

Ref: 9718

August 23, 2023

Mr. Michael B. Silveira
Senior Planner
Town of Hingham
210 Central Street
Hingham, MA 02043

Re: 3rd Traffic Engineering Peer Review
Bishops Lane Definitive Subdivision – 16 Bishops Lane
Hingham, Massachusetts

Dear Michael:

Vanasse & Associates, Inc. (VAI) has completed a review of the July 28, 2023 “Emergency Vehicle Turning Movement Plan” that was prepared by Merrill Engineers and Land Surveyors (Merrill) and submitted on August 8, 2023 on behalf of the Young Family Trust (the “Applicant”) in support of the proposed Definitive Subdivision that has been proposed for the property located at 16 Bishops Lane in Hingham, Massachusetts (hereafter referred to as the “Project”). The subject plan was prepared in response to a comment that was raised in our May 1, 2023 Traffic Engineering Peer Review letter and affirmed in our subsequent July 24, 2023 2nd Traffic Engineering Peer Review letter.

Based on our review of the subject turning movement plan, we are in agreement that the Hingham Fire Department design vehicle is able to access Bishops Lane and maneuver along the existing and proposed sections of roadway within the vehicular traveled-way. As a part of our supplemental review, we have identified a new item that will require further evaluation by the Applicant and pertains to the centerline radius between the existing and proposed portions of Bishops Lane.

For reference, listed below are the comments that were raised in our July 24, 2023 2nd Traffic Engineering Peer Review letter, followed by a summary of the information submitted on behalf of the Applicant, with additional comments or items that remain open indicated in **bolded** text for identification.

COMMENTS

Comment 1: A vehicle turning analysis should be provided using the AutoTurn© software for the Hingham Fire Department design vehicle. The turning analysis should depict all maneuvers required to enter and exit the Project site, and should demonstrate that the subject vehicle can access and circulate in an unimpeded manner, including around the cul-de-sac.

Merrill Response: The requested analysis has been provided and demonstrates that the design vehicle can access Bishops Lane and maneuver along the existing and proposed sections of roadway within the vehicular traveled-way.

Comment closed.

Comment 2: The right-of-way for the subdivision road should be 46-feet for the entire length of the roadway pursuant to requirements for a Minor Street as defined in Table 1 of Section 4.B(3)(a) or a waiver should be requested. The current design maintains the existing 40±-foot wide right-of-way for the existing private way and then increases to 46-feet for the new section of roadway.

Merrill Response: The portion of Bishops Lane that is located within the properties that are the subject of the subdivision (16 & 0 Bishops Lane) will comply with the 46-foot right-of-way requirement for a Minor Street as defined in Table 1 of Section 4.B(3)(a). The first section of Bishops Lane over which access will be provided to the subdivision has an established right-of-way of 40-feet, within which specific improvements will be completed as a part of the subdivision. As such, counsel for the Applicant has opined that a waiver from Section 4.B(3)(a) is not required since the subdivision roadway (extension of Bishops Lane) will comply with this section of the Hingham Subdivision Rules and Regulations; however, to the extent deemed necessary by the Planning Board, the Applicant will request a waiver for the existing section of Bishops Lane between South Street and the subdivision roadway.

VAI Comment: We defer to the Planning Board as to the need for a waiver for the existing portion of Bishops Lane. To the extent that it is determined that a waiver from Section 4.B(3)(a) is required as it relates to right-of-way width, we offer that the granting of the waiver to reduce the required right-of-way by 6 feet (from 46 feet to 40 feet) would not in and of itself result in an impediment to access, circulation or the ability to provide services to the subdivision. The 40-foot right-of-way is sufficient to provide a 24-foot wide roadway (22-feet is recommended) with a 5-foot wide sidewalk along one or both sides and a 6-foot wide (minimum if sidewalks are provided along both sides) utility corridor outside of the traveled-way.

Comment 3: The radius of the center island within the cul-de-sac should be reviewed for compliance with Section 4.B(4)(b) of the Hingham Subdivision Rules and Regulations.

Merrill Response: The center island radius has been reduced from 30 feet to 25 feet to comply with Section 4.B(4)(b) of the Hingham Subdivision Rules and Regulations.

Comment closed.

Comment 4: A sidewalk should be added along one side of Bishops Lane that should extend to South Street pursuant to Section 4.G of the Hingham Subdivision Rules and Regulations. We do not support granting the requested waiver from this section of the Hingham Subdivision Rules and Regulations.

Merrill Response: A waiver has been requested from Section 4.G of the Hingham Subdivision Rules and Regulations pertaining to the installation of a sidewalk along Bishops Lane. Counsel for the Applicant stated that the abutters to the existing portion of Bishops Lane have expressed concern about further encroachment of the roadway toward their properties and the lack of a sidewalk along South Street on the Bishops Lane side of the roadway, and cited a prior decision for 24 Lewis Court where the Planning Board granted a waiver for the installation of a sidewalk for a "similar" 3-lot Definitive Plan.



VAI Comment: We continue to suggest that a sidewalk be provided along one side of Bishops Lane to accommodate pedestrians. The granting of the Definitive Subdivision as currently configured will extend Bishops Lane such that a pedestrian walking to/from South Street will traverse a distance of up to approximately 800 linear feet along a roadway with grades of up to 8 percent grade that will serve as access to seven (7) homes, including a driveway that serves 248 South Street. To the extent that the Planning Board is inclined to act favorably on the waiver, we would recommend that a widened sidewalk area or similar accommodation be provided at South Street to serve as a school bus waiting area.

Comment 5: The centerline grade of Bishops Lane is proposed to range from 4.5 percent to 10 percent, with the 4.5 percent grade at South Street (sloping downward toward South Street). The 10 percent grade is proposed approximately 350 feet south of South Street. The Applicant has requested two (2) waivers from the Hingham Subdivision Rules and Regulations related to the proposed roadway grade. The first request is a waiver from the maximum centerline grade of 8 percent for a Minor Street defined in Table 1 of Section 4.B(3)(a). The second is a request from the leveling area with a maximum grade of 3 percent within 100 feet of an intersection defined in Section 4.B(3)(f). We do not support the granting of both of these waivers as the combination of a 10 percent downgrade transitioning to a downgrade of 4.5 percent approaching South Street impacts the ability of vehicles to stop under all weather conditions before entering the traveled-way at South Street. In addition, the lack of a proper leveling area will also impact sight lines at the Bishops Lane/South Street intersection (sight distance considerations assume that a leveling area is provided on the minor street approach to the intersection).

Merrill Response: The roadway profile has been adjusted to 3 percent within 100 feet of South Street and a maximum grade of 8 percent has been established. That being said, counsel for the Applicant has requested a waiver to allow a maximum centerline grade of up to 10 percent, which is the maximum grade permitted by the Fire Code,¹ in order to limit land disturbance and ledge removal.

VAI Comment: We do not object to the granting of the waiver to allow a maximum centerline grade of up to 10 percent as long as the leveling area within 100 feet of South Street does not exceed 3 percent (Section 4.B(3)(f) of the Subdivision Rules and Regulations).

New Comment: See new Comment 9.

Comment 6: Pursuant to Section 4.B(3)(b) of the Hingham Subdivision Rules and Regulations, a sight distance analysis (intersection and stopping sight distance) should be completed for the intersection of Bishops Lane with South Street following American Association of State Highway and Transportation Officials (AASHTO)² standards and using the higher of the measured 85th percentile vehicle travel speed along South Street or the posted speed limit. We do not support granting the requested waiver from this section of the Hingham Subdivision Rules and Regulations.

¹NFPA® 1, Fire Code, Seventh Edition, National Fire Protection Association®, Quincy, MA; 2015, as amended by 527 CMR.

²A Policy on Geometric Design of Highway and Streets, 6th Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2011.



Merrill Response: A sight distance plan was prepared for the intersection of South Street at Bishops Lane (Sheet C7.7 of the revised Definitive Subdivision Plan) following AASHTO standards and using an assumed approach speed of 35 miles per hour (mph), which is 5 mph above the statutory speed limit pursuant to M.G.L. c. 90 § 17.³ The sight distance plan confirms that a minimum sight distance of 250 feet (recommended for an approach speed of 35 mph) can be provided approaching the intersection along South Street and for a motorist exiting Bishops Lane with the selective trimming/removal of trees and vegetation located at the south (Bishop Lane) side of South Street within the intersection triangle area.

VAI Comment: The Applicant should be required to obtain all necessary rights, permits and approvals required to selectively trim, remove and maintain trees and vegetation located within the sight triangle areas of Bishop Lane as shown on Sheet C7.7 of the revised *Definitive Subdivision Plan*.

Comment 7: The sight triangle areas for the Bishops Lane should be added to the Definitive Subdivision Plan along with a note to indicate: "Signs, landscaping and other features located within sight triangle areas shall be designed, installed and maintained so as not to exceed 2.5-feet in height. Snow accumulation (windrows) located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."

*Merrill Response: The requested note has been added to the revised *Definitive Subdivision Plan* (see Sheet C7.7)*

Comment closed.

Comment 8: A note should be added stating: "All Signs and pavement markings to be installed within the Project site shall conform to the applicable specifications of the Manual on Uniform Traffic Control Devices (MUTCD).⁴"

*Merrill Response: The requested note has been added to the revised *Definitive Subdivision Plan* (see Sheet C7.1)*

Comment closed.

New Comment 9: The centerline radius for the proposed transition between the existing portion of Bishops Lane (40-foot right-of-way) and the new portion of roadway (46 foot right-of-way) is approximately 92 feet, well below the 200-foot centerline radius specified for a Minor Street in Table 1, Minimum Design Standards for Streets, of Section 4.B(3)(a) of the Hingham Subdivision Rules and Regulations. The required 200-foot centerline radius accommodates a design speed of 25 mph for a low volume roadway with a 2% cross-slope. The 92-foot centerline radius reduces the design speed from 25 mph to 18 mph. The impact of the design speed reduction is that a vehicle traveling above the design speed may not be able to maneuver through the curve.

³The statutory or "prima facie" speed is defined in M.G.L Chapter 90, Section 17, as the speed which would be deemed reasonable and proper to operate a motor vehicle.

⁴*Manual on Uniform Traffic Control Devices (MUTCD)*; Federal Highway Administration; Washington, DC; 2009.



The Applicant will need to revise the centerline radius to comply with the requirements of the Subdivision Rules and Regulations or request a waiver from this requirement with supporting justification. To the extent that the Planning Board is inclined to consider a waiver of the centerline radius specific to this case, we would suggest that a minimum centerline curve radius of 107 feet be provided with an adverse cross-slope of 2%, which would accommodate a 20-mph design speed. We do not recommend granting of waivers from both the centerline radius and roadway grade requirements of the Subdivision Rules and Regulations as a steeper grade combined with a tighter radius may have an adverse effect on vehicle maneuvering through the curve.

This concludes our review of the materials that have been submitted to date in support of the Project. If you should have any questions regarding our review, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.



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JSD/jsd

