ČVUT
ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE

OPPONENT'S REVIEW OF A DIPLOMA THESIS

I. IDENTIFICATION

Master thesis title:	Traffic Analysis and Operational Improvements for Vitezne Namesti in Prague
Author:	Lauren Elaine Brown
Reviewer:	Matthew Vechione, Ph.D.
Reviewer's affiliation:	The University of Texas at Tyler

II. EVALUATION

Thesis topic difficulty

How would you assess the thesis topic difficulty?

This thesis is well planned, studied, and articulated. Great work to Lauren and her advisors. The only weakness is that the thesis reads more like an "engineering study" as opposed to a master's thesis. This is only a minor point. The difficulty of the thesis is sufficient.

Thesis topic fulfillment

Does the thesis content meet the thesis topic assignment?

The topic of analyzing the operational performance of a roundabout in Prague was the thesis topic. Based on the thesis manuscript, I believe Lauren fulfilled her assignment requirements.

Methodology

Did the student use suitable approach and methods?

When I think of traffic analysis and operational performance, I think of control delay and Level of Service (LOS). Although queue length and travel time are similar/comparable metrics, could one of the outputs have been LOS and/or delay? It's not a big deal since she's still comparing three alternatives from an operational standpoint.

Use of data sources and citations

How did the student work with literature and data sources?

Lauren did a good job with the readily available data provided by the CTU faculty and metro schedules. Could she have collected new data as well? Maybe compare travel time or queue length in the field to compare to her VISSIM model results? I'm not sure about the magnitude/duration of her thesis, but this might help make the thesis appear more "scientific" like a thesis as opposed to an engineering report.

Language, structure and formatting

Did the student use suitable language for a diploma thesis? Is the thesis structured well? Does the formatting help reader to understand the topic and results?

I would have liked to have a seen a few more references. The thesis mentions that this is a large roundabout with multiple modes of travel. Have other studies been conducted in Europe or elsewhere with similar constraints?

Overall comments

Your summary opinion of the thesis.

Overall, the thesis is well-written, and the methodology is sound. I do, however, have a few comments and suggestions for improvement:

1. There are a few typos/grammatical errors (Vita in TOC, "withing" under 1.1 Background, "Talk about VISSIM" "<4 pages, including a few references of VISSIM being used in roundabout modeling" on top of page 20, "appriate" on page 54, etc.)

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Questions for discussion

Questions to be asked during the thesis defense. Opponent usually asks at least one question.

1. What is the point of the VISSIM cool down period? Warm-up is understandable and needed, but why cool down if volume = 0 (Table 4-3)

2. I know VRU (vulnerable road users, pedestrians and bicyclists) is considered as part of future research; however, did that play any role in Lauren's decision of selecting an alternative?

3. What is the chosen alternative (i.e., overall finding of this research)? It appears that Scenario 2 is ideal, but it's not recommended other than the conclusion.

4. How were random simulation seeds (Table 5-1) chosen? I know they're random and just to get the model started differently, but was there any reasoning as to increasing in increments of 3?

5. Are there any European and/or Czech design standards? The MUTCD is used in the US, but drivers behave differently in the US vs. Europe. I'm assuming the author used the MUTCD in US units and converted to SI units for modeling purposes?

Overall, well done. This is a good thesis.

I propose the following grade: **A - excellent.**

Date: **19.5.2023** Signature: **Matthew Vechione**