

# **DEDICATION**

**To**

**My greater family, my own family, my life mate and others who provided  
assistance and help at various occasions**

# ACKNOWLEDEMENTS

Firstly I thank God for giving me a successful process of preparing this study.

Secondly I wish to express my sincere gratitude particularly to my supervisor Austaz Abas Laz for his patient , guide , help, advice and motivation.

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# ABSTRACT

Roads are an important means of developing new areas and are increasingly required for convenient movement of people and their products to the markets. The main objective of this study is to design low cost agricultural road. The research area is the southern section of Alselate agricultural scheme(Nile East Province)

To achieve this aim the two design's parameters, the traffic volume and California Bearing Raito(CBR) were carefully investigated and analyzed

The study results shows that the traffic counts has been generated only to high light on the mode by which the products of the scheme's is transported to the markets and it also shows that the normal traffic can be estimated along the design period of road when the production of various type of crops of the scheme at the year 2008 that the study was generated is known. The expected production of the rest area was used to predict the generated traffic , the growth rate has been estimated from the discrepancies of the production of recent five years starting from the study year.

The study shows that to generate the laboratory California Bearing Ratio(CBR) test Six samples were taken randomly from the vicinity of the Alselate scheme of existing sub-base road of six km long.

The analysis process of the data in this study was carried out by the using Microsoft Excel software.

The study shows that the design California Bearing Ratio(CBR) is the lowest value of the American asphalt institute or Tanzanian method of determination the 90%-ile CBR .

The Structural design method used in this study is TRL Road Note 31. The study shows that the economical and cheaper material cost design option should be accepted .

The study recommends that for design of the farm to markets roads, the farms production analysis is ideal method to predict the traffic volume and the growth rate.

# مستخلص البحث

الطرق هي وسيلة هامة لتنمية المناطق الجديدة وهناك حاجة متزايدة لحركة مريحة للناس ومنتجاتها إلى الأسواق.

الهدف الرئيسي من هذه الدراسة هو تصميم طريق زراعي قليل التكلفة. مجال البحث هو القسم الجنوبي من مشروع السليت الزراعي بشرق النيل لتحقيق هذا الهدف فان عنصري التصميم ,حجم الحركة ونسبة تحمل كاليفورنيا تم تحليلهما بعناية

نتائج الدراسة تظهر إن العد الحركي الذي اجري كان فقط لمعرفة نوع وسائل النقل التي يتم بها نقل إنتاج المشروع , وكذلك توضح الدراسة إن الحركة العادية يمكن تقديرها من إنتاج المساحة المزروعة, والحركة المتولدة يمكن تقديرها من الإنتاج المتوقع للمساحة الغير مزروعة وان معدل النمو يمكن تقديره من تباين إنتاج خمسة سنوات ابتداءً من سنة الدراسة

تبين الدراسة أنه لإجراء الاختبار المعملية لنسبة تحمل كاليفورنيا أخذت ستة عينات عشوائياً من على مقربة من طريق السليت الذي طوله ستة كيلومترات والمشيد حتى طبقة الأساس المساعد وقد أجريت عملية تحليل البيانات في هذه الدراسة باستخدام برنامج مايكروسوفت اكسل . تبين الدراسة أن نسبة تحمل كاليفورنيا للتصميم هي القيمة الأقل لكل من الطريقة الامريكية أو التنزانية لتحديد ال 90%- تايل نسبة تحمل كاليفورنيا .

أسلوب التصميم الإنشائي المستخدم في هذه الدراسة هو المدونة البريطانية للطرق رقم 31 للدول المدارية وشبه المدارية.

تشير الدراسة إلى أنه ينبغي قبول التصميم الاقتصادي والأرخص مواداً . توصي الدراسة بأنه لتصميم طريق زراعي ، فان تحليل إنتاج المزارع هو الأسلوب الأمثل للتنبؤ بحجم حركة المرور ومعدل النمو.

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## LIST OF ABBREVIATIONS

Abbreviation	Description
AASHTO	American Association of State Highway & Transportation officials
AADT	Annual average daily traffic
ASTM	American Society for Testing Material
ADT	Average daily traffic
B.S.	British Standard
CBR	California Bearing Ratio
ESA	Equivalence standard axles
GR	Growth rate
GDP	Gross Domestic Production
LVRs	Low Volume Roads
MDD	Maximum dry density
SD	Double surface dressing
OMC	Optimum moisture content
ORN 31	Over Seas Road Note 31
TRL	Transport & Research Laboratory
T.R.R.L	Transport & Road Research Laboratory
USCS	Unified Soil Classification System



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