

Ref: 8978

April 30, 2021

Ms. Christine Stickney  
Interim Planner  
Town of Hingham  
210 Central Street  
Hingham, MA 02043

Re: Traffic Engineering Peer Review  
Proposed Definitive Subdivision – 101 Gardner Street  
Hingham, Massachusetts

Dear Christine:

Vanasse & Associates, Inc. (VAI) has completed a review of the Definitive Subdivision Plan for 101 Gardner Street in Hingham, Massachusetts, prepared by Grady Consulting, L.L.C. (hereafter referred to as the “Project”).<sup>1</sup> The Project site encompasses 4.60± acres of a larger 50.92± acre parcel of land owned by New Boston Gold Inc. that fronts along Gardner Street and will be subdivided into three (3) lots, with a separate lot for drainage (Lot A), upon which three (3) single-family homes will be constructed. Access to the Project site will be provided by way of a new roadway that will intersect the north side of Gardner Street at the location of an existing driveway that serves a detached garage on the subject property.

Sight distance measurements were performed at the intersection of Gardner Street at the Project site roadway in accordance with American Association of State Highway and Transportation Officials (AASHTO)<sup>2</sup> requirements and using vehicle travel speed measurements that were performed on Gardner Street in the vicinity of the Project site on Wednesday, April 28, 2021. Both stopping sight distance (SSD) and intersection sight distance (ISD) measurements were performed. In brief, SSD is the distance required by a vehicle traveling at the design speed of a roadway, on wet pavement, to stop prior to striking an object in its travel path. ISD or corner sight distance (CSD) is the sight distance required by a driver entering or crossing an intersecting roadway to perceive an on-coming vehicle and safely complete a turning or crossing maneuver with on-coming traffic. In accordance with AASHTO standards, if the measured ISD is at least equal to the required SSD value for the appropriate design speed, the intersection can operate in a safe manner. Table 1 presents the measured SSD and ISD at the subject intersection for both the posted speed limit along Gardner Street (30 mph) and the measured 85<sup>th</sup> percentile vehicle travel speed (38 mph).<sup>3</sup>

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<sup>1</sup>Definitive Subdivision Plan, #101 Gardner Street, Hingham, MA; Grady Consulting, L.L.C.; February 26, 2021, last revised April 22, 2021.

<sup>2</sup>A Policy on Geometric Design of Highway and Streets, 7<sup>th</sup> Edition; American Association of State Highway and Transportation Officials (AASHTO); Washington D.C.; 2018.

<sup>3</sup>The prevailing or 85<sup>th</sup> percentile vehicle travel speed measured along Gardner Street was found to be 38 miles per hour (mph) in both directions.

**Table 1**  
**SIGHT DISTANCE MEASUREMENTS<sup>a</sup>**

| Intersection/Sight Distance Measurement              | Required Minimum (SSD)      |   | Desirable (ISD) <sup>b</sup> |   | Measured              |
|--|-----------------------------|---|------------------------------|---|-----------------------|
|  | Posted Speed Limit (30 mph) | 85 <sup>th</sup> Percentile Travel Speed (38 mph) | Posted Speed Limit (30 mph)  | 85 <sup>th</sup> Percentile Travel Speed (38 mph) |                       |
| <b><i>Gardner Street at the Subdivision Road</i></b> |                             |   |                              |   |                       |
| <i>Stopping Sight Distance:</i>                      |                             |   |                              |   |                       |
| Gardner Street approaching from the east             | 200                         | 280   | --                           | --  | 500+                  |
| Gardner Street approaching from the west             | 200                         | 280   | --                           | --  | 500+                  |
| <i>Intersection Sight Distance:</i>                  |                             |   |                              |   |                       |
| Looking to the east from the Subdivision Road        | 200                         | 280   | 290                          | 365   | 289/500+ <sup>c</sup> |
| Looking to the west from the Subdivision Road        | 200                         | 280   | 335                          | 420   | 302                   |

<sup>a</sup>Recommended minimum values obtained from *A Policy on Geometric Design of Highways and Streets*, 7<sup>th</sup> Edition; American Association of State Highway and Transportation Officials (AASHTO); 2018.

<sup>b</sup>Values shown are the intersection sight distance for a vehicle turning right or left exiting a roadway under STOP control such that motorists approaching the intersection on the major street should not need to adjust their travel speed to less than 70 percent of their initial approach speed.

<sup>c</sup>With the selective removal of trees located along the north side of Gardner Street and adjacent to the subdivision roadway.

As can be seen in Table 1, the available lines of sight at the Project site roadway (Subdivision Road) intersection with Gardner Street were found to exceed the recommended minimum sight distances for safe operation for both the posted speed limit and the measured 85<sup>th</sup> percentile vehicle travel speed. In conjunction with the construction of the Project site roadway, the large pine tree to the east of the roadway will be removed, which will increase sight lines looking to the east to over 500 feet. The removal of the subject tree may be subject to M.G.L. c. 87 § 3, the Public Shade Tree Act, and will require additional approvals from the Town before the tree is removed.

In addition to the review of sight lines at the Project site roadway, we offer the following comments for consideration by the Planning Board:

1. A truck turning analysis should be provided for the following design vehicles: SU-30 and the Hingham Fire Department design vehicle. The turning analysis should demonstrate that the subject vehicles are able to access the Project site from Gardner Street and circulate within the development in an unimpeded manner.
2. Consideration should be given to providing a sidewalk along one side of the Project site roadway.
3. The slope of the Project site roadway should not exceed 2 percent approaching Garner Street for a minimum distance of 25-feet in order to provide a leveling area for vehicles exiting the Project site.
4. The sight triangle areas for the Project site roadway intersection should be shown 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 windrows located within sight triangle areas that exceed 3.5-feet in height or that would otherwise inhibit sight lines shall be promptly removed."



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If you should have any questions regarding our review of the Project, please feel free to contact me.

Sincerely,

VANASSE & ASSOCIATES, INC.

*Jeffrey S. Dirk*

Jeffrey S. Dirk, P.E., PTOE, FITE  
Managing Partner

*Professional Engineer in CT, MA, ME, NH, RI and VA*

JSD/jsd

