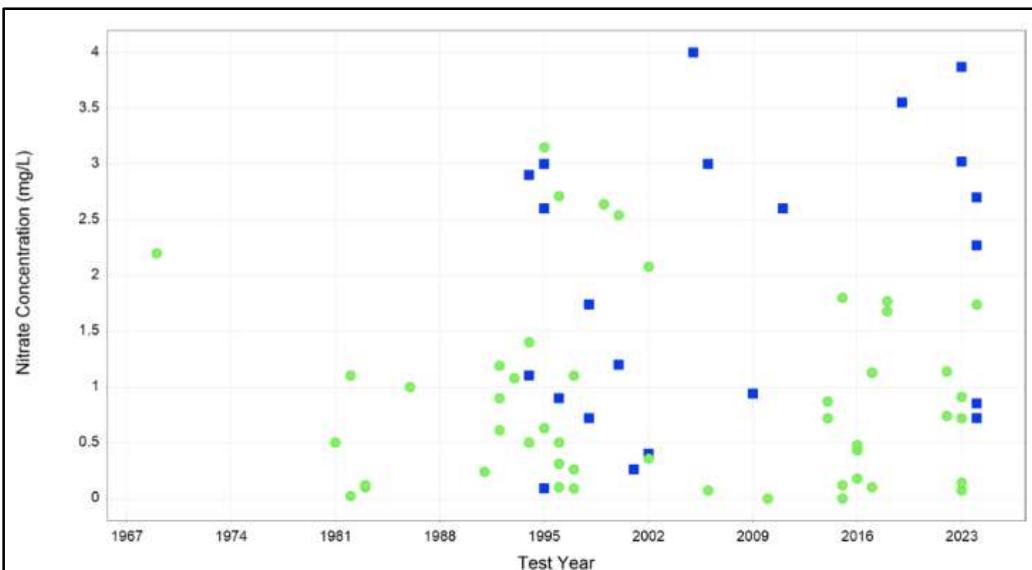


Figure 4: Historic, reported well water nitrate concentrations (mg/L) are plotted against test year for those properties mapped in Fig. 3. Data from selected properties on Greenwood St. are plotted in blue and described below, while data from all other properties are plotted in green.

Since the septic systems along Greenwood Street are newer, on average, than the subdivision to the north, one or both of the following conclusions are possible:

- ***Localized soil characteristics, depth to groundwater, presence of wetlands, and/or bedrock characteristics may be playing a role.*** In other words, the subsurface treatment dynamics closer to Greenwood Street might be less effective at removing nitrogen prior to the septic effluent reaching groundwater.
- More recent development on Greenwood Street means that well test results also tend to be more recent. Under this condition, ***the higher levels of nitrates being measured may be indicative of a trend of rising levels of cumulative septic impacts in the overall area.***

Although the Massachusetts Department of Environmental Protection has established a drinking water standard for nitrates at 10 ppm (parts per million), there continues to be research into its health impacts. A 2018 review and summary of more than 30 epidemiologic studies evaluating drinking water nitrate and health outcomes noted that: “Considering all studies, the strongest evidence for a relationship between drinking water nitrate ingestion and adverse health outcomes (besides methemoglobinemia) is for colorectal cancer, thyroid disease, and neural tube defects. Many studies observed increased risk with ingestion of water nitrate levels that were below regulatory limits.”⁵

According to the Agency for Toxic Substances and Disease Registry (at cdc.gov), “Once a water source is contaminated, the costs of protecting consumers from nitrate exposure can be significant. This is because: nitrate is not removed by conventional drinking water treatment processes; and its removal requires additional, relatively expensive treatment units [EPA 2004].”

Nitrates are certainly not the only septic effluent contaminants of concern. It is logical that where nitrates’ concentrations are rising, so might be the concentrations of other drinking water contaminants. This is particularly true for the types of pollutants that either do not respond to Title 5 style septic systems or perhaps even disrupt the proper functioning of such systems, thus resulting in loss of treatment effectiveness.

CONCLUSION

The Board of Health is not averse to the land at 0 Washington Street being developed but has significant concerns that the installation of a sub-performing septic system at this location will disproportionately and negatively impact the future residents of this project and of nearby homes. Septic systems rely heavily on the soil found above groundwater for decontaminating the discharged wastewaters. For the proposed site of this project, the hydrogeologic conditions limit the degree of treatment possible. The site has shallow soils overall (offering less filtering and cleansing potential for septic system effluent) and possibly shallow depth to bedrock. Also, the system’s proximity to wetlands offers yet another conduit for contaminants to reach groundwater resources.

⁵ Int J Environ Res Public Health. 2018 Jul 23;15(7):1557. doi: [10.3390/ijerph15071557](https://doi.org/10.3390/ijerph15071557)

Residents of Sherborn recognize the importance of sustaining our shared drinking water resource. This concept is clearly recognized in the town's 2019 Master Plan, 2018 Open Space and Recreation Plan, 2018 Climate Change and Municipal Vulnerability Report (2018), and 2023 Climate Action and Resilience Plan. In particular, the Master Plan states:

- “GOAL I is to maintain the long-term quality and quantity of Sherborn’s water resources.”
- “Sherborn’s zoning bylaws reflect the desire of residents to maintain the “rural character” and scenic beauty of the town, ***and the need for protection of crucial groundwater resources.***” [emphasis added]
- “But open space is more than just scenery. It should be considered part of the town’s infrastructure because it provides clean water resources, …”

Sherborn has the distinction of being in a metropolitan area but reliant on a closed water cycle whereby water is drawn from private wells on nearly every property and wastewater is discharged to the same property via a septic system. Near Boston, only Carlisle and Dover are similar to Sherborn in this respect.

SHERBORN CONSERVATION COMMISSION



MEMO

TO: Sherborn Select Board
Jeremy Marsette, Town Administrator

FROM: Conservation Commission

DATE: April 3, 2025

RE: Comments on Washington Street Sherborn Homes (Lot 3)

The Conservation Commission provides the following initial comments on the proposed Washington Street Sherborn Homes project, which includes two duplex buildings, as shown on the design plan titled *"Lot 3 Washington Street, Sherborn, MA,"* dated February 27, 2025.

The site is currently undeveloped and contains two undisturbed wetland resource areas. An Isolated Vegetated Wetlands (IVW) comprised of a vernal pool on the west side of the site that supports amphibian and invertebrate breeding in a fish-free environment, while the Bordering Vegetated Wetland (BVW) on the east side of the site, provides critical functions such as habitat, groundwater recharge, water quality protection, and flood mitigation.

The proposed project includes a septic field, portions of a building and driveway, significant associated grading and landscaping – all within the currently unaltered 100-foot buffer zones of both wetland resource areas.

Given the importance of maintaining an unaltered buffer zone and protecting the ecological value of the wetlands, our primary concerns at this stage include:

- 1. Septic System Impacts** - Water quality impacts arising from the septic outflow from a significantly sized 12-bedroom system, whose field is partly in the BVW buffer zone and upgradient to the BVW. The septic field is at the edge of the vernal pool buffer zone and upgradient to the vernal pool. In addition, there is significant grading related to the septic system in the buffer zone of both the BVW and the vernal pool. Due to residential drinking water wells, the local regulations have a 125-foot separation of the septic field from wetland resources to protect water quality.
- 2. Loss of Vernal Pool Buffer Zone** – Removing vegetation adjacent to the vernal pool may increase sun exposure, disrupting its ecological function.
- 3. Impacts from Grading for Houses, Driveway and Septic System** – Significant grading within the vernal pool buffer may cause erosion and alter stormwater flow, potentially degrading the pool. Similarly, the extensive grading will reduce the protection of the BVW.

4. **Impact to the Existing Trail** – An existing public trail system would cross over the leaching field for the septic system. This would impact the access and use of the trail.

Protecting the values provided by the wetland resources, particularly water quality and pollution prevention, would be improved by adjusting the locations and/or configuration of buildings and the septic field.

In addition, other future concerns will include:

- Buffer Zone Mitigation/Planting Plan
- Roof Runoff – Direct discharge into the wetland buffer could create a point source pollution, impacting water quality. The Commission recommends incorporating stormwater infiltration measures.
- Driveway Location & Sealant Use – The proposed driveway is located within the wetland buffer zone. The use of coal-tar-based asphalt sealants must be prohibited to prevent harmful runoff into the wetlands.
- Chemical Use - On-site chemical use for pest control, vegetation management, landscaping and de-icing should be minimized and selected to minimize environmental impact.



19 Washington Street
Sherborn, Massachusetts 01770

PLANNING BOARD

James T. Guarino

Stefani Harrison

Frank Hoek

Robert Wolff

Addie Mae Weiss, chair

Andrew Goodearl, associate

Heidi Doyle, Town Planner

April 1, 2025

Dear Members of the Select Board and Zoning Board of Appeals,

The Planning Board has evaluated the Washington Street Sherborn Homes application ID: 399 submitted to the ZBA for the affordable housing development under MGL Chapter 40B, located at 121 – 129 Washington Street. In general, the Planning Board is supportive of the project because it fits within stated goals of the 2022 Housing Production Plan in providing diverse housing options and adding an affordable housing unit to the Town's Subsidized Housing Inventory (SHI). We view the project through the lens of the Planning Board zoning and trust the Conservation Commission and Board of Health to address concerns related to wetlands, drinking water and septic requirements.

We are pleased this proposed plan will fit the character of the neighborhood better than the previous plan for a 40-unit LIHTC apartment complex for this same location, withdrawn January 15, 2025. Based upon the renderings of the two duplex buildings, from the street it will harmoniously fit within the landscape with the same visual as two single family homes.

The other positive aspects of this proposed project are the inclusion of energy efficient features and sustainable practices. We are also pleased by the site design allowing the continuation of the Bailey Trail easement for all to enjoy the recreation beauty of Sherborn.

This project highlights the challenges to adding affordable housing in a community. The applicant states the following in their Project Eligibility letter:

The Town of Sherborn has stated in its Housing Production Plan (2022) and again in its Master Plan (2019) that it seeks "more affordable homeownership options including small cottage style homes in cluster developments, condominiums, and townhouses." The applicant believes this proposed community will further that goal.

From a Planning Board perspective, we promote the construction of smaller homes and duplex styles in hopes it will provide more naturally affordable options and in some cases preserve greater open space. We appreciate the Applicant's efforts, and the Planning Board supports this latest proposal for this parcel.

Best regards,


Addie Mae Weiss, Chair

On behalf of the Sherborn Planning Board