Response to Reviewer 3 Comments

The article is well described and all the measurements for the two tests indicate that soil stiffness, cable bending stiffness, cable length, and cable unit mass are crucial factors that impact the sensitivity of the system. This novel application that is demostrated, help to investigate the relationship between the strain response of the optical fiber and system parameters such as the bending stiffness,linear density, and length of the cable. The colclusions will be improved by adding some conclusions supported by the results of Test 1 aims that investigate the response of cables under different soil stiffness, with cables being buried to the same length and Test 2 that shows the response of cables with various buried lengths under a uniform soil stiffness, and a common excitation source.

Point 1:A similiar approach is for automatic vehicle detection and counting by processing data acquired using a phase-sensitive optical time-domain reflectometer (ϕ-OTDR) distributed optical fiber sensor, has been experimentally tested by performing ϕ-OTDR measurements along a telecommunication fiber cable, underground of normal traffic. [Ester Catalano, Agnese Coscetta, Enis Cerri, Nunzio Cennamo, Luigi Zeni, and A. Minardo, "Automatic traffic monitoring by ϕ-OTDR data and Hough transform in a real-field environment," Appl. Opt. 60, 3579-3584 (2021)].

Response 1: The references have been added to the introduction section.