

*North Woods Subdivision  
South Road  
South Kingstown, RI  
(A.P. 47-2, Lot 120)*

July 27, 2022

### **Proposed Entrance Safe Stopping Sight Distance Report**

#### **Introduction:**

A proposed dead end cul-de-sac private roadway labeled as “North Woods Way” is proposed for the the proposed *North Woods Subdivision*. “North Woods Way” is proposed to be connected to South Road approximately 315 feet north of the intersection of Curtis Corner Road (measured from centerlines of intersections). The proposed subdivision road shall be equipped with a stop sign and painted stop stripe for all exiting vehicles. This report analyzes the safe stopping sight distance along South Road at the location of the proposed “North Woods Way” connection.

Stopping sight distance is the length of roadway ahead visible to the driver. The available sight distance on a roadway should be sufficiently long to enable a vehicle traveling at or near the design speed to avoid colliding with a stationary object in its path. For this report reference is made to *A Policy on Geometric Design of Highways and Streets, 7<sup>th</sup> Edition* (AKA the “Green Book”) by the American Association of State Highway and Transportation Officials (AASHTO) and to *Guidelines for Geometric Design of Low-Volume Roads, 2019* by AASHTO

#### **Calculation:**

The current stopping sight distance criteria in the *AASHTO Green Book* are outlined below:

$$SSD = 1.47Vt + 1.075 \frac{V^2}{a}$$

Where:

SSD = sight distance (ft)  
t = brake reaction time (sec)  
V = design speed (mph)  
a = deceleration rate (ft/s<sup>2</sup>)

A brake reaction time of 2.5 seconds is used, which represents approximately the 95<sup>th</sup> percentile of the observed distribution of brake-reaction times and a deceleration rate of 11.2 ft/sec<sup>2</sup> is used which represents approximately the 10<sup>th</sup> percentile of driver deceleration rates (“Green Book”).

The posted speed limit on South Road for both northbound and southbound traffic is 25 mph and it was observed that typical traffic speeds are on the average of 35 mph for southbound traffic and 25 mph for the northbound traffic due to the close proximity of the existing 4-way stop intersection of Curtis Corner Road. The road grade for the southbound traffic on South Road prior to the proposed intersection is approximately -3% and the road grade for the northbound traffic on South Road prior to the proposed intersection is approximately -4%. Therefore, adjustment factors of 1.0 and 1.1 are assigned to the southbound traffic and northbound traffic respectively (Table 4-11 of *Guidelines for Geometric Design of Low-Volume Roads, 2019*).

The required safe stopping sight distance for northbound traffic traveling 25 mph (rounded to the nearest foot):  $152 \times 1.1 = 168$  feet

**Provided safe stopping sight distance for northbound traffic = 250 feet minimum**

The required safe stopping sight distance for southbound traffic traveling 25 mph (rounded to the nearest foot):  $152 \times 1.0 = 152$  feet

The required safe stopping sight distance for southbound traffic traveling 35 mph (rounded to the nearest foot):  $247 \times 1.0 = 247$  feet

**Provided safe stopping sight distance for southbound traffic = 500 feet**

**Conclusion:**

The proposed location of “North Woods Way” and its intersection with South Road allows for adequate safe stopping sight distance for both the northbound and southbound traffic.

