Sudan University of Science & Technology
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Comparative Study of Traffic Safety and Geometric Design of Roads in Khartoum and Abu Dhabi

سلامة [illegible]ي

[illegible] [illegible]خرطوم [illegible]

دراسة مـ قارنة لطرق الخرطوم و ابوظبي

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DONATION

To the spirit of the Holy Prophet, first teacher's for the human, our master Mohammad bin Abdullah peace be upon to him .

To all souls of the victims who died in traffic accidents, especially, my especially, my brother / Yasser Mohammed Ibrahim.

To all members of my family. Father. Mather. Brothers. Sisters They were the best support and the good of a particular .

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ملخص □□□□□□□

يلعب التصميم الهندسى دورا مهما فى زيادة السلامة المرورية للطرق وعليه لابد ان تتوافر فيه خصائص معينة وهذا ماتبحث عنه الدراسة بصورة اساسية مع م قارنة ذلك بالمعمول به فى دولة الامارات العربية المتحدة مع التنبيه على دور الادارة الجيدة للمرور فى خفض الحوادث المرورية

ففي مرحلة تصميم الطرق نجد انه من المهم جدا إ قامة التناغم بين العنصر البشري وعنصر التصميم الهندسي وادارة المرور وعلى الرغم من أن العامل البشري ، ويشمل السائق والراكب والمشاة ،له دورا بارزا في حدوث الحوادث المرورية في الطريق أو قد تكون مجموعة من العوامل اشتركت في حدوث الحوادث. ومع ذلك ، فإن السيطرة على عامل الطريق أسهل بكثير من العامل البشري و ذلك، من خلال جعل التصميم الهندسى جيد وذلك للتعويض من عوامل اخرى ، وبالتالي انخفاض عدد الحوادث المرورية. وهذا يجعل من الواضح أنه من أجل إ قامة سلامة الطريق، من المهم زيادة الاهتمام بالتصميم ا لهندسي وتحديد مواصفات خاصة لأي طريق. والهدف من هذه الدراسة هو صياغة المبادئ الاولية لمواصفات الطرق في السودان ,والعمل على وضع مواصفات خاصة لإدارة المرور ،والتنبيه على أهمية العلامات المرورية واثر غيابها فى حدوث الحوادث المرورية.

في هذه الدراسة ،الباب الأول شكل الم قدمة لهذه الدراسة واستعرض أهداف الدراسة ومنط قة الدراسة وطرق جمع المعلومات لهذه الدراسة والصعوبات المتعل قة بهذه الدراسة

والباب الثاني شكل الأساس النظري لهذه الدراسة وذلك باستعراض العوامل المؤثرة في التصميم الهندسي والمتعل قة بالسلامة المرورية وأنواع الطرق وت قسيماتها.

تم إجراء الدراسة وذلك بأخذ عناصر التصميم الهندسي على الطرق والخصائص في الاعتبار ، والحوادث التى حدثت فى الطريق ويتم إعطاء تفسيرات عن كيفية ت قديم تصميم هندسي جيد امن،

وتم إيضاح الأسباب المحتملة في حدوث الحوادث وطرق معالجتها الهندسية وكيفية إجراء التحليل الهندسي للحادث وهذا ما تمت منا قشته فى الباب الثالث.

ووضح جليا أن هنلك تأثير لإدارة المرور على حدوث الحادث كوجود العلامات المرورية وهذا ما تضمنه الباب الرابع.

كما تم عمل التوصيات اللازمة بعمل المواصفات الخاصة للطرق السودانية وإجراء التحليل الهندسي للحوادث وا قتراح بحوث مست قبلية كبحث المواصفات الخاصة للطرق السودانية وهذا ما تمت منا قشته في الباب الخامس.

ABSTRACT

Geometric design plays an important role in increasing the traffic safety on roads. In order to be the case, there must be certain characteristics available and this what the study has been discussing mainly, with a comparison that doing in the United Arab Emirates with the alarm on the role of good management of the traffic to reduce . traffic accidents

In the design phase of the roads we find that it is very important to establish harmony .between the human element , element of geometric design and traffic management
In spite of that the human factor, including the driver , the passenger and the pedestrian, has a prominent role in the occurrence of traffic accidents on the road or may be a combination of factors involved in the occurrence of accidents . However, to control the roads factor is much easier than the human factor and that, by making .good geometric design, to compensate for other factors
This makes it clear that in order to establish the safety of the road, it is important to increase attention to the geometric design and limited particular specification of any . road

The aim of this study is to formulate the initial principles of the Sudanese specifications roads.

work on developing specifications for traffic management and alert to the , importance of traffic signs and the impact of their absence in the occurrence of traffic .accidents

In this study, the first chapter form introduction provided for this study , reviewed the objectives of the study , the study area , methods of collecting information for the study and difficulties of this study
Chapter form the theoretical basis for this study by reviewing the factors influencing the geometric design and safety-related traffic and the types of roads and subdivisions.
Study was carried out by taking the elements of geometric design on the roads and properties in mind, accidents that have occurred in the roads and we are given explanations on how to make good safe geometric design. We were clarify the possible causes of occurrence of accidents and ways to address engineering and how to conduct engineering analysis of the incident and this is discuss in chapter third..
Its has been clear that there is the impact of traffic management on the occurrence of the accident as the existence of traffic signs as the existence of the optical reflector and this is set forth in Chapter IV.
We make recommendations as necessary to the work in specifications of the roads in Sudan and to conduct engineering analysis of accidents and
to propose future research as Inquiry specifications of the roads in Sudan
and this is what has been discussed in Chapter Five.

TECHNICAL TERMS

ABBREVIATION	MEANS
AASHTO	American Association of State Highway and Transportation Officials
NCHRP	National Cooperative Highway Research

	Program
FHWA	Federal Highway Administration
GIS	Geographic Information System
GPS	Global Positioning System
CBR	California Bearing Ratio
AADT	Annual Average Daily Traffic
TRL	Transport Research Laboratory
AASHO	American Association of State Highway Officials
AC	Average Curvature
HF	High Frequency
NVC/L	Number of Vertical Curves per km
NHC/L	Number of Horizontal Curves per km
PA	Porous Asphalt
HDM	High Density Macadam
DBM	Dense Bitumen Macadam
HRA	Hot Rolled Asphalt
MIS	Management Information System
ITS	Intelligent Traffic System
UTC	Urban Traffic Control
CCTV	Closed-Circuit Television
VMS	Variable Message Signs
SMS	Short Message Service
TCC	Traffic Control Center
TVR	Traffic Violation Recording
TCS	Traffic Counting Stations
U, A, E	United Arab Emirate
RAI	Road Accident Invegestion
GPRS	General Packet Radio Service

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