STATE OF NEW HAMPSHIRE
INTER-DEPARTMENT COMMUNICATION

DATE: October 28, 2016
At: Construction Bureau

FROM: Dean H. Wilson, P.E.
Process Review Engineer

SUBJECT: **Rumble Strip Depth Investigation**

TO: Bill Cass, P.E.
Assistant Commissioner

Memorandum

Due to concerns over the recently completed Statewide 28513 rumble strip/stripe contract, I was asked to investigate the depth of the installed rumble strips. There were basically four routes targeted in this year's schedule; Route 9 in the Southwestern part of the State, Route 102 from Hudson to Raymond, Route 25 and 3A in Plymouth and Route 28 from the Epson Circle to Alton.

My goal was to take centerline depth measurements from selected sections from all four routes in an effort to check for compliance with the Department's plans and specifications. In a couple locations I took edgeline measurement for informational purposes only. Since the machine used for rumble strip installation produces a grooved, textured depression, I thought that it would be a good idea to have a uniform way to accurately measure the depths. Typically our inspectors would use a standard 6 foot ruler and a straight edge to measure depth, which is the accepted industry practice. This method gives a dimension in one spot and may not be reflective of the average depth of the depression. The rumble strip depression on this contract was 12 inches wide and taking cross-slope into consideration, taking a single measurement could result in skewed results. Because of this I constructed a device that would be easy to use and accurately measure the average depth of the depression.

Because we don't have a prescribed method of acceptance testing for rumble strips I employed a method of random sampling to choose locations to take measurements and as with any statistical sampling population, the more samples, the higher the confidence level of the results. In all four of my test section I was somewhat concerned with others wanting to verify the results so in choosing the random spots I tried to reference them as closely as possible to a known landmark, such as a sign, start of a guardrail run, side road, etc… I started at the beginning of each section, parked in the shoulder, and when traffic was clear I approached the centerline and took the measurement. I made no effort to visually look for deep or shallow depressions. It is possible that if looking, someone could find a shallower or deeper depression. I purposely tried to avoid that practice. I am very confident that if someone duplicated this investigation the same results would be realized.

Our rumble strips standards allow a depth range from a minimum of 3/8 inch to a maximum of 5/8 inch. In taking my measurements I decided to take all measurements to the nearest 1/8 inch, with all readings of 1/16 inch being round up to the closest 1/8 inch. As you can see in the attached results, with the exception of a few isolated readings all the sections tested measured within our standards.
Please let me know if you would like to discuss further.