Notice of the Final Oral Examination
for the Degree of Master of Applied Science

of

ATOUSA TANGESTANIPOUR

BA (Shiraz University, 2005)
MSc (Alghadir University, 2008)

“Characterization of Vehicle Time Headway in Clear and Rainy Weather”

Department of Electrical and Computer Engineering

Wednesday, November 21, 2018
3:30 P.M.
Engineering Office Wing
Room 230

Supervisory Committee:
Dr. T. Aaron Gulliver, Department of Electrical and Computer Engineering, University of Victoria (Supervisor)
Dr. Amirali Baniasadi, Department of Electrical and Computer Engineering, UVic (Member)

External Examiner:
Dr. Phalguni Mukhopadhyaya, Department of Civil Engineering, UVic

Chair of Oral Examination:
Dr. Jeff Barnett, School of Health Information Science, UVic

Dr. David Capson, Dean, Faculty of Graduate Studies
Abstract

Adverse weather has a direct effect on traffic congestion, capacity, and road safety. Rain can influence traffic flow and headway. Thus, it is important to study the impact of weather conditions on traffic. In this thesis, headway data from a north-south highway in Tehran is categorized according to weather conditions and traffic flow. A statistical analysis of this data is presented which show that the mean time headway increases in rainy weather and the traffic flow rate is lower. The probability density functions fit to the headway data and these distributions are then evaluated using the Chi-Squared (C-S) and Kolmogorov Smirnov (K-S) tests to determine which is the most suitable. To generalize results for different traffic flow rates, another highway was selected for data collection. The results obtained show that the Burr distribution is the best to model the headway data in clear and rainy weather with a higher traffic flow. Moreover, the generalized extreme value distribution is the best to model the headway data in clear and rainy weather with a lower traffic flow. This justifies the use of different time headway distributions in rainy and clear weather conditions and different traffic flow rates for traffic modeling.