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Acknowledgement of Submission (#IJE-2303-6867)

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Manuscript ID: IJE-2303-6867

Manuscript Title: **Calibrating and Validation Microscopic Traffic Simulation Models VISSIM for Enhanced Highway Capacity Planning**

Authors: St. Maryam Hafram, Sheryn Valery, Abdul Hafid Hasim

Dear Respectful author Prof./ Dr. Dr. St. Maryam Hafram

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It should be noted that the manuscript will be reviewed for possible publication in International Journal of Engineering.

Please be sure that the submitted manuscript has not been published previously and will not be submitted elsewhere prior to our decision.

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I wish to take this opportunity to thank you for sharing your work with us.

Truly yours,

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Manuscript Needs Resubmission (#IJE-2303-6867)

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Balas Ke: International Journal of Engineering <ije.editor8@gmail.com>
Kepada: stmaryam@umi.ac.id, doel.hvd@gmail.com

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Authors: St. Maryam Hafram, Sheryn Valery, Abdul Hafid Hasim

Dear Respectful Author Dr. St. Maryam Hafram,

Thank you very much for your interest in publishing your work in **International Journal of Engineering**. Your manuscript recorded above cannot be considered for possible publication in the presented form.

Therefore, we must suggest you to CAREFULLY revise your paper and resubmit it to the journal. To resubmit your manuscript, log into https://www.ije.ir/ and enter as "Author", where you will find your manuscript title listed under "Manuscript needs to be resubmitted".

Editor-in-Chief / Editor Note:

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Before I send your paper for review, I have checked most of your references are incomplete without years. IJE required valid references. All references required DOI

These are list of incomplete with no year! Cannot find in google search! Ref. No.; 1-4, 11, 13, 22, 23, 26, 31, 33, 34, 36-39, 41, 42, 44, 46, 47, 51

Sincerely yours,

Editor-in-chief of **International Journal of Engineering**,

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Acknowledgement of Submission (#IJE-2303-6867)

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Manuscript Needs Major Revision (#IJE-2303-6867 (R1))

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Balas Ke: International Journal of Engineering <ije.editor8@gmail.com>
Kepada: stmaryam@umi.ac.id, doel.hvd@gmail.com
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Dear Respectful Author Dr. St. Maryam Hafram

Your manuscript required major revisions. In this case we normally treat it as unacceptable for publication. However, as numerous editorial errors have pointed out by the reviewers, the **International Journal of Engineering** editor believes that the manuscript could be rectified and prepare for possible publication. We required itemized answer and rebuttal letter to respond all specified reviewers. A marked or highlighted manuscript is required to observe any changes and revision made by the respectful author.

Please let us know your views and respond in this regard and in the case of positive response, reply us within 15 days time.

Truly yours,

Editorial Office of **International Journal of Engineering**

Editor asking:

Please cite IJE's recent published articles which are related to your research area and also we wish you would recommend citing IJE’s recent published papers to your colleagues for their future publications in any international journals. This sort of collaborations would enhance IJE's ranking for high scientific interactions in near future. Please add DOI for all listed references. Just follow IJE’s template.

Regards

Reviewers Recommendation:

Reviewer 1:

Reviewer Comment For Author:

Overall, this is a well-written article on the calibration and validation of VISSIM for enhancing highway capacity planning. However, there are a few areas that could be improved:
Firstly, it would be beneficial to include a more comprehensive literature review on the impact of mixed traffic on traffic flow models and simulations. This would provide a stronger background for your study and demonstrate how you accounted for this effect. I suggest checking out two review articles on two fundamental traffic flow models which can help you a lot: car-following (10.1080/01441647.2014.997323) and lane changing (10.3328/TL.2010.02.03.157-173).
Secondly, when discussing improving road capacity, it is important to consider the effect of congestion on calibration. It would be helpful to provide a more detailed explanation of how you created the conditions for testing your model. For instance, unstable traffic conditions and normal conditions with low traffic may have the same flow rate, but the former may not allow cars to enter and move. Therefore, it is necessary to specify the criteria used to distinguish between the two and to show how this affected your calibration.
Finally, when calibrating a microsimulation, it is important to avoid presenting aggregated results. For example, the distance of individual cars from each other (or at least the comparison of the distribution of distances) can be

a micro-level investigation, otherwise the average values are actually macro. While some researchers may not have worked with this level of accuracy in simulations, it is essential for improving planning and I highly recommend using micro-level investigations for more accurate results.

Reviewer 2:

Reviewer Comment For Author:

The authors chose a very good topic for research and they did it well. The manuscript has a proper structure. In addition, the authors eloquently reported the results. One of the advantages of this article is to express the details completely. In summary, I believe that the current manuscript is suitable for publishing.
So, in my opinion, it is accepted. but, before publishing, it is better to consider the following points. However, these can correct in the proofreading step.
1- The last sentence in the abstract should be removed.
2- On page 2, it is stated that there are three different simulation programs. But, the names of four software are mentioned. it should be corrected (i.e., "three" should change to "four").
3- Related to Table 1., the phrase "asphalt coating" should change to "asphalt".
4- Related to Table 3, please add an appropriate reference.
5- there a typo after figure 3, the phrase "figure 3 and 4" should be changed to "figures 2 and 3".
6- delete the Persian abstract.

Reviewer 3:

Reviewer Comment For Author:

In this research, the authors presents an approach for calibrating and validation of microscopic traffic simulation models VISSIM. This idea is not very innovative, but it can be considered. I have some concerns about this paper.
Abstract:
Typos error: "It the essential to remember that traffic simulation with VISSIM" □ It is essential
Introduction:
I. In the paragraph discussing the selection of VISSIM as the preferred simulation software, it would be helpful to provide more context on why VISSIM was chosen over the other simulation tools mentioned (AIMSUN, Trans Modeler, and CORSIM). What specific features or capabilities of VISSIM make it superior?
II. In the paragraph discussing the calibration and validation process, it would be beneficial to explain why calibration and validation are ongoing procedures that need to be regularly updated and maintained for accuracy and reliability.
III. In the paragraph discussing previous studies on traffic simulation model calibration, it would be helpful to provide more information on the limitations or gaps in these studies, and how the current study aims to address those limitations.
IV. Overall, it would be beneficial to provide more references and citations to support the claims and statements made in the paper, especially when discussing previous studies, software programs, and research findings. This would increase the credibility and reliability of the paper.
Materials and methods:
The calibration process involves adjusting the parameter values in the model through trial and error to minimize the deviation between the simulated data and the field data. It seems that independent variable for model adjustment in VISSIM doesn't define clearly.
For the Data collection, based on the information provided, there are a few areas that may require further clarification or improvement:
a. Location of Study: While the location of the study (Jalan Veteran Selatan, Makassar, in front of Maricaya Market) is mentioned, it would be helpful to provide more context on why this location was chosen and how it relates to the research question or objective of the study. Additionally, the duration of the study (one week, including weekdays and holidays) is mentioned, but it would be useful to provide more details on the specific days and times of data collection, as well as any potential limitations or biases associated with the chosen timeframe.
b. Data Analysis: The section on data analysis provides equations for calculating traffic volume, road capacity, and degree of saturation, but it would be helpful to explain the meaning of each variable and parameter in the equations in more detail. Additionally, the calibration process of the simulation model using field data is briefly mentioned, but it would be beneficial to provide more information on the specific steps taken, the criteria used for calibration, and the validation process to ensure the accuracy and reliability of the simulation results.
In conclusion, while the chapter provides an overview of the research approach, location of study, data geometric, and data analysis, there are areas that could be further clarified or expanded upon to ensure a comprehensive and well-explained methodology. Providing more details, justifications, and explanations will enhance the overall quality and rigor of the research.
Results and discussions:
There are several issues that need to be addressed in this section:
I. Lack of explanation: In this section, the authors mention that the simulation model was calibrated to field conditions, but there is no detailed explanation of how this calibration was done. It would be helpful to provide more information on the process of calibrating the model, including the specific steps taken and the criteria used to determine if the calibration was successful.
II. Incomplete information: The table showing the driving behavior parameters used in the study (Table 4) only provides the calibration values without any further explanation. It would be beneficial to provide more information on how these parameters were determined, why they were chosen, and how they were adjusted during

calibration.
III. Lack of comparison: The chapter mentions that the calibration improved the simulation results, but there is no direct comparison of the simulation results before and after calibration. It would be useful to include some quantitative or qualitative comparison of the traffic flow behavior before and after calibration, such as traffic flow rates, average speeds, or lane change frequencies, to demonstrate the effectiveness of the calibration process.
IV. Incomplete validation results: The section presents validation results using the GEH (Geoffrey E. Havers) test and the MAPE (Mean Absolute Percentage Error) test, but there is no discussion on the interpretation of these results. It would be helpful to provide an explanation of what these metrics represent, how they were calculated, and how the obtained values indicate the accuracy and reliability of the simulation model.
V. Lack of discussion on limitations: The section does not mention any limitations or potential sources of error in the simulation model or the calibration process. It would be important to discuss any limitations or assumptions made in the simulation model, such as simplifications, uncertainties, or assumptions about driver behavior or traffic conditions, and their potential impact on the validity of the results.
Overall, this section needs to provide more explanations, comparisons, and interpretations of the calibration and validation results to ensure that the reader understands the process and the reliability of the simulation model used in the study. Additionally, addressing potential limitations and including relevant graphical representations would enhance the clarity and comprehensibility of the chapter.