



THE EFFECT OF TRAFFIC COMPOSITION ON EGYPTIAN ROAD SAFETY

A Thesis

Submitted to the Faculty of Engineering - Ain Shams University

in Partial Fulfillment

of the Requirements for the Degree of

Master of Science

in

Civil Engineering

Public Works

Road and Traffic Engineering

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2013



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STATEMENT

This thesis is submitted to Ain Shams University, Faculty of Engineering for the degree of Master of Science in Civil Engineering.

The work included in this thesis was carried out by the author in the department of Public Works, faculty of Engineering, Ain Shams University.

No part of this thesis has been submitted for a degree or a qualification at any other University or Institution.

The candidate confirms that the work submitted is her own and that appropriate credit has been given where reference has been made to the work of others.

Date: / / 2013

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Name: Amira Farid Mohammed Foda

DEDICATION

First of all, my full thanks and gratefulness to ALLAH for his continuous blessings, great help, guidance, and support since the start of my life until now, and I pray to him to continue his infinite great generosity until the end of my life.

I have spent years from my life working hard to accomplish this thesis in honorable scientific level as much as possible, and now I wish to dedicate it with my deepest gratefulness to my mother, whom encouraged, helped, and supported me along my life with her continuous love, patience, and optimism.

I wish to dedicate it also to my father`s soul with my deepest gratitude and I hope that I have become as he wished.

Finally, I would like to dedicate it to my sister and my brothers with my special thanks and gratitude for their love, encouragement, and valuable help.

ACKNOWLEDGMENTS

First of all, my full thanks and gratefulness to ALLAH for his continuous blessings, great help, guidance, and support since the start of my life until now, and I pray to him to continue his infinite great generosity until the end of my life.

I would like to express my thanks and gratitude to Professor Dr. Issa Abd- Allah Sarhan at Ain Shams University, Faculty of Engineering and Professor Dr. Abd- Allah Hassan Wahdan at El-Azhar University, Faculty of Engineering for their help, valuable remarks, and support.

I would like to express my deepest thanks and appreciation to my Professor Dr. Osama Hussein Okail at Ain Shams University, Faculty of Engineering for his guidance, support, and valuable choice of my research point.

I would like to express my special thanks and gratefulness to my main supervisor Professor Dr. Hassan Abd El-Zaher Mahdy at Ain Shams University, Faculty of Engineering for his valuable supervision, infinite help, guidance and support.

I would like to express my thanks and gratefulness to my supervisors Professor Dr. Khaled Anwar Kandil, and Dr. Hamdy El-Sayed Ibrahim at Ain Shams University, Faculty of Engineering for their valuable help and support.

I would like to express my thanks and greetings to Traffic Police Department, Egyptian Ministry of Interior for the valuable help during data collection.

I would like to express my thanks and greetings to my director at work Eng. Emad Riad at Talaat Mostafa Group, Alexandria Construction Copmany – Madinaty Project for his valuable help during data collection and allowing my absence from work to complete my thesis and get Master`s degree.

ABSTRACT

In recent years, the annual rising number of traffic accidents is becoming a major problem in Egypt. It makes the situation of road traffic safety more and more severe. So, Egypt is in a great need to find how to control this severe situation and finding the appropriate countermeasures to be taken to improve road traffic safety by preventing or at least by reducing road traffic accidents.

Road traffic accidents result from the disorder of the complex dynamic road traffic system, which consists of people, vehicles, roads and environmental conditions. This study introduces traffic accidents prediction model with respect to vehicles factor, without considering the other three factors of people, roads and environmental conditions.

After collecting traffic data from Traffic Police Department, Ministry of Interior in Egypt, this study carries out quantitative statistical analysis of these data and finally, explores a linear regression between the number of road traffic accidents and the road traffic composition, and another linear regression between the number of road traffic accidents and the accidents vehicles types.

The collected traffic data represents the situation of traffic accidents and traffic composition in Egypt during the period from 2006 to 2010. Quantitative statistical analysis is carried out for finding the correlation between the number of road traffic accidents and the number of licensed vehicles of different types (passenger cars, trucks, buses, motorcycles, etc.). After finding this correlation, some types of vehicles which have a significant correlation with the number of road traffic accidents are chosen for building the linear regression model between the number of road traffic accidents and the traffic composition. Data processing is mostly done by Excel and SPSS.

As a case study, quantitative statistical analysis is carried out for the collected traffic data of Cairo – Suez Highway and Cairo – Alex Desert Highway in Egypt which represents the number of road traffic accidents, the accidents vehicles types, the number of fatalities, and the number of injuries during the period from 2010 to 2011.

The quantitative statistical analysis found the correlation between the number of road traffic accidents and the accidents vehicles types (passenger cars, trucks, buses, motorcycles, etc.). After finding this correlation, some types of accidents vehicles which have a significant correlation with the number of road traffic accidents are chosen for building the linear regression model between the number of road traffic accidents and the accidents vehicles types.

With the same sequence, the quantitative statistical analysis found the correlation between the number of each of fatalities and injuries and the accidents vehicles types (passenger cars, trucks, buses, motorcycles, etc.). After finding this correlation, some types of accidents vehicles which have a significant correlation with the number of each of fatalities and injuries are chosen for building the linear regression model between the number each of fatalities and injuries and the accidents vehicles types. Data processing is mostly done by Excel and SPSS.

According to the found linear regression between the number of road traffic accidents and the traffic composition fro Egyptian roads, the found linear regression between the number of road traffic accidents and the accidents vehicles types, and the found linear regression between the number of each of fatalities and injuries and the accidents vehicles types Cairo – Suez Highway and Cairo – Alex Desert Highway in Egypt, this study will give some advice to the relative administration authorities, which can help for the improvement of the situation of road traffic safety in Egypt.

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