Dear Xiu He,

Thank you for your comments. Our responses to each comment are shown below in turn.

Comment 1: After reading your manuscript, I feel that there is a lack of innovation, so I'm not going to accept your manuscript. The manuscript has not reached a different or deeper conclusion from the previous work. In addition, the strucutre and writing of the manuscript is quite unsatisifed. The authors are suggested to read more high-qualtiy papers for reference.

Answer: This paper focuses on the risk of moving vehicles hit by landslides. The most distinct feature of the current study is related to the assessment of impact of landslides on the moving vehicles. As noticed by Nicolet et al. (2016), existing methods for such a problem can be broadly divided into three categories: (1) methods neglecting the dimension of falling materials; (2) methods neglecting the dimension of vehicles; and (3) methods considering both dimensions of vehicles and falling materials. However, all these methods are derived by assuming uniform average spacing between vehicles (Hungr et al. 1999). In reality, the spacing between vehicles on a highway is uncertain. With the method suggested in this study, the uncertainty associated with the spacing between vehicles can be modeled. Other features of the case study include: (1) the annual probability of landslide is estimated based on the probability density function of the annual rainfall data; (2) the uncertainty associated with the travel distance of sliding mass and its impact on risk assessment are explicitly considered; and (3) the risk associated with each type of vehicles is assessed.

Nicolet, P., Jaboyedoff, M., Cloutier, C., Crosta, G.B., and Lévy, S. (2016). Brief communication: on direct impact probability of landslides on vehicles, *Natural Hazards and Earth System Sciences*, *16*, 995−1004.
Hungr, O., Evans, S.G., and Hazzard, J. (1999). Magnitude and frequency of rock falls and rock slides along the main transportation corridors of southwestern British Columbia. *Canadian Geotechnical Journal*, *36*, 224–238.

Comment 2: The type of this manuscript should be first and clearly classified. Frankly, the manuscript is like a project report, not a academic paper. This is because: typically, the paper can be either (1) Technical Article in which the authors proposed or developed novel or interesting algorihtms or methods to solve an engineering problem, or (2) A case report / case study in which the authors described how to solve an engineering problem in details. However, the paper in current form is not a Technical Article or a Case Report. It is between those two types. Readers will not understand the main ideas or contributions in the paper. So, overall, the paper is not suitable for publication in current form.

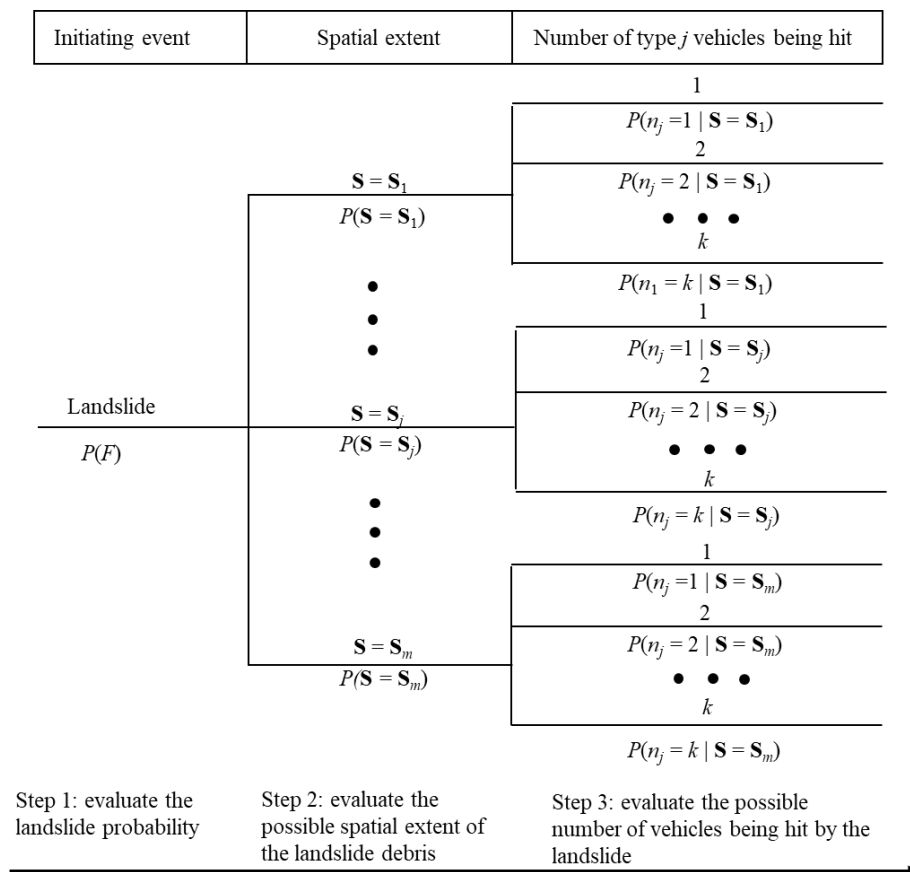
Answer: As indicated in the title of the paper, this is a case study paper. During the preparation of the manuscript, we have indeed carefully considered this question and compared alternative ways of presenting the paper. A case study paper seems to make it easier for readers to access.

Comment 3: In the abstract, the authors introduced the process of conducting their work in many details, but not clearly stated the novelty of the work. Only descriptions of your work is not sufficient. Similar to that in the abstract, in the section of introduction, the authors did not

clearly pointed out the novelty of the work. In addition, too much emphasis on landslide events is not practical significance.

Answer: We will highlight the novelty of the work in the abstract and introduction in the revised manuscript.

Comment 4: In the section of Method, the authors did not clearly presented the process of the method. It usually needs an overview of the method, and also a flowchart of the entire process.

Answer: The key of the proposed method is related to Eq. (9), which can be used to calculate the risk associated with type j vehicles. Eq. (9) can be expressed in terms of an event tree as shown below. As can be seen from this figure, the risk assessment involves three components, i.e., evaluating the landslide probability, evaluating the possible spatial impact of the landslide, and evaluating the possible number of type j vehicles being hit by the landslide for a given spatial impact. The risk associated with type j vehicles can be assessed by evaluating each of the above three components in turn. We will provide the above event tree in the revised manuscript.

Comment 5: There are a lot of formulas in the article, but there is no real innovation.

Answer: The equations are used to address the above components involved in the risk assessment as shown in the above event tree. The novelty of this paper has been explained in the above replies.