



The Government of Kenya
Kenya Roads Board
EDF Funded Transport Sector Policy and Roads Sub-Sector Strategy Study

Kenya Transport Policy and Roads Sub-Sector Policy and Strategy

Final Study Report

Volume 1 – Appendices

Roads for Wealth and Employment Creation

March 2004



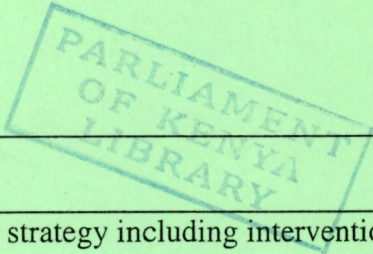
This project is funded by
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**Scott
Wilson**

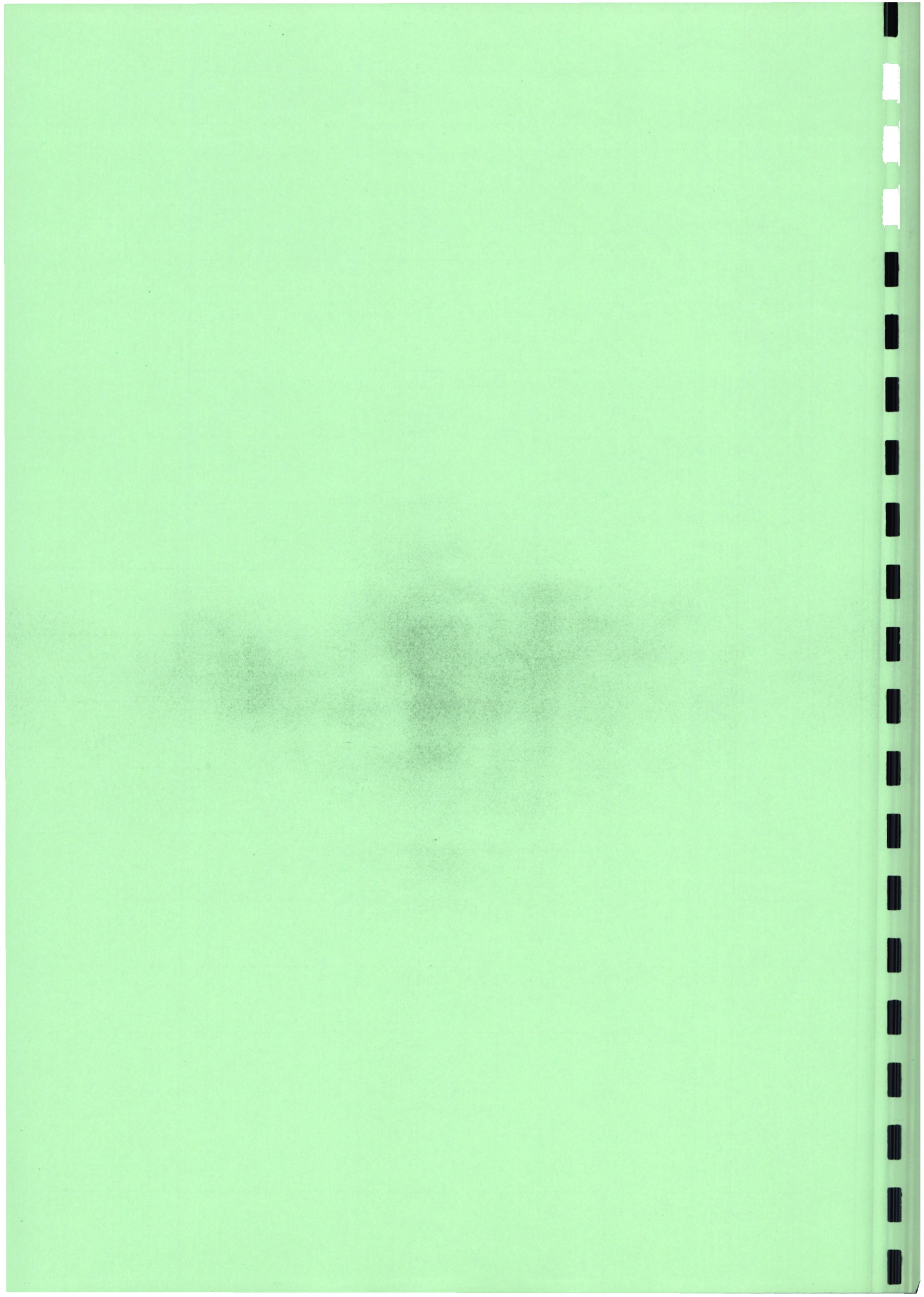
A project implemented by
Scott Wilson

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Appendix A
Logical Framework Matrix



Logical Framework

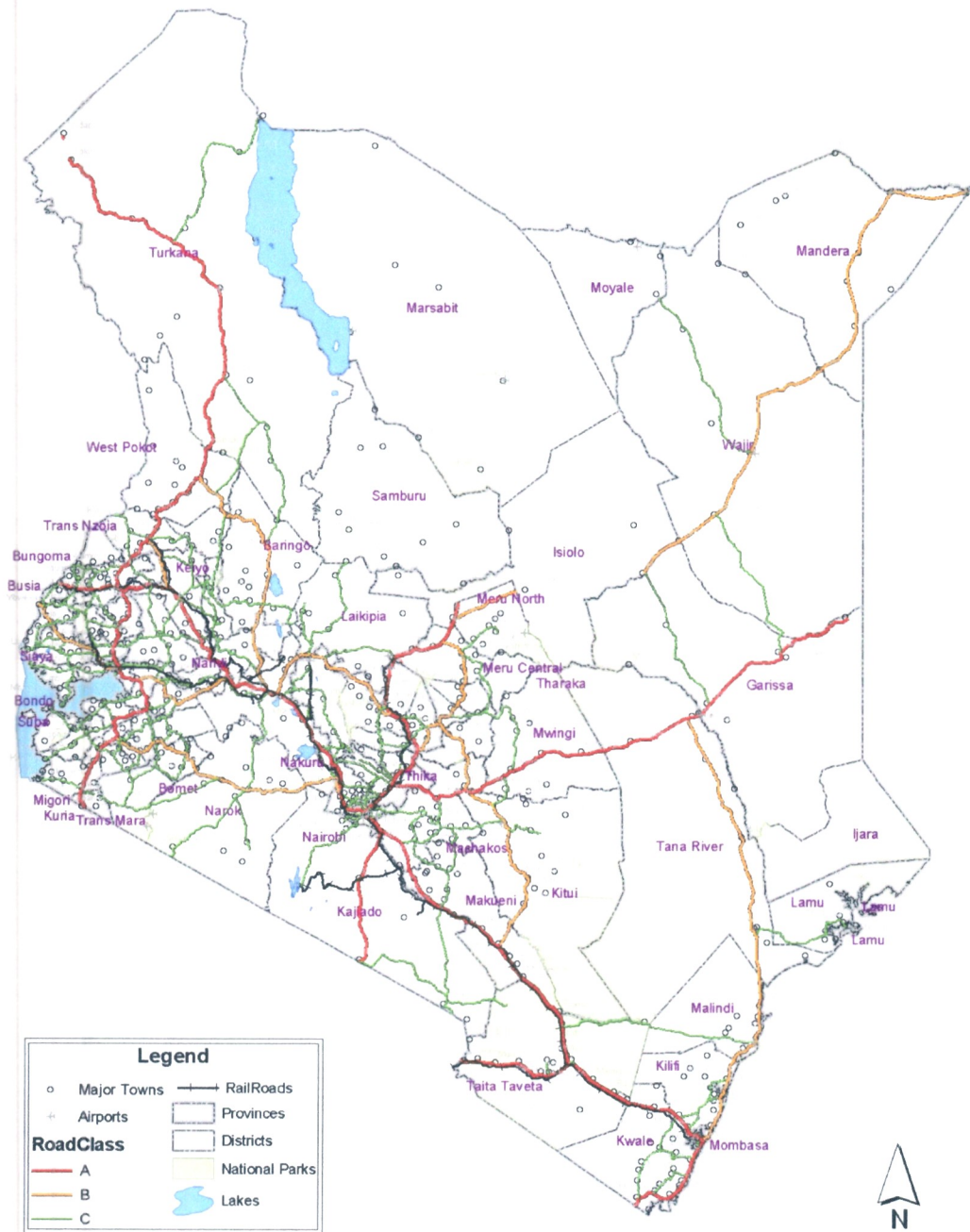
OBJECTIVES	OBJECTIVELY VERIFIABLE INDICATORS	HOW TO ASSESS THE INDICATORS	ASSUMPTIONS, RISKS, & CONDITIONS
<p>Wider Objectives:</p> <ul style="list-style-type: none"> ○ Placing the road sub-sector within a coherent and holistic transport sector policy. ○ Making the development of Kenya's road system relevant, efficient, effective and sustainable. ○ Making the road system attuned to the needs of all road users including NMT ○ Making the road system contributor to poverty alleviation and social progress, rather than an obstruction 	<ul style="list-style-type: none"> ○ Adoption of roads sub-sector policy and strategy ○ Investment in roads ○ More expeditious application of funds for the purposes of providing and maintaining the road transport infrastructure ○ A greater perception of value for money by suppliers of road space ○ Improvements in the road operations ○ Reducing damage through overloading ○ Reducing road deaths ○ Better road signing ○ Better dissemination of information on the performance of roads ○ Better provisions for Non Motorised Transport ○ More road user satisfaction ○ Greater awareness of consumer rights by road users ○ Greater demand for road 	<ul style="list-style-type: none"> ○ Transport Policy including roads sub-sector policy becomes law. ○ \$ X million invested by development partners etc ○ Reduction in road maintenance costs – unit costs for each road type ○ Application of lower contingencies ○ More traffic managers and more traffic police ○ Higher rate of prosecution and fining and less overloading ○ Less accidents ○ More road signs ○ Publication of performance indicators etc ○ Poverty statistics. ○ More cycling and NMT usage ○ Higher road user satisfaction and higher levy ○ Legal case of negligence proven 	<ul style="list-style-type: none"> ○ Ability of KRB to promote policy, Culture permits co-ordination between ministries. ○ Development partners accept changes in GoK ○ Corruption lessens, ○ Contract performance improves ○ City Councils employ trained traffic managers. ○ Establishment of police reforms adopted ○ Fines increased, private companies operating weighbridges, self regulation ○ Better enforcement, vehicles and roads ○ Road signing included as standard in road projects ○ Rural roads projects part of rural development programmes ○ NMT included in standards for road projects. ○ Normalised commercial relationship ○ Government does not block negligence cases ○ Includes less informal economy

	space particularly in rural areas	<ul style="list-style-type: none"> o Economic growth statistics. o Availability of modes o Reclassification of roads in accordance with need o Reduction in journey times (proxy to reduction in VOC) o Increase in demand particularly in rural areas 	<ul style="list-style-type: none"> o Private sector public transport unconstrained by excessive regulation o Changing attitudes and redefinition of road user o Trip attraction is unconstrained o More control on unofficial urban settlements
<p>Specific Project Objectives</p> <ul style="list-style-type: none"> o To prepare a draft Transport Sector Policy and Road Sub-sector Policy and Strategy and to provide the decision-makers of the Kenya Government and development partners with sufficient information to justify their acceptance, modification, or rejection of the said policies and strategy. 	<ul style="list-style-type: none"> o Satisfactory completion of study. o Submission of roads policy to GoK o Incorporation of roads policy to MoTC transport policy o No problems in adoption / implementation attributable to deficiencies in the study. 	<ul style="list-style-type: none"> o No verifiable complaints from the Kenya Government. o Observation of adoption / implementation. 	<ul style="list-style-type: none"> o Security Situation remains adequate. o Cooperation from Transport sector Bodies. o No competing transport or roads policies prepared by other agencies o Real stakeholder participation is achieved. o Government and its organs adopt the policies and strategies, and implement them. o Government/development partners make available necessary resources.
<p>Project Components</p> <ul style="list-style-type: none"> o Broad Transport Sector Policy. o Detailed Road Sub-sector Policy. o Road Sub-sector Strategy: Planning / Operations Infrastructure 	<ul style="list-style-type: none"> o Transport Sector Policy measures implemented. o Road Sub-sector Policy measures implemented. o Existence of coherent, implementable road maintenance and development plans. 	<ul style="list-style-type: none"> o Observation of sector / sub-sector performance and documentation. o Holistic approach taken to road sector management with one ministry for transport and roads o Traffic and road condition 	<ul style="list-style-type: none"> o Ministry of road body capacity increases as necessary. o Corruption is eliminated. o No economic / financial shocks.

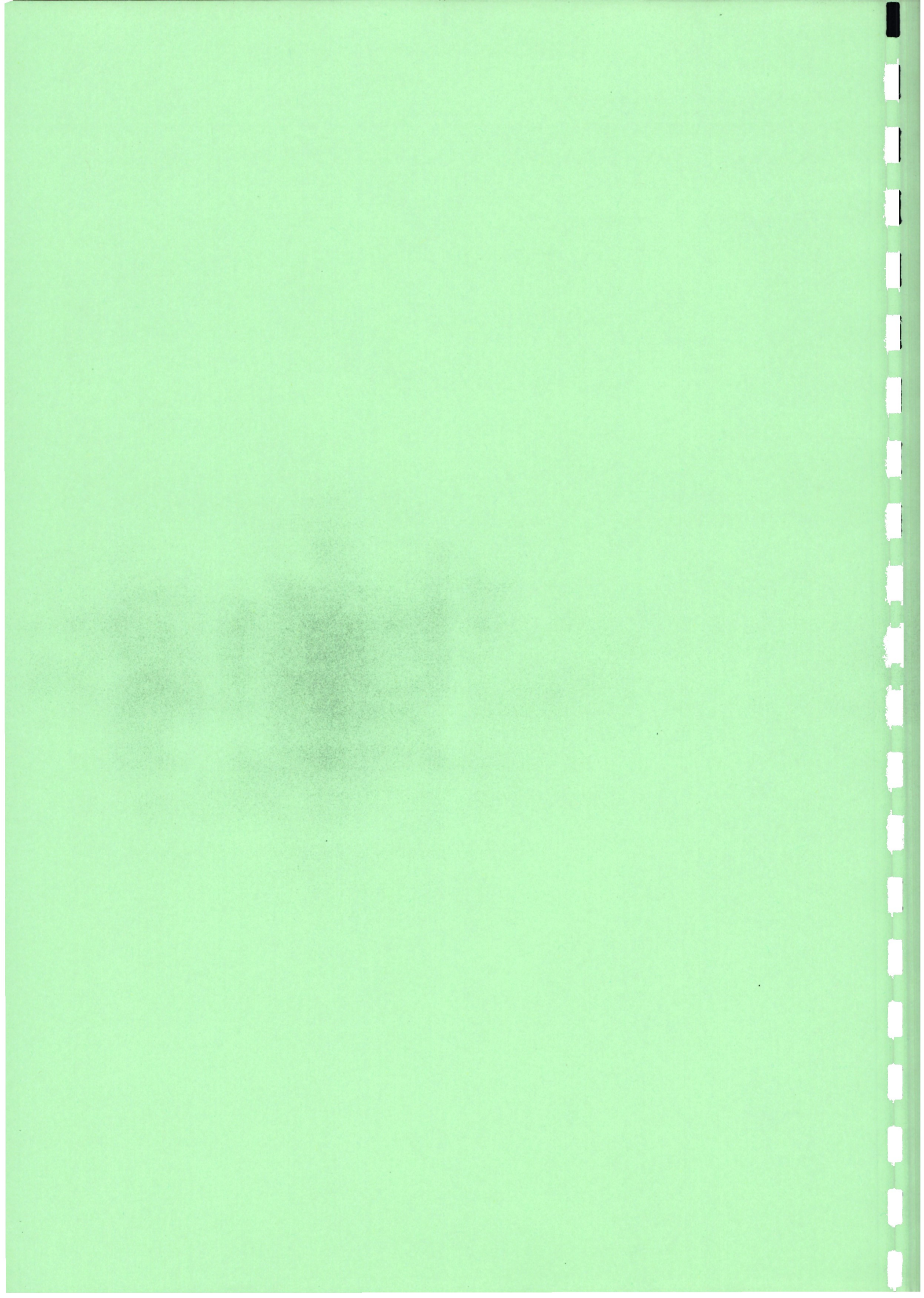
<p>Management</p> <ul style="list-style-type: none"> ○ Financing plan 	<ul style="list-style-type: none"> ○ Implementation of road transport and traffic operational improvements ○ Implementation of road routine and periodic maintenance on all maintainable roads ○ Expediting roads development plans in order of priority. ○ Road condition achieves and is maintained at expected levels. ○ Financial resources are available as and when required, in accordance with poverty strategy. 	<p>data.</p> <ul style="list-style-type: none"> ○ Training record and employment contracts ○ Separate institutional arrangements for roads policy, funding and implementation ○ Financial records, audit reports, annual report and accounts. ○ Roads contract performance data. 	
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Appendix B
Map of Kenya

REPUBLIC OF KENYA



Appendix C
Terms of Reference



TERMS OF REFERENCE

THE KENYA TRANSPORT SECTOR POLICY AND ROADS SUB-SECTOR STRATEGY STUDY

- A. STUDY BACKGROUND
 - B. STUDY OBJECTIVES
 - C. STUDY RESULTS
 - D. ISSUES TO BE STUDIED
 - E. WORKPLAN
 - F. EXPERTISE AND RESOURCES REQUIRED
 - G. REPORTING

 - H. TIME SCHEDULE AND LOCATION OF SERVICES

 - I. ASSISTANCE TO THE CONSULTANTS BY THE CONTRACTING AUTHORITY
-
- APPENDIX 1 FORMAT FOR THE STUDY REPORT
 - APPENDIX 2 RELEVANT DOCUMENTATION

ANNEX II: TERMS OF REFERENCE

TERMS OF REFERENCE FOR DEVELOPMENT OF THE TRANSPORT POLICY AND ROADS SUB-SECTOR STRATEGY IN KENYA

A. Study background

The National Indicative Programme (NIP) signed by the Government of Kenya and the European Commission in January 1997 reflects the European Commission's willingness to support the transport sector in Kenya, as a means to develop the country's economic and social potential.

Within the framework of this NIP, the European Commission has received a request from the National Authorising Officer to assist in developing a coherent transport sector policy and roads sub-sector strategy.

Consultations undertaken during preparation of the Poverty Reduction Strategy Paper (PRSP) identified roads as the main priority concerning physical infrastructure, in particular the poor state of the classified road network, the lack and poor state of rural access roads and the low level of community participation in road maintenance.

In March 1997 the Government of Kenya published its Strategic Plan for the Roads Sector for the period 1997-2001, in order to increase productivity and efficiency in the sector. The key objective of this Plan was attainment of sustainability of adequate routine and periodic maintenance of roads through local resource financing. While significant steps have been made since 1993, most notably through the Road Maintenance Levy Fund Act which established the fuel levy, the roads network remains in a critical state and a significant number of outstanding issues concerning the effective management and sustainable financing of the roads sector remain to be solved.

At a recent conference of roads sector stakeholders on policy and strategy for the roads sector in Kenya - held on May 21-23 2002 at Safari Park Hotel and organised by the Kenya Roads Board with financial support from the multi-donor Sub-Saharan Africa Transport Program – it was agreed that there is an urgent need to have a holistic approach to review of an optimum transport policy in Kenya, an identification of the policy objectives for the roads sub-sector in Kenya and development of the sub-sector strategy, including arrangements for the effective and sustainable management and financing of the roads network. The conference participants included a broad range of roads sector stakeholders, including the KRB, representatives of key development partners and the Permanent Secretary and senior staff of the Ministry of Roads and Public Works (MoRPW). It was agreed by all concerned that a comprehensive transport sector policy for Kenya be drawn up, to be followed by the development of a road sub-sector policy and strategy, focusing in particular on the elaboration of a 10-year strategy, to be ready by the end of December 2002.

The road sub-sector strategy should be coherent with the overall transport sector policy in Kenya, which will enable the roads sub-sector to respond to

economic and social needs within the context of Kenya's macro-economic environment.

B. Study objectives

The study will provide the decision-makers in the Kenya Government and the development partners with sufficient information to justify the acceptance, modification or rejection of the proposed Transport Sector Policy and Road Sub-sector Policy and Strategy.

C. Study results

The study will deliver the following:

a. Overall Transport Policy

- i) a review of existing policy, key problems, constraints and issues concerning the roads sub-sector in Kenya
- ii) a review of existing policy, key problems, constraints and issues concerning the railway sub-sector in Kenya
- iii) a review of existing policy, key problems, constraints and issues concerning the air transport sub-sector in Kenya
- iv) a review of existing policy, key problems, constraints and issues concerning the marine transport sub-sector in Kenya, including ports, ferry service and inland shipping
- v. a review of existing policy, key problems, constraints and issues concerning the pipeline transport sub-sector in Kenya
- vi. a review of existing transport inter-modal interchange facilities including container depots and recommendations of options for integrating transportation modes in Kenya
- vii. recommendations of broad policy objectives to improve urban transportation efficiency;
- viii. a forecast of the transport demand in the next 15 years, in view of the ongoing regional integration initiatives (East African Community, Common Market for Eastern and Southern Africa, African Union, Inter-Governmental Authority on Development (IGAD) etc.),
- ix. a policy document on an overall transport sector for Kenya clearly linking policy objectives with overarching PRSP goals

b. Road Sub-sector Policy and Strategy

- i. a review of existing plans and strategies concerning the institutional arrangements, management and financing of the roads sub-sector in Kenya in the light of policy objectives for the transport sector and the roads sub-sector;
- ii. an assessment of previous needs assessments and studies of the roads sector in Kenya to establish their relevance to the current situation and future strategy;

- iii. an updating of relevant data and information on the roads sector so as to provide an adequate basis for the proposed sub-sector strategy;
- iv. a review of existing arrangements concerning the ownership and management of the roads network, covering main, urban and rural roads, classified and unclassified;
- v. a review of existing arrangements on urban –spacing, mass transportation systems and road planning as they affect the road transport efficiency in urban areas;
- vi. an assessment of non-motorised transport needs in relation to the roads network in urban and rural areas
- vii. an assessment of the road safety situation in Kenya
- viii. a review of existing axle loading regulations and enforcement
- ix. an assessment of issues relating to physical planning and route corridors
- x. an assessment of viable options for effective and sustainable institutional and management arrangements covering all roads;
- xi. an assessment of financing needs, including investment, to allow sustainable maintenance of the roads network to adequate standards;
- xii. an assessment of options for the adequate and sustainable financing of the roads sector;
- xiii. recommendations for a ten-year roads sub-sector strategy, including any further reforms and changes required to establish effective and sustainable institutional, management and financing arrangements.
- xiv. a policy document on the road sub-sector serving overall sectoral objectives and anchored in PRSP objectives.

D. Issues to be studied

i) Relevance

- their contribution to poverty reduction, sustainable economic and social development, regional integration, gender equity, environmental protection, safety and HIV/AIDS;
- current and evolving problems and issues concerning implementation, including stakeholder involvement, economic and financial sustainability, institutional sustainability and sound management;
- the policies and operational statutes of relevant Ministries and statutory bodies, relating to transport and communications regulation, financing, and operation, physical planning, traffic enforcement, customs regulations and procedures in particular the Ministries of Roads and Public Works, Transport and Communications, Local Government, and the Kenya Roads Board.
- the problems and interests of the private sector and roads users' groups concerning their involvement in the management, maintenance and financing of roads works;

- the demands and priorities of key user groups from urban and rural areas and different social and economic sectors, representing both female and male beneficiaries, concerning roads network improvements and involvement in the maintenance and financing of the roads network;
- information and data from earlier studies and evaluations.

ii) **Feasibility**

The consultants will analyse the options for an overall transport sector policy and roads sub-sector policy and strategy consistent with the required economic and financial, institutional and management, environmental, socio-cultural and gender impacts¹, regulatory and operational standards and practices.

To compare the options, the consultants will develop a recommendation that is structured as follows:

- **Overall objectives:**
- **Project purpose:**
- **Project results:**
- **Project activities:**

The project purpose and results should be specified by indicators, and activities should be quantified wherever possible.

On the basis of this analysis, recommendations will be made by the consultants for the most appropriate transport sector policy and relevant, feasible and sustainable sub-sector policy and strategy.

In line with the foregoing issues to be studied by the consultants include:

- Resource requirement needs for investment and maintenance in the light of the policy objectives and needs of beneficiaries;
- resources and levels of recurrent and development funding (current and potential) for the roads sub-sector, including the fuel levy, license fee income, cesses, property rates, parking fees, grants, concessions, private sector investment, donor funding, etc.
- institutional responsibilities for the management of the network and implementation of roads works concerning all roads (main, urban, rural) so as to better align responsibility and ownership, in particular effective road implementing agencies;
- capacity building for all road agencies and local consultants and contractors to support improvement of private sector involvement in the implementation of road works;
- allocation and distribution of funding for rehabilitation and maintenance, particularly to strengthen routine maintenance and including fund allocation criteria and financial auditing;

¹ The main options for a roads sector strategy for Kenya will be outlined in a strategy discussion document, to be produced by a consultancy prior to the sector strategy study.

- the Roads 2000 approach to the rehabilitation and maintenance of unpaved rural roads, in particular the strengthening and extension of this approach to the whole network;
- use of the road network, including control of vehicle weight and axle-loading ;
- systems of sound financial control, planning and management, including contract management and supervision, including contract compliance.
- Performance monitoring indicators including road condition, vehicle operating costs, traffic levels, road transport passenger fares and freight tariffs and road safety statistics.

iii) **Preconditions**

The consultants should identify any necessary preconditions for the transport sector policy and road sub-sector policy and strategy to be implemented, including any legislative or other changes required. Two Workshops for the road sector stakeholders shall be held, one just after the inception report has been produced and the second immediately after the production of the Draft Final Report. The stakeholders and the consultant shall develop an action plan to implement the strategy.

iv) **Sustainability**

The sustainability of the proposed sector strategy should be assessed, in particular against the following sustainability factors;-

- policy and coordination,
- demand and economic sustainability,
- financial sustainability,
- institutional and management sustainability,
- environmental and socio-cultural sustainability
- regulatory and operational sustainability².

The list of issues is not exhaustive. The consultants are required to use their professional judgement and experience to review all relevant factors and to bring these to the attention of the KRB.

E - Work plan

On the basis of the proposed time schedule outlined in section H of this Terms of Reference, the consultants will prepare a work plan for the sector study and present this in their offer. The work plan should set out the consultants' approach to the following activities:

- collection and assessment of data and information
- identification and analysis of options for the proposed transport sector policy and roads sub-sector policy and strategy

² See Programming Guideline Note No.8, Transport sector – update, European Commission DG Development

- consultation meetings with decision makers and stakeholders to assess the possible options and identify preferred solutions
- preparation of the Inception Report, Interim Study Report, Draft Final And Final Study Reports And Transport Sector Green Paper
- presentation of findings in two one-day workshops hosted by KRB in Nairobi for key stakeholders to discuss the Interim Study Report and Draft Final Study Report respectively.

It should be noted that a number of studies have been carried out on the various modes of transport in Kenya and the review of transport sector policy and issues and the development of the transport policy green paper is primarily a desk-based assessment. The review of the roads sub-sector policy and development of the roads sub-sector strategy will require a more detailed approach. One very recent review, carried out in May 2002³, focuses on the policy context of the Kenya roads sector, the extent and condition of the Kenyan roads network and on sub-sector problems issues and strategy options. There are, in addition, several previous studies, assessments and reviews of relevance to this current study. While an assessment of the validity of all existing studies and reviews in the current situation should be made, it is not expected that the study undertake new analyses and assessments if these already exist and are valid.

F - Expertise and resources required

A team of well-reputed senior transport/roads sector and social development experts is required, with solid experience and expertise in institutional, financial, economic and social analysis, thorough knowledge of the policy context and transport sector, particularly the roads sub-sector in Kenya and a proven ability to produce high quality work whilst respecting tight deadlines. The team should ideally include the following:

1. The Transport Economist /Team Leader (1 no. expert – total 5 man-months)

shall be a University graduate of economics with a minimum of 15 years post-qualification experience, and must possess a second degree in Transport Economics. Previous experience with transport sector institutional reform is essential. The Expert must also have at least 5 years working experience in developing countries and sufficient knowledge and experience to be able to respond to technical issues which may arise during the course of the study in his/her capacity as Team Leader. Familiarity with European Development Fund regulations and procedures, shall be an advantage. The Expert shall have an excellent command of both spoken and written English.

2. The Roads Engineer (one no. expert - total 3 man-months)

shall have a basic Civil Engineering university degree and a minimum post-qualification experience of 15 years in all aspects of road

³ Kenya Road Sector Strategic Review Draft Mission Report (May 6 – May 27, 2002)

development and maintenance, at least 5 of which shall be in developing countries. Previous experience in road sector institutional planning and management is essential. The Expert shall have a good command of both spoken and written English.

3. Institutional /Management Specialist (one no. expert – total 2.5 man-months) shall have a basic university degree with 10 years experience and experience with transport sector-related institutional studies, planning, development and management . The Expert shall have a good command of both spoken and written English.
4. Transport Planner /Researcher (one no. expert – 2.5 man-month) shall have a basic degree in Engineering, Economics or other social science and a minimum of 10 years of post graduate working experience, part of which must have covered traffic network analysis and transport demand forecasting. The Expert shall have a good command of both spoken and written English.
5. Management /Workshop Facilitation Expert (one no. expert – total 1 man-month)
to be responsible for preparation of the stakeholders workshops and preparation of the reports of the workshop. The expert shall have a basic university degree and a minimum of 5 years of postgraduate working experience. Experience in planning, organization and facilitating of seminars dealing with technical issues and writing reports on the proceedings is essential. Experience with transport sector seminar work will be an advantage. The expert shall have a good command of both spoken and written English and be fully conversant with latest technology presentation aids.
6. Workshop Facilitation Expert (one no. expert – total 1 man-month)
to assist the Management /Workshop Facilitation Expert in preparation of the stakeholders workshops and preparation of the reports of the workshop. The experts shall have a basic university degree and a minimum of 5 years of postgraduate working experience. Must have previous experience in organization and facilitating of seminars and writing reports on the proceedings. The expert shall have a good command of both spoken and written English and be fully conversant with latest technology presentation aids.

For each specialist proposed, a curriculum vitae of no more than four pages should be provided setting out the qualifications and relevant experience. A detailed time-related bar chart should be presented indicating the inputs of various experts and location of services.

G - Reporting

Reports to be provided include:

- An Inception Report
- An Interim Study Report
- A Draft Final Study Report

- The Final Study Report incorporating the Transport Sector Green Paper

The consultants will present a succinct inception report (12 copies), setting out the approach to developing the transport sector policy paper and options for the roads sub-sector policy and strategy. The approach will enable key stakeholders and decision-makers to make informed comments through a systematic consultative process to be elaborated in the inception report.

An Interim Study Report comprising the transport sector policy document and road sub-sector policy document and strategy report should be submitted to the KRB in 90 copies. This will provide the basis of the consultative process whose recommendations shall be incorporated during the production of the draft study report (90 copies).

A Final Study Report and Transport Sector Green Paper (max 180 pages excluding annexes), comprising the transport sector policy document and roads sub-sector policy document and strategy report taking into account the comments received from the KRB and from the stakeholders' workshop, should be produced, (90 copies) in English. The conclusions of the study should be presented in the report format set out in Appendix 1.

H - Time schedule and location of services

The study period is 24 weeks as detailed below. The consultants should respond to this timetable in their offer by way of a detailed bar chart. The Inception Report shall be submitted by the end of week 3

The interim report should be submitted to KRB By the end of week 12. Consultation on the options described in the Interim Report should be presented in a workshop of road sector stakeholders to be hosted by KRB and findings incorporated into the Draft Final Study Report.

The Draft Study Report comprising the transport policy document and roads sub-sector policy document and strategy report should be submitted to KRB by the end of week 17

Comments on the Draft Study Report shall be provided formally in writing by KRB within 2 weeks of the submission of the draft report.

The stakeholders' workshop shall be held 2 weeks after submission of the draft study report whereby the stakeholders will have an opportunity to present their comments.

The Final Study Report comprising transport sector policy document (Green Paper), road sub-sector policy document and roads sub-sector strategy report should be submitted to Kenya Roads Board by the end week 24.

Until the conclusion of the stakeholders' workshop the bulk of the services will be performed in Kenya (the Inception Report staffing schedule will elaborate these arrangements). Following the workshop the services will be performed in Kenya or the consultant's home office.

I - Assistance to the consultants by the contracting authority

The KRB will make available the following information and facilities to the consultants:

- All relevant reports, documents, maps and data (ref. Article 51 General Conditions of Contract)
- Counterpart staff to provide initial and regular briefings on, and to answer questions about, relevant roads sector issues
- Details of stakeholders and support with making contacts and arranging meetings
- Letters of introduction to relevant Government Ministries and public, private corporations
- Office space, furniture and access to computer and communication facilities in the offices of the KRB in Nairobi

The KRB will also facilitate:

- the issue of entry and exit visas for the consultants' expatriate staff
- issues of any permits required for the consultants' staff to carry out their duties in Kenya

Appendix 1: Format for Transport Sector Policy and roads sub-sector policy and strategy study report⁴

- 1. Summary**
- 2. Background**
 - 2.1 Government policy for the transport sector, particularly the roads sub-sector
 - 2.2 Main features and issues of the transport sector and the roads sub-sector
 - 2.3 Features of the transport sector with particular reference to the roads sub-sector
 - 2.4 Beneficiaries and parties involved
 - 2.5 Problems to be addressed
 - 2.6 Other interventions
 - 2.7 Documentation available
- 3. Proposed Transport Sector Policy, roads sub-sector policy and strategy**
 - 3.1 Overall objectives
 - 3.2 Purpose
 - 3.3 Intended results
 - 3.4 Activities
- 4. Assumptions and risks**
 - 4.1 Assumptions at different levels
 - 4.2 Risks and flexibility
- 5. Implementation**
 - 5.1 Means
 - 5.2 Organisation and implementation procedures
 - 5.3 Time schedule
 - 5.4 Cost estimate and financing plan
 - 5.5 Special conditions and accompanying measures to be taken by GoK
- 6. Factors ensuring sustainability**
 - 6.1 Policy support and co-ordination
 - 6.2 Regulatory and operational, including appropriate technology
 - 6.3 Environmental protection
 - 6.4 Poverty and Social Impact Assessments
 - 6.5 Socio-cultural aspects and gender equity
 - 6.6 Institutional and management capacity, public and private

⁴ Appendix 1 -Transport sector guidelines: towards sustainable transport infrastructure, a sectoral approach in practice, European Commission DG Development, 1996

6.7 Demand, economic and financial analysis

7. Monitoring and evaluation

7.1 Monitoring indicators and systems

7.2 Reviews/Evaluation

8. Conclusions and proposals

1.1 Technical appendices

- i. Logical framework matrix of proposed roads sub-sector strategy including intervention logic, indicators, assumptions and preconditions
- ii. Map of Kenya showing principal features of roads sub-sector
- iii. Analysis of the relevance of the sub-sector strategy with the final conclusions also presented in chapter 2.
- iv. Analysis of the strategy options incorporating feasibility and sustainability, and logical framework planning matrices with the preferred solution presented in chapters 3, 4 and 6.
- v. Other technical appendices, if any.
- vi. Terms of Reference.
- vii. Consultants' comments on the Terms of Reference.

1.2 Administrative appendices

- i. Study methodology and work plan (2-4 pages)
- ii. Itinerary (1-2 pages)
- iii. List of persons/organisations consulted (1-2 pages)
- iv. Literature and documentation consulted (1-2 pages)
- v. CVs of the consultants (1 page max. per person)

Appendix 2: Relevant documentation

Documentation to be availed to the Consultants

- (i) Council Communication (COM 422 of 6th July 2000) on Promoting sustainable transport in development co-operation
- (ii) Kenya Road Sector Strategic Review, Draft Mission Report, May 6- 27 2002 (World Bank)
- (iii) Report on Conference of Roads Sector Stakeholders on policy and strategy for the roads sector in Kenya - held on May 21-23 2002 at Safari Park Hotel (Kenya Roads Board)
- (iv) Strategic Plan for the Roads Sector, Government of Kenya, March 1997
- (v) Transport sector guidelines: towards sustainable transport infrastructure, a sectoral approach in practice, European Commission DG Development, 1996
- (vi) European Commission manual on Financial and Economic Analysis.
- (vii) European Commission manual on Women in Development and on Employment.
- (viii) European Commission manual on Environmental Impact Assessment.
- (ix) Kenya Road Maintenance Levy Fund Act 1993, and 1994 amendment
- (x) Kenya Roads Board Act 1999
- (xi) Regional Cooperation Agreements
 - Common Market for Eastern and Southern Africa (COMESA),
 - East African Community (EAC),
 - Inter-Governmental Authority on Development (IGAD)
 - Regional Integration Forum Facility (RIFF)
 - WTO agreements:

Appendix D

Consultants' Comments on the Terms of Reference

Comments on Terms of Reference:

Overview

Upon reflection, the ToR had two agenda a) the need, perceived mostly by development partners, for a holistic approach that required the preparation and adoption of a policy and strategy for the roads sector and b) a roads investment plan required by the KRB.

The terms of reference placed more significance on the policy and strategy, 'requiring sufficient information to justify their acceptance,' as indicated in the specific objective.

Specific Objectives

To prepare a draft Transport Sector Policy and Road Sub-sector Policy and Strategy and to provide the decision-makers of the Kenya Government and development partners with sufficient information to justify their acceptance, modification, or rejection of the said policies and strategy.

Purpose

Therein lies the purpose of this study as to the sufficiency of information needed at a strategic level.

The international view is that strategic planning is above the level of work planning, setting out the arguments for direction, that is to say where funds should be allocated and affordability or how much of the network can the country afford to maintain. This is what is missing in Kenya and this is the genesis for the study. Moreover, there should be no need to list routine and periodic maintenance as it has to be carried out – the problem is that through lack of policy it has not. Regarding rehabilitation or reconstruction, there has never been any shortage of projects or lists of projects such as in the MoRPWH 1997 plan. But there is a shortage of political rationale and strategy.

This is not to put down the need for an investment plan at all, but to realise that no matter how detailed a plan, without a strategy it will not work; as they have not worked in the past.

But the chief interest of the KRB remains to the last days of the study in having a comprehensive list of roads and sections and the individual priority of each one. Considering the importance of the investment plan to the KRB, the ToR only indirectly refers and does not specifically mention it as an expected result. Refer below:

Results

Section C (b)

(xi) an assessment of financing needs, including investment, to allow sustainable maintenance of the roads network to adequate standards;

(xii) an assessment of options for the adequate and sustainable financing of the roads sector;

(xiii) recommendations for a ten-year roads sub-sector strategy, including any further reforms and changes required to establish effective and sustainable institutional, management and financing arrangements.

The specific requirements of a strategic plan and the difference of opinion as to what it should comprise, seems to be at the heart of the study. That MoRPWH thinking, inherited by the KRB, is along the lines of a work plan that proposes a list of works that may or may not materialise. That strategic planning of development partners is largely concerned with the relevance, effectiveness and sustainability of the overall roads programme leaving the detailed planning to a subsequent phase. This latter requirement appears to more closely reflect the results expected in the ToR described above.

In reviewing the ToR, the main task of the study may not be so much in producing policies, strategies or even plans, but in ensuring that, once prepared there is sufficient understanding and appreciation by KRB and the MoRPWH to adopt them. By the conclusion of this project there was no clear direction from KRB of how the policies and strategies were to be incorporated into the National Transport Policy Document. This is understandable as neither the KRB nor their parent organisation the MoRPWH has been engaged in preparation of policy recently. Moreover, there has been a policy vacuum overall in the transport sector so experience in transport policy is inevitably no significant. Thus the purpose of the final phase of the study (response) is to facilitate this step.

The objective required the preparation of the 'Transport Sector Policy for the decision makers of the GoK'. There were several issues arising from this, regarding the preparation of the project that made this an almost impossible requirement.

Approximately a third of the ToR is directed to reviewing the performance of the Transport Sector and its policies and in preparing Transport Policy Green Paper. At the time of preparing the ToR, Kenya had not taken steps to prepare a National Transport Policy. It was understandable that there was a desire to prepare one. But normally the preparation of such a policy is a substantial and lengthy process. Also it is natural for the Ministry of Transport to undertake that role. Thus, the ToR is puzzling in that it rightfully advocates that a holistic approach be taken when considering the road sector but fails to recognise the MoTC as the main body responsible for Transport Policy. Instead the job is given to KRB. In many ways this is counter to the aims of enabling a holistic and integrated approach. The KRB has no mandate to advise on transport policy, yet alone prepare and promote a Green Paper to the GoK. Moreover, no comments were received from KRB, the MoTC or the MoRPWH on the transport sector review, traffic forecasts and recommended Transport Policies prepared as major study outputs.

Clearly, if the ToR aimed at providing assistance to the GoK in preparing Transport Policy Green Paper then the MoTC should have been co-recipient of the project. The Minister of Transport also cautioned the KRB in letter about overstepping their mandate. The study concerning transport and roads basically assumed the result - that the sector was already integrated and MoTC and KRB would be able to work as one; this was a flawed assumption that significantly affected the outcome.

Overall the study was complex; expectations at all levels were high. The work programme was demanding and the quantity of material required was significant in relation to the 24 weeks programme. Whilst understanding the desire to get as much benefit from a consulting assignment as possible, the consequences of there being little quality consulting time with the beneficiaries should be recognised with concern especially when dealing with concepts, issues and policies¹.

The provision of adequate consulting time can often be compromised to obtain a greater volume of output. The existence of vast quantities of unfulfilled consulting output on the shelves of beneficiaries is testimony to the failure of this approach.

Comments on the ToR are summarised below.

Beneficiary: Was the KRB but should have been the MoTC and the MoRPWH.

Background: Was understated because of the seriousness of the mismanagement and misuse of the RMLF. This was so apparent to the EU Commissioner in his visit of December 2003 that his critical comments were widely reported. The background was also overtaken by events- the MoTC separately initiated preparation of a National Transport Policy² and the MoRPWH progressed institutional reform activities³.

Rationale: The rationale to eradicate corruption and reverse a decade of mismanagement and waste was not really prominent. Yet it was the main reason for the EU and other donors to pull out of Kenya. The rationale was more academic. Perhaps this was due to the KRB's planned audit initiative. Furthermore, the need for a holistic approach was self evident to development partners but not KRB, whose interest remains with the preparation of the same sort of investment plan as in 1997.

Study Objectives: Not achievable in the matter of preparing a National Transport Study as could only be done through MoTC, not referring to the eradication of corruption and mismanagement and understating the importance of a detailed roads investment plan to the KRB.

¹ There is no implication here that the KRB was not available for consultation, the opposite in fact, that due to pressure of work the consultant would have liked to have been more available for discussion.

² Commencing May 2003

³ Commencing November 2003

Results expected: The long list of results expected in item C of the ToR are really study outputs. Reference to results expected as a result of the study are not stated, omission of results poses a serious question as to the project design.

Assumptions: That KRB has a legal mandate to issue National Transport Policy is false. That KRB is in a position to influence the MoRPWH as the implementing agency, to reform, is also doubtful.

Scope of Work: Extensive, bearing in mind the resources.

Cooperation: Well prepared with respect to the KRB but not the MoTC.

Work programme: 24 weeks for a Transport Policy, Roads Policy, Roads Strategy and detailed investment plan is an underestimation of the time needed.

Comments received:

KRB - Volume 1

MoRPWH - No comment

MoTC - No comment

Ministry of Planning and National Development – Volumes 2 and 3

Kenya Wildlife Service - Volume 1

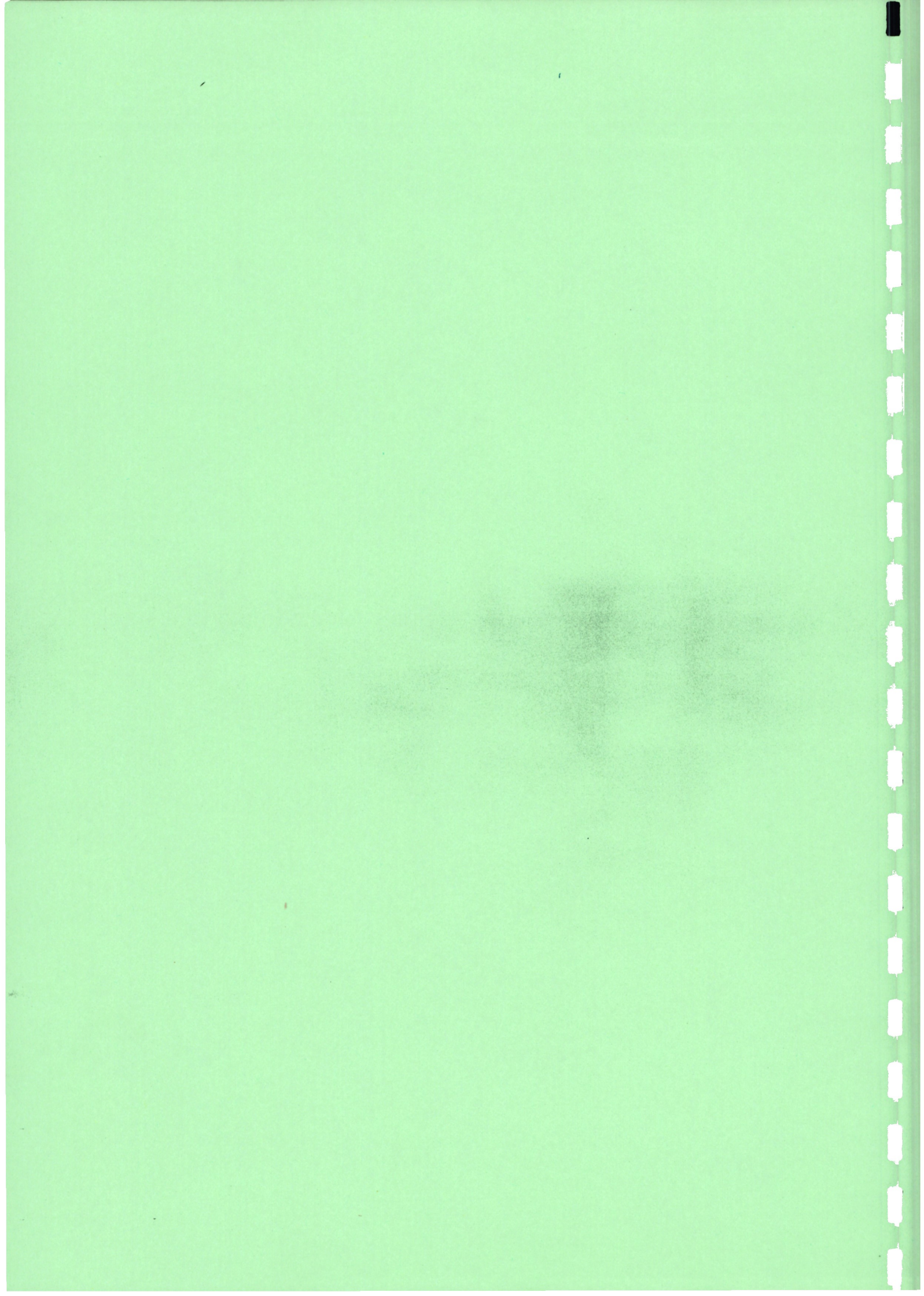
Chartered Institute of Arbitrators - Volume 3

European Union - All Volumes

Next Steps: Bearing in mind the relative shortage of transport policy experience follow-up to consider immediate next steps will provide considerable value added to the work programme whilst facilitating the KRB, EU and other stakeholders.

Appendix E

Study Methodology and Work Plan



Study Methodology and Work Plan

The way that the study was executed was broadly as envisaged in the ToR. There were changes however and the work programme as also extended. The programme was considered to cover 4 phases.

1. Inception
2. Policy
3. Strategy
4. Final Report

A fifth phase was added to give more time for KRB and stakeholders response and to hold a third and final workshop.

Inception Phase

The work started 26th June with the arrival of the team leader.

The Inception report was delivered 11th July following instructions from KRB to deliver as soon as possible.

The Inception report underwent 3 versions before the KRB approved it on 16th October.

The issues arose from problems with the project design described in comments on the ToR in Appendix D. The main issue concerned the preparation of a Transport Policy Green Paper. This was problematic from the outset because the MoTC was already preparing a Transport Policy Green Paper (starting May 2003) and that KRB had no mandate to prepare such a paper and would have found it virtually impossible to promote it to the GoK. However, it was agreed that a review of the transport sector was still needed together with broad recommendations for transport policy but the requirement to prepare a Green Paper was dropped.

There was also a considerable interest by the KRB to produce a detailed roads investment plan. The KRB put much emphasis on the plan whilst that of the TOR places more on the policy and strategy.

Review of Transport Sector.

The process commenced upon mobilisation with a review of each mode of transport and identification of some of the main issues. The first draft of this review was included in the Inception Report 11th July for discussion purposes. However, the KRB decided that the review would be better placed in the Interim Report so was deferred until then. One issue overshadowed the review and that was the MoTC's own work on preparing a National Transport Policy. It was considered to be desirable not to repeat or duplicate the work of the MoTC but to work with them. Despite many efforts at all levels this cooperation failed to materialise. Thus the review of the transport sector was carried out without reasonable cooperation from the MoTC. The information was gathered from interviews with heads of each parastatals and from other Government Departments. What the review does not cover is the transport policy green paper as was hoped because at the time of writing, the planned publication dates had been put back and had not been published.

The review also included the preparation of transport demand and road traffic forecasts. Finally the review also included broad sector wide policy recommendations to provide a framework for Roads Policy. The sector review, transport demand and traffic forecasts and policy framework were included in the Interim Report Volume 1; Volume 2 and 3 contained the proposed policy and strategy and three volumes were issued 2 December. A final twist in the tale of the Transport Sector Review was the unknown to the KRB and the EU was that the World Bank had carried out its own review, which was published September 2003. Thus there were three parallel activities.

Policy Phase

Because the study approach is top-down, the first milestone was to agree a roads policy before proceeding to the strategy. A policy matrix was released 27th August containing issue, problem statement, policy objective, policy statement and outline strategy. This document became the basis for discussion at the first workshop held, as planned on 9th 10th September. This diverged from the ToR that required the workshop to discuss the Interim Report. It was felt that discussion of a report would not achieve the vital objective of an agreed set of policies. The result of this focussed approach

was to actually have an agreed set of road sub-sector policies that were then used to develop strategies.

Strategy Phase

The next level from policy formulation is strategy, in other words how to implement the policies. The process culminated in the second workshop, held 2 weeks later than planned on 12th 13th and 14th November. The workshop, which was held jointly with the World Bank so that their review of the Transport Sector could be related to the work of this study and to encourage cooperation between the MoTC and MoRPWH. The workshop materials was to have been the draft final report (dfr) but as with the first workshop it was considered to be preferable to focus on the proposed strategy rather than the wider material of the dfr. The plan worked again and the workshop delivered an agreed set of strategies upon which the implementation plan and the final recommendations could be made in the dfr.

Final Report

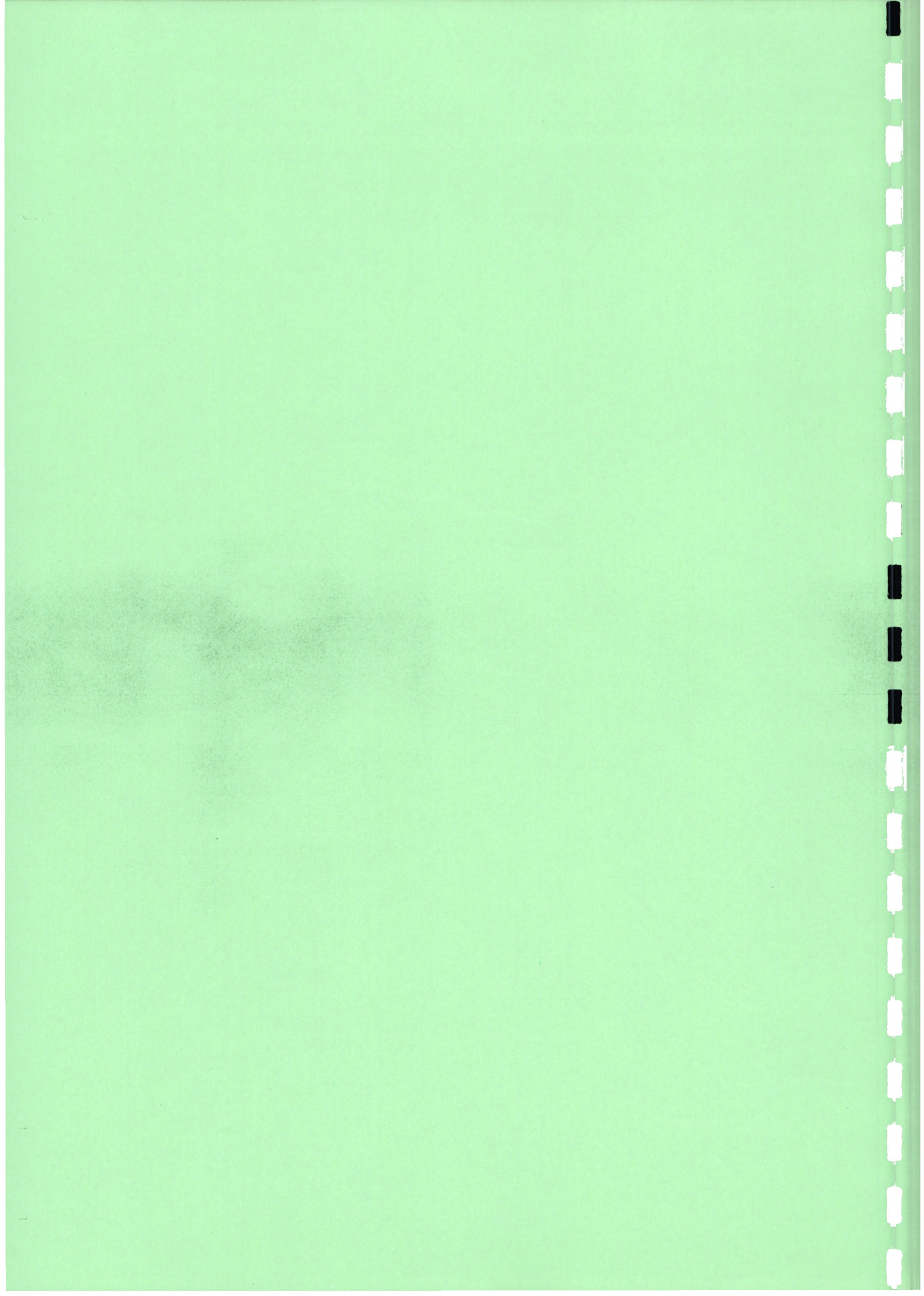
The dfr was issued 4 weeks following the second workshop on 11th December. The dfr was presented in three volumes because each has different readers and uses. Volume 1 is based on the ToR list of contents including a review of the Roads Sub-sector; its readership is likely to be of most interest to KRN, MoRPWH and International Development Partners. Volume 2 is a compilation of the recommended roads sub sector policies and strategies for promotion to Government for adoption and Volume 3 contains the transport sector review that should be of interest to KRB and the EU.

Response Period

Despite the limited time available (24 weeks), the dfr contains a large amount of material and recommendations that will require far more time to digest than that mentioned in the ToR. For this reason, late running and the proximity of end of year holiday prompted KRB to respond favourably to a request to extend the study completion. A third workshop was considered desirable to discuss the comments on the dfr and the next steps. This workshop is to be held in early February 2004. This and all alterations of the work programme are reflected in the figure on the following page.

Appendix F

Economic and Financial Analyses



Appendix F 1

Vehicle Operating Costs

	Car	Matatu	Truck	Bus
Utilisation				
Life	9	8	8	10
hours/year	400	3000	2500	3000
Km/year	20000	100000	80000	100000
Depreciation code	2	1	2	1
Utilisation Code	1	3	3	3
Interest % pa	12	12	12	12
Passengers	1	12	2	53
Cargo	0.4	2	16	8
Input Prices Ksh				
Vehicle Price	1761700	2204353	4084328	7062274
New Tyre	4178	5648	14468	17253
Maint'ce	364	364	472	472
Crew	0	85	162	162
Overhead	23	46	77	85
Passenger	62	15		15
Cargo			23	
Gasoline	5.2			
Diesel		6.8	13.2	10.5
Lube	132	132	132	132
Derived Unit Costs Per km				
PMT	16.53	4.44	10.28	12.50
Depreciation pa	0.22	0.01	0.02	0.02
Maint'ce	0.49	0.49	0.63	0.63
Tyres	0.33	0.45	2.89	2.76
Fuel	5.20	6.80	13.20	10.50
Sub Total	22.77	12.18	27.02	26.41
Overhead	0.05	1.14	0.61	1.35
Time Costs				
Passenger	1.55	5.40		23.85
Crew		2.55		4.86
Cargo			0.72	
Total	25.46	20.74	29.09	56.44

Source HDM IV input data for Concessioning Study BKS 2002
PSV Load Factors based on legal limits

Appendix F 2 Economic Benefit of Maintenance

Change in VOC's for Paved and Non-paved Roads

	VOC Ksh		Traffic bVkm		% difference in VOC		Benefit bKsh		
	Paved	Unpaved	Total	Paved	Unpaved	Paved	Unpaved	Paved	Unpaved
Car & Light Goods	25.46	28.01	4.04	2.82	1.21	12.20	13.42	8.77	4.55
Bus and Matatu	25.20	42.85	2.48	1.73	0.74	18.30	29.28	8.00	9.32
HGV	56.44	59.27	1.00	0.70	0.30	24.40	31.72	9.67	5.66
Total			7.52	5.26	2.25			26.45	19.53

Appendix F3 Fiscal Means

Projected Fuel Levy Income Generated on each class of Road @ 5.8 Ksh per litre

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020	%
<i>Levy</i>	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8	5.8
A	2.651	2.737	2.825	2.917	3.011	3.108	3.209	3.313	3.420	4.010	4.703	28.42%
B	1.042	1.064	1.088	1.112	1.136	1.161	1.187	1.213	1.239	1.381	1.540	9.30%
C	0.687	0.702	0.718	0.734	0.751	0.768	0.785	0.803	0.821	0.919	1.028	6.21%
D	0.236	0.240	0.245	0.250	0.255	0.259	0.265	0.270	0.275	0.303	0.334	2.02%
E	0.386	0.393	0.400	0.407	0.414	0.421	0.429	0.437	0.445	0.486	0.531	3.21%
Sub Total	5.000	5.136	5.276	5.419	5.567	5.719	5.875	6.035	6.200	7.099	8.135	49.16%
Urban	3.028	3.190	3.359	3.538	3.727	3.925	4.134	4.354	4.586	5.944	7.705	46.56%
Rural	0.367	0.381	0.395	0.409	0.425	0.441	0.457	0.474	0.492	0.590	0.708	4.28%
Total	8.396	8.706	9.030	9.367	9.718	10.084	10.466	10.863	11.278	13.634	16.548	100.00%

Source Volume 3 Traffic Forecasts, Assumed Fuel Consumption, Consultant's proposed levy increases

Appendix F3 Fiscal Means

Projected RMLF – proposed levy increases

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
<i>levy</i>	5.8	5.8	6.5	6.5	6.5	6.5	6.5	6.5	6.5	7.5	8.5
A	2.65	2.74	3.17	3.28	3.39	3.50	3.62	3.74	3.87	5.26	7.03
B	1.04	1.07	1.22	1.25	1.28	1.31	1.34	1.37	1.40	1.81	2.30
C	0.69	0.70	0.81	0.83	0.85	0.87	0.89	0.91	0.93	1.20	1.53
D	0.24	0.24	0.28	0.28	0.29	0.29	0.30	0.31	0.31	0.40	0.50
E	0.39	0.39	0.45	0.46	0.47	0.48	0.49	0.49	0.50	0.64	0.80
Sub Total	5.00	5.14	5.93	6.09	6.27	6.44	6.63	6.82	7.01	9.31	12.16
Urban	3.03	3.19	3.76	3.96	4.17	4.39	4.62	4.86	5.12	7.63	11.17
Rural	0.37	0.38	0.45	0.46	0.48	0.50	0.53	0.55	0.57	0.81	1.12
Total	8.40	8.71	10.13	10.52	10.92	11.33	11.77	12.22	12.70	17.75	24.45

Source: Volume 3 Traffic Forecasts by vehicle and road type; fuel consumption, levy increases

Appendix F3 Fiscal Means

Projected income from LATF

	Billion Ksh											2020 Notes
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020	
GDP	969.00	988.38	1008.15	1028.31	1048.88	1069.85	1091.25	1113.08	1135.34	1284.53067	1489.1231 "	@ 2% pa to 2010
GoK Revenue	25.60%	25.98%	26.37%	26.77%	27.17%	27.58%	27.99%	28.41%	28.84%	31.07%	33.47%	
Income Tax	74.42	77.05	79.77	82.58	85.50	88.51	91.64	94.87	98.22	119.72	149.51 "	@30% of Revenue
LATF	3.72	3.85	3.99	4.13	4.27	4.43	4.58	4.74	4.91	5.99	7.48 "	@5% of Tax
All Roads	0.74	0.77	0.80	0.83	0.85	0.89	0.92	0.95	0.98	1.20	1.50 "	@20% of LATF
Counties	0.0727	0.134	0.139	0.144	0.149	0.154	0.159	0.165	0.171	0.208	0.260	World Bank
Municipalities	0.67	0.64	0.66	0.68	0.71	0.73	0.76	0.78	0.81	0.99	1.24	
Assumptions												
1 Annual tax collection improvement rate	1.50%											
GoK Revenue as percentage of GDP	25.60% in 1990's											
of which income tax	30.00%											
LATF	5.00%											
Approximate Allocation to roads	20.00%											

Appendix F3 Fiscal Means

Rates, Cess and Parking Fees

Rates	2002	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020 Notes
Total Local Government	10.100	10.302	10.508	10.718	10.933	11.151	11.374	11.602	11.834	13.065	14.425
Local Revenue	6.38	6.45	6.52	6.59	6.66	6.73	6.79	6.86	6.92	7.08	6.95 including cess,
Roads Expenditure	0.64	0.64	0.65	0.66	0.67	0.67	0.68	0.69	0.69	0.71	10.00%
CESS	0.42	0.66	0.67	0.68	0.69	0.69	0.70	0.71	0.71	0.82	3.00%

Kenya Transport Sector Policy and Roads Sub-Sector Strategy Study
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Appendix F3 Fiscal Means

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020	Notes
Parking												
Urban Population	11.39	11.62	11.86	12.10	12.70	13.30	13.91	14.51	15.12	18.41	22.58	
Cars/Light Vehicles	376,000	387,280	398,898	410,865	423,191	435,887	448,964	462,433	476,306	477,020	552,997	Growth 3.00%
Urban Ownership	169,200	174,276	179,504	184,889	190,436	196,149	202,034	208,095	214,337	214,659	248,849	45%
Parking Demand												
Work Parking	30.46	31.37	32.31	33.28	34.28	35.31	36.37	37.46	38.58	38.64	44.79	Parking pa 180
Non-Work Parking	3.38	3.49	3.59	3.70	3.81	3.92	4.04	4.16	4.29	4.29	4.98	Parking pa 20
of which Public Parking	6.77	6.97	7.18	7.40	7.62	7.85	8.08	8.32	8.57	8.59	9.95%	Public Pk 20%
On Street	5.41	5.58	5.74	5.92	6.09	6.28	6.47	6.66	6.86	6.87	7.96	On Street 0.8
Off Street	1.35	1.39	1.44	1.48	1.52	1.57	1.62	1.66	1.71	1.72	1.99	Off Street 0.2
Parking Supply												
On Street %	15	17	19	21	23	24	26	28	30	38	45	Supply/Demand
Off Street %	10	11	13	14	15	16	18	19	20	35	30	Supply/Demand
On Street parking pa	0.81	0.94	1.08	1.22	1.37	1.53	1.70	1.87	2.06	2.58	3.58	
Off Street parking pa	0.14	0.16	0.18	0.20	0.23	0.25	0.28	0.31	0.34	0.60	0.60	
Parking Income												
On Street	56.85	65.88	75.39	85.42	95.98	107.10	118.80	131.10	144.03	180.31	250.84	Pkg Fee 70
Off Street	20.30	23.53	26.93	30.51	34.28	38.25	42.43	46.82	51.44	90.16	89.59	Pkg Fee 150
Total Parking Income	77.16	89.40	102.32	115.93	130.26	145.35	161.22	177.92	195.48	270.47	340.43	Million Ksh

Appendix F3 Fiscal Means

License Fees	2002	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
Licensed Vehicles	610	628	647	667	687	707	728	750	773	896	1038000's vehicles
Vehicle License Fee	1.53	1.57	1.62	1.67	1.72	1.77	1.82	1.88	1.93	2.24	2.60
Assumed average fee=	2500										
Overloading Penalty											
Axle Load Fines	2002	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
Overloading Penalty	0.06	0.06	0.59	0.67	0.80	0.84	0.79	0.67	0.55	0.36	0.23 Output on A,B&C Roads
Damage Premium	0	0	3.57	4.04	2.70	1.49	0.74	0.30	0.10	0.08	0.06
Total Penalty	0.25	0.3	4.17	4.71	3.50	2.32	1.54	0.97	0.66	0.44	0.28

Refer to the overloading analysis

Appendix F 4

Overloading Analysis

Note	Overloading	2002	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
1	HGV bvk on A Roads	0.35	0.35	0.35	0.34	0.34	0.34	0.34	0.34	0.33	0.32	0.31
2	HGV Counted	549,269	545,424	541,606	537,815	534,050	530,312	526,599	522,913	519,253	501,332	484,029
3	Average Haul km	641	641	641	641	641	641	641	641	641	641	641
4	HGV weighed	360,000	381,797	406,204	430,252	480,645	503,796	526,599	522,913	519,253	501,332	484,029
5	% weighed	66%	70%	75%	80%	90%	95%	100%	100%	100%	100%	100%
6	% Overloaded	23%	23%	23%	23%	22%	21%	20%	19%	18%	14%	11%
7	Numbers overloaded	54,269	61,469	70,070	79,166	94,519	99,347	103,843	97,961	92,411	69,038	51,577
8	Permissible Mass tons	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5	54.5
9	Proportion of overload	0.1	0.1	0.1	0.1	0.09	0.08	0.07	0.06	0.05	0.05	0.05
10	Excess Load tons	5.45	5.45	5.45	5.45	4.905	4.36	3.815	3.27	2.725	2.725	2.725
11	Overloaded GVM ton km	0.19	0.21	0.24	0.28	0.30	0.28	0.25	0.21	0.16	0.12	0.09
12	Permissible axle load	10	10	10	10	10	10	10	10	10	10	10
13	Overloaded axles per vehicle	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
14	Excess axle load	2.18	2.18	2.18	2.18	1.962	1.744	1.526	1.308	1.09	1.09	1.09

Notes

- 1 Estimated 2002 billion vehicle km HGVs on A Roads only grown at -0.70%
- 2 Average monthly HGVs counted at 6 weighing stations in 2001 grown at -0.70%
- 3 Percentage overloaded in 2001 reducing at 5% pa due to effect of enforcement
- 4 Weighings in 2001, Increasing to 100% of all HGVs by 2008 after investment programme in weighbridges as note 5
- 6 Percentage overloaded in 2001 reducing after 2005 -5% pa due to effects of enforcement
- 9 Consultants assumptions to be updated
- 11 Rows 9x6x5x4x3
- 13 Assumes that majority of overload is distributed to 2.5 axles

Appendix F 4

Proposed Schedule of Fines

	Total Overload	Axle overload	Damage factor	Penalty per axle
	penalty per ton	overload Tons		per km
	Ksh			Ksh
1	1,500	1	1	0.44
2	3,000	2	23	9.90
4	6,000	3	140	61.38
6	9,000	4	512	224.00
8	12,000	5	1398	611.42
10	15,000			
12	18,000			
14	21,000			
16	24,000			
18	27,000			
20	30,000			

Assumptions

pavement damage exponential factor = 4.5
road provision cost / standard axle = 0.44 Ksh

Appendix F5
Unit Costs for Evaluation of Roads Investment Programme

	Paved Km	Unit 000's		
		Total Cost \$ m	Cost/km \$ 000	Cost/Km Ksh m
Backlog	3,519	212.55	60.40	4.83
Rehab	2,458	352.75	143.51	11.48
Recon	1,423	345.06	242.49	19.40
Total	7400	910.36		
Normal	1,538	9.10	5.92	0.47
Holding	7,400	7.50	1.01	0.08
Total	8938	16.60	6.93	

Appendix F5

Evaluation of Roads Investment Programme (in Appendix H)

Year	Backlog		Recon		Total	Backlog		Rehab		Recon 12 years	Cost \$US	Cost bKsh	Maintenance		Total Cost bKsh	Accum	
	Years	Years	Years	Years		7 years	12 years	Routine bKsh	Holding bKsh				Benefit bKsh	Net Benefit			
2004	503	205	119	205	826	30.36	29.40	28.76	89	7.08	1.12	0.53	8.73	2.44	-6.29		
2005	1005	410	237	410	1652	30.36	29.40	28.76	89	7.08	1.51	0.47	9.06	4.89	-4.17		
2006	1508	615	356	615	2478	30.36	29.40	28.76	89	7.08	1.90	0.40	9.38	7.33	-2.05		
2007	2011	819	474	819	3305	30.36	29.40	28.76	89	7.08	2.29	0.33	9.71	9.77	0.07		
2008	2514	1024	593	1024	4131	30.36	29.40	28.76	89	7.08	2.68	0.27	10.03	12.22	2.19		
2009	3016	1229	712	1229	4957	30.36	29.40	28.76	89	7.08	3.07	0.20	10.35	14.66	4.31		
2010	3016	1434	830	1434	5280	30.36	29.40	28.76	89	7.08	3.23	0.17	10.48	15.62	5.13		
2011	3016	1639	949	1639	5604		29.40	28.76	58	4.65	3.38	0.15	8.18	16.57	8.39		
2012	3016	1639	1067	1639	5722		29.40	28.76	58	4.65	3.44	0.14	8.22	16.92	8.70		
2013	3016	1639	1186	1639	5841		29.40	28.76	58	4.65	3.49	0.13	8.27	17.27	9.00		
2014	3016	1639	1186	1639	5841		29.40	28.76	58	4.65	3.49	0.13	8.27	17.27	9.00		
2015	3016	1639	1186	1639	5841		29.40	28.76	58	4.65	3.49	0.13	8.27	17.27	9.00		
2016	3016	1639	1186	1639	5841		29.40	28.76	0	0.00	3.49	0.13	3.62	17.27	13.65		
2017	3016	1639	1186	1639	5841		29.40	28.76	0	0.00	3.49	0.13	3.62	17.27	13.65		
2018	3016	1639	1186	1639	5841		29.40	28.76	0	0.00	3.49	0.13	3.62	17.27	13.65		
2019	3016	1639	1186	1639	5841		29.40	28.76	0	0.00	3.49	0.13	3.62	17.27	13.65		
2020	3016	1639	1186	1639	5841		29.40	28.76	0	0.00	3.49	0.13	3.62	17.27	13.65		
Total						212.55	352.75	345.06	910	73	51	4	127.05	NPV	29.35	IRR	28%

Appendix G

Implementation and Financing Plans

Introduction

Structure of the Implementation and Financing Plan

The overall implementation and financing plan is built up from each of the programmes listed in the contents. The composition of each programme in this appendix is summarised in the main text of Volume 1. Each programme is structured to provide the following information with supporting information and analysis.

- Programme Title
- Implementing Agency
- Objective/s
- Brief Description
- Results
- Overall cost
- Implementation and financing plan

The programmes for the Kenyan Road Sub sector emanate from the policies and strategies detailed in Volume 2. The programmes fall into two groups.

1. Road Transport and Traffic Operations
2. Road Infrastructure Provision

In addition there is a programme of road management and organisation to expedite reforms and finally the overall financing plan also includes administration needed to implement all the programmes

Road Transport and Traffic Operations

Road transport comprises both infrastructure and operations. The programmes will achieve a considerable improvement in the way transport is planned, operations are controlled and enforcement expedited. The overall cost of the programme is Ksh 32 billion, representing about 6% of the cost of the total programme for the sub-sector. Traffic enforcement accounts for about 30% of the expenditure as it includes financing for enforcement as determined by the policy. Resourcing enforcement is considered extremely important. Overloading control and congestion alleviation programmes both account for 20% of the budget. Excluded however are contingencies that will add about 50% to the budget.

Road Infrastructure Provision

To improve road conditions require substantial resources. The Government has made a clear commitment in the Economic Recovery Strategy to improving infrastructure. Road conditions have been described in Section 2.1 of Volume 1. The current state of the road network is not yet known in detail and assumptions have been made regarding current condition. MoRPWH may complete the inventory and road condition survey in 2004. The table below includes provisional results from the survey and states the premise upon which the roads programme developed herein is based.

Assumed Road Condition 2004

	Paved		Unpaved	
	Maint'	UnMaint'	Maint'	UnMaint'
AB	17%	83%	56%	44%
CDE	17%	83%	51%	49%
Unclassified	19%	81%	50%	50%
Urban	25%	75%	50%	50%

The foremost importance is given to A and B roads where the target for bringing 100% of paved roads into maintainable condition is set for year 2010 and for non-paved roads 2020 to reach 75% in maintainable condition. For CDE roads, the programme sets out to raise the proportion of paved roads in maintainable condition from 22% to 50% by 2010; whereas 90% targets are set for urban

paved roads due to expected increase in traffic. Non-paved roads have generally longer-term targets as shown.

Targets for Proposed Changes in Road Condition

	Target Year	Paved		Target Year	Unpaved	
		Maint'	UnMaint'		Maint'	UnMaint'
AB	2010	90%	10%	2020	75%	25%
CDE	2010	50%	50%	2020	60%	40%
Unclassified	2020	90%	10%	2020	60%	40%
Urban	2015	90%	10%	2020	75%	25%

The resultant annual change in condition is shown in the table below, the increase in the length of maintainable roads and the corresponding decrease in roads in sub-maintainable condition. Such targets must form the basis of roads programmes established by roads agencies and endorsed by the KRB.

Proposed Annual Change in Road Condition

	Paved		Unpaved	
	Maint'	UnMaint'	Maint'	UnMaint'
AB	10%	-10%	1%	-1%
CDE	5%	-5%	1%	-1%
Unclassified	4%	-4%	1%	-1%
Urban	5%	-5%	1%	-1%

The targets will be achieved through the implementation of the 4 programmes, routine maintenance, backlog maintenance, rehabilitation and reconstruction.

Classification

In addition the road network is like to be reclassified in the near future but no assumptions have been made regarding the outcome of this exercise. It is likely that the groupings may become more related to the use and socio economic significance. AB roads have been separated out in the following programmes as they might most closely reflect a primary (economic) network where as CDE roads will correspond more to the secondary or social network. It is conceivable that the primary network may be less that the sum of A and B roads including any new roads that may be constructed.

Time Schedule

Implementation and financing plans have been formulated to year 2020, detailed annually to 2010 then 2015 and 2020. The starting point is the analysis contained in Section 2 for all classified and urban roads. The proposed programme takes into account affordability (refer to section 3) and is based on the above targets. In addition 60,000 km of unclassified roads have been included as well as upgrading and dualling. Bearing in mind the considerable need to improve the performance of the roads sub-sector it is necessary to make rapid progress particularly primary paved, the programmes commence in year 2004.

Cost Estimates

Cost estimates have been made of the various components of each programme, it is necessary to stress, costs are indicative intended to provide a relative order of magnitude to assist with decision making at the strategic level.

It will be imperative that each programme component is studied and prepared prior to implementation. For development partners this would be a normal part of project cycle management. The basis for cost estimating is that of the consultant's international experience rather than on the historic costs in Kenya. After having studied the outturn costs of many contracts it has to be

concluded that historic costs in Kenya are unreliable and misleading and should reduce considerably with the implementation of the proposed reforms.

Maintenance costs also relate to traffic flow which is progressively taken into account.

To the costs of the roads programme are added contingencies to reflect the reality of undertaking public works in Kenya. To the consultant's cost estimates are added the following:

- 15% to reflect poor preparation, including inadequate site investigation and substandard contract documentation
- 15% for incompetent site supervision and control and
- 20% for mismanagement. (This also reflects corruption).

It is evident that the Government is publicly committed to reducing corruption and that this programme aims to improve the performance of the roads sub-sector. Therefore reduction in the cost of contingencies is a good indication of improvement.

Over the financing plan the level of contingencies taper from 50% of the annual roads programme costs in 2004, to 30% of the programme costs in 2020. Overall, contingencies amount to just under Ksh 173 billion or 30% of the cost of the sub-sector programme. The inclusion of high contingencies is a fact that has to be faced up to by development partners, but one that can be reduced on evidence of improved performance.

Terminology use in programme

Periodic Backlog Maintenance: Restoration of paved roads in fair condition by resealing etc.

Rehabilitation: Resurfacing of roads in poor condition, also includes replacement of road signing

Reconstruction: Replacement of road that have failed beyond repair down to foundation, including some structures and signs, also may include shoulders and NMT provision.

Upgrading: Usually paving unpaved road with realignment and new structures as necessary.

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1 Road Transport and Traffic Operations

1.1 Mobility and Access Improvement Programme

Implementing Agency/s: MoTC (main) MoLG, KRB

Objective/s:

- Carry out regular needs assessment
- Reduce cost & time spent waiting and travelling using road transport
- Poverty alleviation impacts to be included in all road programmes
- Increase in the variety, frequency and use of all forms of road transport
- Increase the number of rural communities with year round access to private & public road transport
- Ensure that international trade is not inhibited by lack of transport infrastructure

Brief Description:

In the Republic of Kenya there has been no serious assessment of transport needs because there has been no responsible body to ensure that such an assessment is carried out. Moreover, the amount of time spent travelling has increased due to worsening road conditions, congestion, poor quality, or increased inaccessibility; additionally, the range of urban and rural transport options available remains limited by lack of infrastructure, affordability and expertise. Consequently, rural communities are often cut off by washed-out bridges and damaged roads and urban communities degraded by inadequate planning and infrastructure. Overall, the correlation between economic and social well being and transport is self-evident; poverty increased from 47% in 1994 to 53% in 1997 and over the same period length of roads in poor condition increased from 28% to 42%. Generally roads in Kenya have not been planned, developed and maintained to adequately meet the needs of communities they serve. Overall the programming process is very underdeveloped and needs support. The main components of the programme would include:

- Continued formulation and/or adoption of new national transport policy
- Carry out road user surveys by mode type and availability, journey time and waiting time for work and non-work trips – rural and urban statistically representative sample nation-wide to include /update national development plan.
- Introduce performance indicators (PI) for travel time, waiting time, cost in relation to income, accessibility to NMT modes and other mobility factors also
- Determine the periodicity and methodology of the surveys taking into account national development planning other survey and censuses
 - For range of PI's for accessibility as well as poverty and road condition no less than five yearly
- Prepare a national transport plan and programme that corresponds to the five year development plan that includes poverty reduction urban and rural targets As well as international trade facilitation incorporating appropriate criteria for all classes of road
- Develop road transport alternatives (for bus lanes with high capacity buses)– such as mass trans

Results: Rural and Urban Transport Plans; Planning Processes at National and Local Level, More efficient allocation of funds

Overall cost: Ksh 768.25 m of which Technical Assistance Ksh 300 m

Implementation Programme: 2004 2009 for main part of TA.

1.1 Meeting the needs of roads users

Ref	Description of Strategy	Start	End	Cost/ Ksh	Annual Expenditure										By	Organisation	
					2004	2005	2006	2007	2008	2009	2010	2015	2020				
1	Adoption of the new National Transport Policy																
1	Policy Formulation, Consultative Document/s White Paper, Legislation	2004	2005	0.00	0.00											In house	MoTC
2	Institutional Changes	2004	2005	20.00	10.00	10.00										TA	MoTC
3	Establish and Run an Integrated Transport Policy Economics and Intelligence and Planning Unit	2004	2005	0.00			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	In house	MoTC
	Sub Total			20.00	10.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
2	Needs Assessment and Performance Indicators																
1	Prepare transport user needs study, implement, Establish performance indicators	2005	2007	60.00	30.00	20.00	10.00									TA	MoTC/KRB
2	Incorporate performance indicators into transport project cycle management	2008		0.25			0.25									In house	MoTC/KRB
	Sub Total			60.25	30.00	20.00	10.00	0.25	0.25	0.00	0.00	0.00	0.00	0.00	0.00		
3	National Transport Study and Plan																
1	Prepare ToR for preparation of a National Transport Study and Masterplan	2006		8.00												TA	MoTC
2	Implement National Transport Study and Masterplan	2007	2008	50.00			25.00	25.00								TA	MoTC
3	Preparation of five year rolling National Road Development Programme		2008	10.00			10.00									TA	KRB
	Sub Total			68.00	0.00	8.00	25.00	35.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
4	Development of Road Transport Alternatives																
1	Studies into mass transport options, economics, operating and financing	2009	2010	40.00					20.00	20.00						TA	MOLG
2	Terms of Reference for award of DBOT for JKIA access project	2007	2008	80.00			40	40								TA	KRB/KRB
3	Implementation of JKIA Access - (supervision only)	2010	2015	100.00					40	40	20					TA	KRB/N&MCC
4	Implementation of project	2010	2015	400.00						400						PPP	KRB/KAA
	Sub Total			620.00	0.00	0.00	0.00	40.00	60.00	60.00	420.00	0.00	0.00	0.00	0.00		
	TOTAL EXPENDITURE			768.25	40.00	38.00	75.00	75.25	60.00	60.00	420.00	0.00	0.00	0.00	0.00		

1.2 Non-Motorised Transport Development Programme

Implementing Agency/s: MoLG (main), MoTC

Objective/s

- Increase demand for and allocation of resources to development of NMT
- Reduced travel time, cost and pollution especially in urban areas for motorised transport and also improve efficiency, safety and comfort for NMT users (due to grade separation with NMT and dedicated lanes routes)
- Increase in length of dedicated NMT infrastructure. (Footpaths, Cycle-ways)
- Reduction in conflicts and accidents involving NMT
- Increase in training and deployment of professionals in NMT provision
- Reduction in the cost of NMT, particularly tax breaks for bicycles

Brief Description

Non-motorised transport includes bicycles, hand and animal drawn carts, pack animals and walking all of which share the same space as motorised transport. NMT severely constrains the efficiency of motorised transport and at the same time creating conflicts and accidents. However, although NMT is generally affordable and environmentally benign it receives little attention and adequate infrastructure. Despite its importance, a culture of NMT is not in evidence including a lack of respect and accommodation for NMT by motorists and disregard by planners. Overall, it is noteworthy that 98% of resources in the provision of roads are allocated to satisfying just 2% of transport demand. Improvement in NMT will go a long way to providing the basic elements (from a transport perspective) for a better quality of life. This will not come through KRB due to contemporary definition of road user. Components of the programme include:

- Establish NMT forum that includes NGOs, users, technical advisers
- Establish design standards and methodologies and coordinate the planning process for NMT development; to include standards for the mobility impaired
- Set up technical committee under the forum, prepare NMT technical code of practise
- Evolve NMT technologies and methodologies that improve mobility for both urban and rural communities; ensuring that such technologies are affordable and integration with various programmes poverty alleviations and eradication initiatives
- Implementation through consultation; utilising local skills and resources, using low cost solutions, ensuring comprehensive gender recognition and balance
- Repair / establish footpaths cycle routes in rural and urban areas; include provision for NMT infrastructure in highway upgrading projects; applying approved technical standards
- Ensure similar standards of footpaths / cycle routes where new development occurs
- Develop resource and implement NMT education and training programmes, promotion campaign

Results: NMT provision included in roads programmes; code of practice and planning procedures, higher demand for NMT, less accidents, more efficient use of road space.

Overall cost: Ksh 2470 m, Ksh 140 m TA

Implementation Programme: 2004 – 2015

Policy 1.2 Non Motorised Transport

Ref.	Description of Strategy	Start	End	Cost Ksh	Annual Expenditure										By	Organisation		
					2004	2005	2006	2007	2008	2009	2010	2015	2020					
1	Establish a NMT development Task Force Establish taskforce including NGO advocating for NMT, urban authorities, . . . DRCs, MOT, MoRPWH farmers, associations of NMT operators, etc	2004	2005	30.00	15.00	15.00											In house	MoTC/MoLG/etc.
2	Establish NMT Advisory Group to provide advisory services, studies and design of systems Sub Total	2006	2010	100.00 130.00	20.00 15.00	20.00 20.00	20.00 20.00	20.00 20.00	20.00 20.00	20.00 20.00	20.00 20.00	20.00 20.00	0.00 0.00	0.00 0.00			TA	MOLG
2	Footpath Programme Repair / establish footpaths, cycle routes in Nairobi, KUTIP, pilot, (12.5km)	2004	2005	140.00	70.00	70.00											In house	MoLG/ Nairobi CC
1		2004	2005	140.00	70.00	70.00											In house	SSATP/World Bank
2	Incorporate Footpaths into design standards	2006	2006	0.00	0.00	0.00											In house	MoT/MoRPWH
3	Amend Highways Acts to include footpaths	2006	2006	0.00	0.00	0.00											In house	MoTC/MoRWH
4	Amend planning regulations - developers fund standard footpaths	2006	2006	0.00	0.00	0.00											In house	MoLG
5	Construct footpaths with road rehabilitation (cost included in projects)	2007	2020	0.00			250	250	250	250	250	750					In house	MoRPWH
6	Construct Priority NMT links in Nairobi (184km)	2007	2015	1750.00			50	50	50	50	50	250					In house	MoLG/ Nairobi CC
7	Construct footpaths in urban roads	2007	2015	450.00			300.00	300.00	300.00	300.00	300.00	1000.00					In house	MoLG/KRB
	Sub Total			2340.00	70.00	70.00	0.00	300.00	300.00	300.00	300.00	1000.00	0.00	0.00				
	TOTAL EXPENDITURE			2470.00	85.00	85.00	20.00	320.00	320.00	320.00	320.00	1000.00	0.00	0.00				

1.3 Urban Transport and Traffic Congestion Alleviation Programme

Implementing Agency: MoLG for Programme Implementation Unit, City Councils, MoTC

Objective/s:

- Improve the flow of traffic in urban areas and along rural highways
- Improve the travelling environment

Brief Description: Urban centres such as Nairobi and Mombassa are experiencing chronic congestion due to heavy traffic flows during peak hours and competition and conflict for limited road space by all road users. The reasons for traffic congestion are many but include excessive on-street parking and lack of off-street parking and general obstruction. Congestion is aggravated by inadequate and ineffective traffic management systems and inadequate capacity at road junctions. Poor road conditions and non-operational traffic lights exacerbate the problem as does encroachment on the road space by non-road users e.g. hawkers. Overall, inadequate enforcement, corruption and poor compliance with traffic regulations undermines efforts to reduce traffic congestion which in general is not monitored by any authority. That the law requires vehicles involved in minor accidents to remain at the scene of accident until the Police arrives causing intolerable traffic jams for hours is untenable. Urbanisation is expected to increase at 5% pa and traffic at 3.5% pa so the travelling environment will become critical. The proposed programme is wide ranging

- Development of traffic management expertise
- Annual monitoring of traffic flows in cities.
- Introducing demand management techniques such as staggered and flexible working hours, peak/off peak differential pricing.
- Development of pedestrian precincts
- Parking management and control; restricting entry of cars and provide parking at the periphery of the CBD; establishing punitive tariffs for on-street parking; minimizing and control on-street parking; establishing guidelines for off-street parking for property development in urban areas
- Modernisation of traffic signalisation systems
- Traffic Management including channelising traffic at intersections and provide road markings and signs; improving capacity at junctions with high traffic flows for urban and rural highways, providing descending and ascending lanes for heavy goods vehicles where appropriate
- Restricting heavy commercial vehicles from the CBD and restrict delivery heavy commercial vehicles to non-working hours, providing trans-shipment facilities
- Development of mass transit buses and infrastructure; provision of fiscal incentives to investors in large buses
- Development of existing rail commuter services in Nairobi; study feasibility of mass transit trams/ rail in Nairobi and other large cities
- Amendment of the Road Traffic Act and revision of regulations e.g. removal of accident and broken down vehicles from the scene of accident

Results: Improved journey times; less pollution; lower costs; modern control systems, parking policy and programmes, mass transit programmes

Overall cost: Ksh 6.030 billion including procurement of works and equipment of which TA 285 million for various planning components and 280 million for signals design etc

Implementation Programme: Various as indicated in Investment Plans following:

1.3 Traffic Congestion

Ref	Description of Strategy	Start	End	Cost/ Ksh	Annual Expenditure											By	Organisation	
					2004	2005	2006	2007	2008	2009	2010	2015	2020					
1 Development of Traffic Management Expertise																		
1	Develop Final Year Option in Traffic Management	2005		10.0		10.0											TA	MoEd.
2	Support course, student bursaries etc	2006	2010	5.0		1.0	1.0	1.0	1.0	1.0	1.0						In house	KRB
3	Establish traffic management teams	2004	2007	22.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5			In house	MoLG/etc
4	Traffic management qualification in job descriptions	2006		66.5	3.0	2.5	10.0	10.0	9.0	9.0	9.0	8.0	6.0				In-house	KRB
5	Traffic Management projects acceptable KIE	2006		104.0	5.5	15.0	13.5	13.5	12.5	12.5	12.5	10.5	8.5				In house	KIE
Sub Total																		
2 Monitor traffic flows in cities																		
1	Develop counting programme, stations etc	2006	2007	30.0		20.0	10.0										TA	MLG/MunC's
2	Specify and procure equipment	2007	2008	15.0			10.0	5.0									In house	MLG/MunC's
3	Implementation			5.0					1.0	1.0	1.0	1.0	1.0	1.0			In house	MLG/MunC's
Sub Total																		
3 Introduce demand management techniques																		
1	Peak/off peak differential pricing	2007		1.0			1.0										In house	MoTC
2	Staggered and flexible working hours	2006	2020	10.0		10.0											TA	MLG/MunC's
3	Channelization, road markings and signs	2007	2015	66.0			15.0	15.0	15.0	15.0	15.0	6.0					In house	MLG/MunC's
4	Congestion Tax, study, regulations	2010	2020	10.0							10.0						In house	MLG/MunC's
Sub Total																		
					87.0	0.0	0.0	10.0	15.0	15.0	15.0	25.0	6.0	0.0				

1.3 Traffic Congestion

Ref	Description of Strategy	Start	End	Cost Ksh	Annual Expenditure							By	Organisation		
					2004	2005	2006	2007	2008	2009	2010	2015	2020		
4	Provide for pedestrian precincts especially in CBD areas														
1	Design of schemes - pilot projects	2005	2006	40.0		20.0	20.0							TA	MLG/MunC's
2	Implement of pilot schemes	2007	2008	80.0			40.0	40.0						In house	MLG/MunC's
3	Provide for pedestrian precincts especially in CBD areas	2008	2015	80.0				20.0	20.0	20.0	20.0	20.0		In house	MLG/MunC's
	Sub Total			200.0	0.0	20.0	20.0	40.0	60.0	20.0	20.0	20.0	0.0		
5	Parking Management and Control														
1	Design, implement on-street parking schemes+ equipment	2004	2006	150.0	50.0	50.0	50.0							In house	MoTC/Urban Auth
2	Establish punitive tariffs for on-street parking	2004		1.0	1.0										/MoTC/MoLG
3	Outsource parking fee collection and maintenance - PPP	2006		1.0		1.0									/MoTC/MoLG
4	Limit CBD Off Street Parking	2006	2006	2.0		1.0	1.0				1.0			In house	MoTC/Urban Auth
5	Develop Park n Ride schemes at the periphery of CBDs	2005	2006	20.0	10.0	10.0								TA	MoLG/Urban authorities/
6	Identify and acquire land	2005	2009	30.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0			TA	MoTC/Urban Auth
7	Implement of pilot schemes concessioning to PT operators	2006	2007	40.0		20.0	20.0							TA	MoTC/Urban Auth
8	Extend pilot scheme and implement programme PPP	2007	2010	4.0			1.0	1.0	1.0	1.0	1.0			In house	MoTC/Urban Auth
9	Guidelines for off-street parking for property development	2004		5.0	5.0									TA	/MoTC/MoLG
	Sub Total			253.0	56.0	65.0	87.0	26.0	6.0	6.0	7.0	0.0	0.0		
6	Repair and Enhance Traffic Signalisation														
1	Develop and Implement repair programme	2004	2007	280.0	40.0	80.0	80.0	80.0						TA	MoLG/Urban authorities/
2	Design Area Traffic Signalisation Systems	2004	2007	150.0				150.0						In house	Urban authorities/
3	Implement Signalisation Systems	2005	2006	200.0					100.0	100.0				In house	Urban authorities/
4	Install Video Management Systems at Critical Junctions	2007	2008	200.0								100.0	100.0	In house	Urban authorities/
	Sub Total			830.0	40.0	80.0	80.0	80.0	150.0	100.0	100.0	100.0	100.0		

1.3 Traffic Congestion

Ref	Description of Strategy	Start	End	Cost/ Ksh	Annual Expenditure						By	Organisation	
					2004	2005	2006	2007	2008	2009			2010
7	Implement Traffic Management Schemes												
	Implement schemes in Nairobi Long-term Transport Study:	2004	2007	50.0	15.0	15.0	10.0	10.0				TA	NCC
1	Upgrade 26 critical junctions @ US\$250,000	2004	2007	500.0	150.0	150.0	100.0	100.0				In house	NCC
2	Procure traffic engineering equipment	2005	2006	60.0	30.0	30.0						In house	NCC
3	Mombasa Traffic Management?	2007	2008	200.0			100.0	100.0				In house	MCC
	Sub Total			810.0	165.0	195.0	140.0	210.0	100.0	0.0	0.0	0.0	0.0
8	Restrictions of Heavy Goods Vehicles												
1	Freight Distribution Study and Design of Transhipment	2007	2008	80.0			40.0	40.0				TA	MoT/MoLG
2	Identify and acquire land for Transhipment Terminals	2008		2.0			2.0					In house	Urb. Auth
3	Develop Transhipment Terminals PPP	2008	2015	7.0					1.0	1.0	5.0	In house	Urb. Auth
4	Restrictions of Heavy Goods Vehicles in Urban Areas	2010		1.0							1.0	In house	MoTC/Urb.
	Sub Total			90.0	0.0	0.0	40.0	42.0	1.0	1.0	6.0	0.0	0.0
9	Urban Mass Transit Development Programme												
1	Fiscal Incentives for purchase of large capacity buses	2004	2005	1.0	1.0							In house	MoF/MoTC
2	Procurement of high capacity buses - Private Sector	2004	2020		0.3	0.3	0.3	0.3	0.3	1.0	2.5	In house	MoF/MoTC
3	Detail Study of Urban Mass Transit Options	2008		50.0			50.0					In house	Urb. Auth
4	Design, Development of Bus Terminals, Intermediate Stops	2008	2015	550.0			50.0	100.0	200.0	200.0		In house	Urb. Auth
5	Development of Urban BusWay Mass Transit Infrastructure	2008	2015	3000.0				500.0	1500.0	1000.0		In house	Urb. Auth
6	Concession for Urban Bus Mass Transit Operations	2010		1.0							1.0	In house	MoTC/Urb.
7	Extension of Urban Railways PPP project	2008	2009	4.0			2.0	2.0				In house	MoTC/Urb.
	Sub Total			3606.0	1.0	0.3	0.3	102.3	602.3	1701.0	1203.5	2.5	2.5
	TOTAL EXPENDITURE			6030.0	267.5	375.3	370.8	444.8	493.8	757.8	1867.5	1347.0	112.0

1.4 Road Safety Programme

Implementing Agency: MoTC;

Objective/s:

- Significantly reduce accidents
- Increase awareness and education for all road users
- Train drivers properly, retrain and retest serious offenders
- Improve the quality of passenger and freight vehicle drivers
- Reduce conflict between motorized and NMT road users
- Set up the KRSA without further delay and allocate resources
- Carry out safety audits of all road rehabilitation projects
- Strengthen and enforce the Road Traffic Act

Brief Description:

The culture of road safety is sadly lacking in Kenya. Road accidents doubled in last 20 years with about 3000 deaths and about 26,000 injuries annually; and the figures are increasing; 40% of accidents caused by drivers; 32% & 10% by pedestrians & pedal cyclists, respectively. There appears to be an inadequate awareness regarding road use and dangers therein, poor information on road use, knowledge and compliance of traffic regulation and with the unfortunate demise of the National Road safety Council and protracted formation of the Kenya Road Safety Council, there is no single institution responsible for overall road safety. Moreover road projects are not safety audited and there is a lack of proper control and monitoring of driver training, testing and driving license issuance. Worse still flouting of the Traffic Act is endemic and growing. Most commercial drivers work for more 8 hours per day, there is a lack of rest places along the major corridors for drivers to rest and overall the attitude towards safety is derisory. Moreover, the impression to visitors including tourists and potential investors is negative being of disorder and poor management. To raise safety standards the following programme is proposed:

- Establish Kenya Road Safety Authority (KRSA) as part of National Transport Safety Council to oversee safety matters pertaining to road transport and support.
- Set up compulsory driver re-training, re-certification for offenders and again 3 years following the offence; 3/5 yearly for PSV licence holders including medical certification; preparation of curriculum national drivers manual; Certification (de-certify) private driver training establishments
- Education and training programmes for all road users particularly cyclists and specific training for personnel working in road safety related programmes; awareness campaign including seat belt wearing, drink and driving etc.
- Mandatory road safety audits along major roads and in urban areas and prepare an action plan; improving road-worthiness
- Compulsory annually vehicle inspection for all types of vehicles; privatisation of vehicle inspection and licensing more garages, deregistration of un-roadworthy vehicles modalities to be determined

Results: x % pa reduction in road deaths, improved driver behaviour and better use of road assets, lower vehicular emissions; user-friendly roads.

Overall cost: Ksh 1.8 billion of which Ksh TA 320 million

Implementation Programme: Mostly 2004 to 2010 - refer to following plans.

1.4 Road Safety		Description of Strategy	Start	End	Cost Ksh	Annual Expenditure											By	Organisation
Ref						2004	2005	2006	2007	2008	2009	2010	2015	2020				
1		Establish a Kenya Road Safety Authority (KRSA)	2004	2020	50.0	10.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	In house	MoTC	
1		Setup/run KRSA, Board, Constitution, Secretariat, Offices, etc	2004	2005	20.0	10.0	10.0									TA	KRB	
2		Collect, compile analyse accident data	2004	2005	20.0	10.0	10.0									TA	KRB	
3		Prepare road safety programme and reduction targets	2004	2005	0.0											In-house	KRB	
4		Set up Road Safety Fund and yearly operational budget	2004	2005	66.5	3.0	2.5	10.0	10.0	9.0	9.0	9.0	8.0	8.0	6.0	TA	Roads Agencies	
5		Identify prepare design road safety projects	2005	2020	610.0			100.0	100.0	90.0	90.0	90.0	80.0	80.0	60.0	In house	Roads Agencies	
6		Implementation, monitoring, evaluation, feed back	2006	2020														
		Sub Total			766.5	33.0	27.5	115.0	115.0	104.0	104.0	104.0	93.0	93.0	71.0			
2		Amend the Road Traffic Act	2005	2006	3.0	3.0										In house	MoTC	
1		Prepare draft amendments to the Road Traffic Act	2005	2006	5.0	2.0	3.0									In house	MoTC	
2		Consult with statutory authorities	2006	2007	2.0	2.0										In house	MoTC	
3		Determine resource for implementation of the Act	2006	2007	5.0	3.0	2.0									In house	MoTC	
4		Legislate	2006	2007	15.0	0.0	5.0	8.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0			
		Sub Total																
3		Compulsory driver re-training and retesting for offenders:	2004	2006	10.0	10.0										TA	MoTC/Police/KRB/	
1		Prepare a national drivers training manual	2004	2006	30.0	20.0	10.0									TA	MoTC/Police/KRB/	
2		Asses training needs of offenders	2005	2008	10.0	10.0										TA	MoTC/Police/KRB/	
3		Prepare syllabus for driver retraining	2007	2008	40.0			20.0	20.0							TA	MoTC/Police/KRB/	
4		Train Trainers in driver training schools	2008	2020	0.0	0.0										TA	Police	
5		Implement program, drivers pay for tuition	2008	2020	90.0	0.0	20.0	20.0	20.0	20.0	0.0	0.0	0.0	0.0	0.0	In house	Police	
		Sub Total																

1.4 Road Safety

Ref	Description of Strategy	Start	End	Cost Ksh	Annual Expenditure										By	Organisation	
					2004	2005	2006	2007	2008	2009	2010	2015	2020				
4	Train personnel working in road safety programmes:																
1	Needs assessment & prepare capacity building program	2006		4.0		4.0									TA	MoTC	
2	Implement training programme	2007	2020	15.0			5.0	5.0	2.0	1.0	1.0	1.0	1.0	1.0	In house	MoTC	
	Sub Total			19.0	0.0	4.0	5.0	5.0	2.0	1.0	1.0	1.0	1.0	1.0			
5	Road Safety Audit																
1	Define criteria, prepare manual for road safety audits	2005	2006	24.0	12.0	12.0									TA	KRB	
2	Road safety audits of A B and C Roads for backlog projects	2005	2012	36.0	12.0	12.0	12.0								TA	Primary Roads Agency	
3	Safety audits other A B and C roads-for road safety programme	2007	2010	45.0			15.0	10.0	10.0	10.0					In house	Primary Roads Agency	
4	Carry out road safety audits of urban roads	2007	2010	45.0			15.0	10.0	10.0	10.0					In house	Urban Roads Agencies	
	Sub Total			150.0	0.0	12.0	42.0	20.0	20.0	20.0	20.0	0.0	0.0	0.0			
6	Improve roadworthiness of vehicles																
1	Compulsory vehicle inspection - in revised Road Traffic Act	2007		70.0	15.0	15.0	15.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	In house	MoTC	
2	Privatise vehicle inspection, concession, implementation	2006	2007	60.0			20.0	20.0	5.0	5.0	5.0	5.0	5.0	5.0	TA	MoTC	
3	Deregister Unworthy Vehicles	2010	2015	25.0					10.0	5.0	5.0	5.0	5.0	5.0	In house	MoTC	
	Sub Total			305.0	0.0	15.0	35.0	25.0	20.0	15.0	15.0	15.0	15.0	15.0			
	TOTAL EXPENDITURE			1807.00	66.00	92.00	274.00	299.00	253.00	230.00	229.00	187.00	143.00				

1.5 Planning and Land Use Development Programming

Implementing Agency/s: MoTC main, MoLG, Ministry of Lands and Settlement

Objective/s:

- Ensure that in National Economic and Development Plans that an objective is to minimise transport demand
- Institute processes of preparation, adoption and implementation of integrated land use and transport planning by local government ensuring the aforesaid objective is applied
- Preserving adequate land for future development of transport routes

Brief Description: Ineffective incorporation of transport planning into land use and lack of rigour in implementation has led to suboptimal allocation of valuable land resources and unnecessary transport costs. Moreover, poor enforcement of the existing laws e.g. Lands Act, Public Roads and Roads Access Act and Local Government Act regarding the road reserve and /or non-provision of land for future route development especially in urban areas has lead to high costs for improving, upgrading and new transport projects

- Identify transport routes and provide for the protection of the routes form development
- Conduct an audit of existing and future route reserves and prepare their titling
- Preparation of Urban and Land Use Development Plans
- Establish guidelines for the preparation of integrated land use and transport plans including land-use traffic models to establish demand
- Strengthen Urban Planning Departments
- Restriction of unplanned settlements

Results: Reduced overcrowding in cities, improved development planning, balanced transport demand, transport route identification and protection.

Overall cost: Ksh 364 million of which Ksh 170 million

Implementation Programme: mostly 2005 to 2009

1.5 Transport and Land Use Planning

Ref	Description of Strategy	Start	End	Cost Ksh	Annual Expenditure							By	Organisation		
					2004	2005	2006	2007	2008	2009	2010	2015	2020		
1	Transport Route - Protection from Development														
1	Conduct audit of existing route reserves	2004		10.00		5.00	5.00							In house	MoPWRH/MoTC/
2	Prepare their titling and registration	2005	2006	0.00										In house	MoLands etc./
3	Draft modalities for enforcing regulation	2005		10.00	10.00									In house	Urban Authorities
4	Workshop on enforcement	2005		1.00		1.00								In house	ditto
5	Land acquisition for route development, procedures	2006		5.00		5.00								In house	ditto
6	Control development activities within route reserves	2005	2020	95.00		25.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	In house	ditto
	Sub Total			121.00	10.00	36.00	15.00	10.00	10.00	10.00	10.00	10.00	10.00		
2	Prepare Land Use and Transport Planning (LUTP)														
1	Guidelines for preparing integrated LUTP's	2004	2005	10.00	5.00	5.00								TA	MoTC/MoLG
2	Prepare ToR and carry out LUTPs	2006	2009	160.00		40.00	40.00	40.00	40.00	40.00				TA	MoTC/MoLG
3	Submit LUTPs to MoTC and update biannually	2008	2020	5.00				1.00	1.00	1.00	1.00	1.00	1.00	In house	Urban Authorities
	Sub Total			175.00	5.00	5.00	40.00	40.00	41.00	41.00	1.00	1.00	1.00		
3	Amend Planning Regulations														
1	Ensure Development Applications include traffic plans	2005	2020			5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	In house	Urban Authorities
2	Ensure planning applications include highway provision	2005	2020			5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	In house	Urban Authorities
	Sub Total			0.00	0.00	0.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00		
4	Strengthen Urban Planning Department														
1	Planning Approvals	2005	2008	21.00		3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	In house	Urban Authorities
2	Inspection Services	2005	2008	35.00		5.00	5.00	5.00	5.00	5.00	5.00	5.00	5.00	In house	Urban Authorities
3	Training Programme Planning Regulation and Control	2005	2008	12.00		3.00	3.00	3.00						In house	MoE
	Sub Total			68.00	3.00	3.00	11.00	11.00	8.00	8.00	8.00	8.00	8.00		
	TOTAL EXPENDITURE			364.00	18.00	44.00	66.00	61.00	59.00	59.00	19.00	19.00	19.00		

1.6 Intermodal Transport Development Programme

Implementing Agency: MoTC

Objective/s

- Increase demand for rail hauled container movement
- Increase use of inter-modal transport technology
- Set up MMTO licensing
- Ensure that road transport pricing and regulation is equitable with competing modes

Brief Description:

There is no coordinated attempt in Kenya to ensure that the best use is made of all modes of transport for the movement of freight. The permissible gross vehicle mass (GVM) of road vehicles has doubled in a generation with little consideration to optimise modal, particularly rail, utilisation or thought given to the consequences of heavier loads on the costs of road transport infrastructure provision. Much of the costs of roads backlog maintenance can be attributed to the policy of increasing GVM over the years as well as overloading beyond prescribed limits. The true costs of road freight are avoided by road transporters; road user pricing is neither optimal nor equitable between competing modes. Currently the majority of internationally traded goods are transported by road, which includes 90% of containers. There is no climate of inducement for inter-modal transport development in Kenya; under-development and lack of integration of marine, rail and road technologies does not encourage Roll-On-Roll-Off (RORO) technology, furthermore multi-modal transport operator (MMTO) licensing requires development. The programme to develop intermodal transport should be linked with rail privatisation and includes:

- Development of Intermodal Policy and Regulations, ensuring National Transport Policy includes intermodal policy
- Prepare Multimodal Transport Operator (MTO) Licensing in Kenya and COMESA
- Development of Transshipment Terminals; ensuring that terminals are part of LUTPs
- Develop apply technology for rail road combined transport
- Recommend incentives for Intermodal development set programme for development including grants and conditions etc

Results:

Equitable use of road and rail, improved freight transport efficiency; reducing barriers to international trade.

Overall cost: Ksh 371.5 million of which TA Ksh 84 million

Implementation Programme: 2006/7 for the TA

1.6 Intermodal Transport

Ref	Total Cost	Start	End	Cost Ksh	Annual Expenditure											Organisation	
					2004	2005	2006	2007	2008	2009	2010	2015	2020	By			
1	Intermodal Policy and Regulations																
1	Establish and Run Intermodal Working Group (IMG)	2004	2020	2.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	In house	MoTC
2	Feed into National Transport Policy (NTP)	2004		0.00												In house	IMG
3	Establish standards for Intermodal Equipment	2005	2006	20.00		20.00										TA	IMG
4	Establish Non-Discriminatory Regulations	2006		0.00												In house	IMG
5	Ensure all transport user charges are equitable	2006	2020	40.00		40.00										TA	MoTC
	Sub Total			22.25	0.25	20.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.25			
2	Multimodal Transport Operator MoTC Licensing																
1	Ensure MOTC Licensing in NTP	2004														In house	MoTC
2	MOTC Licensing Regulations and Application	2005	2010	0.00	0.00	20.00										TA	MoTC
	Sub Total			0.00	0.00	20.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00			
3	Establish IM and Transshipment Terminals																
1	Inventory of IM terminals	2006		0.00													MoLG
2	Identify land and give planning preference	2007		0.00													MoLG
3	Ensure integrated development	2005		0.00													MoLG
4	Implement through PPP arrangements	2006	2020	0.00													MoTC
	Sub Total			0.00													
4	Provide Incentives for IM Development																
1	Establish Criteria for IM Development	2006		4.00		4.00										TA	MoTC
2	Establish procedures for award of Grants	2007	2020	15.00			5.00	5.00	2.00	1.00	1.00	1.00	1.00	1.00	In house	MoTC	
3	Establish Budget and Award Grants	2008	2020				70.00	70.00	70.00	70.00	70.00	50.00	50.00	50.00	In house	MoTC	
	Sub Total			349.00	0.00	4.00	5.00	75.00	72.00	71.00	71.00	71.00	51.00				
	TOTAL EXPENDITURE			371.25	0.25	44.25	5.25	75.25	72.25	71.25	71.25	71.25	51.25				

1.7 Overloading Reduction Programme

Implementing Agency: MoTC, KRB

Objective/s:

- Achieve the design life of road pavement and structures
- Limit further increases in GVM and axle loads
- Reduce over-loading of all types of road vehicles
- Improve operational efficiency and safety for all classes of vehicles
- Institute self regulation
- Establish public weighbridges

Brief Description:

Current axle load control and control of gross vehicle mass (GVM) measures are not working effectively. Costs incurred due to non-physical barriers encourage truck operators to overload. The lack of control is also iniquitous to rail and other transport modes. But the level of service at weighbridge sites due to badly maintained equipment and inadequate parking areas is also poor. Low truck utilisation, which is partly due to adverse road conditions, encourages overloading to recover overheads and the costs of delays at weighbridges. The private sector is not sufficiently engaged to encourage self-regulation and the current penalties are too low to act as a deterrent, not linked to damaging impact on road pavements. (Refer to overloading analysis Appendix F4). Peculiarly, the addition of 4th axle to trailers encourages operators to carry more load whilst the use of interlinks (which offer better load distribution and improved safety) is not allowed in Kenya thus vehicle specs are out of step with those used in other parts of the region. Most importantly corruption has resulted in abuse of loading limits and enforcement of overload penalties is not working. There are ongoing activities but they are of a limited nature, not holistic and uncoordinated. The MoTC is more appropriate a body than that for roads funding to set up and coordinate a successful programme:

- Improvement in the operational environment at weighbridges to minimize lost time
- Modification of overloading fines; procedures for remittance to the KRB and the police
- Establishment of commercial weigh bridges for use by the public and certification of load
- Support to Transport Industry to become self regulating, procedures including mandatory possession of certificate of load, penalties inc license endorsement and loss; training
- Revisit standards for importation of heavy trucks
- Support national / regional agreement to hold permissible GVM to 54 tons until year 2010
- Support institutional reform so that overloading control is integrated with other transport operational management activities within the MoTC

Results: Maximum revenue from overloading fines (short term); Zero overloading (long term); Effectively self regulated transport industry.

Overall cost: 1.488 billion of which Ksh 83 million

Implementation Programme: 2004 to 2007

1.7 Overloading

Ref	Total Cost	Start	End	Cost Ksh	Annual Expenditure										By	Organisation		
					2004	2005	2006	2007	2008	2009	2010	2015	2020					
1	Improve weighbridge operations																	
	Develop performance specifications for weighbridges	2004		10.0													TA	MoTC
	Prepare contracts include performance specifications	2004	2005	30.0													TA	KRB
	Investment in new weighbridges and infrastructure	2005	2006	900.0		450.0	450.0										In-house	KRB
	Operations of weighbridges to be outsourced	2006	2020	31.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	In-house	KRB
	Publish tables of permissible loads (all vehicles)	2005		3.0													TA	MoTC
6	Implementation, monitoring, evaluation, feed back	2006	2020	3.8		0.3	0.3	0.3	0.3	0.3	0.3	0.3	1.3	1.3	1.3	In house	MoTC	
	Sub Total			978.3	30.0	463.0	454.8	4.8	4.8	4.8	4.8	4.8	5.8	5.8	5.8			
2	Introduce Public Weighing																	
	Develop / Implement Programme of public weighbridges	2005	2006	460.0		10.0	450.0										TA	MoTC
	Establish load certification procedures	2006		0.5		0.5											In house	MoTC
	Incorporate in Road Traffic Act	2006		0.1		0.1											In house	MoTC
	Sub Total			460.6	0.0	10.0	450.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			

Overloading

Ref	Total Cost	Start	End	Cost Ksh	Annual Expenditure							By	Organisation			
					2004	2005	2006	2007	2008	2009	2010			2015	2020	
3	Improve enforcement procedures															
1	Overloading fines to be revised	2004		0.0											In house	MoTC/Police/KRB/
2	Fines to paid to KRB (overloading account)	2004		0.0											In house	MoTC/Police/KRB/
3	Mandatory possession of certificate of load	2006		0.0											In house	MoTC/Police/KRB/
4	Random Checking by Police	2006	2020	0.0											In house	Police
5	Operator Licence Endorsements	2006	2020	0.0											In house	Police
6	Industry to become self regulating	2007		0.0											In house	Police
7	Remove Non-Physical Barriers	2004	2020	0.0											In house	Police
8	Contract with police authorities to enforce regulations	2004	2020	19.4	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	2.2	In house	KRB/Police
9	Police Training	2005	2006	30.0		20.0	10.0								TA	Police
	Sub Total			49.4	2.2	2.2	22.2	12.2	2.2	2.2	2.2	2.2	2.2	2.2		
4	Revise Road Traffic Act															
1	Ensure appropriate policy framework (NTP)	2005	2006	0.0											TA	KRB
2	Amendments to Traffic Act	2005		0.0											In house	Primary Roads Agency
	Sub Total			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
5	Review Truck Standards															
1	Introduce compulsory vehicle inspection	2007		0.0											In house	MoTC
2	Withdraw 4 axles trailers	2010		0.0											TA	MoTC
3	Review trailer lengths	2008		0.0						0.0					In house	MoTC
4	Adopt interlinks for better distribution	2008		0.0												
5	Hold permissible GVM to 54 until year 2010	2004	2010	0.0												
	Sub Total			0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
6	Overloading Management															
1	Designate MoTC with overall responsibility	2005		0.0											In house	MoTC
2	Transport policy and Traffic Acts	2005	2006	0.0											In house	MoTC
3	Implementation through designated agencies incl. private	2004	2020	550.4	275.2	275.2									In house	MoTC
	Sub Total			550.4	275.2	275.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		
	TOTAL EXPENDITURE			2038.7	307.3	750.3	927.5	16.9	6.9	6.9	6.9	6.9	7.9	7.9		

1.8 Traffic Enforcement Programme

Implementing Agencies: MoTC; Ministry of Home Affairs jointly

Objective/s:

- Restructure, then increase numbers, resources and improve training of police in traffic control
- Ensure sustainable financing of urban traffic control

Brief Description:

Traffic control and management in all its spheres is poorly executed in Kenya, particularly speed control, indiscriminate parking and deliberate obstructions by motorists on road carriageways, moreover the monitoring and reporting of road traffic is non-existent. The situation is further exacerbated due to management and control of traffic not being financed from road user charges. Consequently there is inadequate resourcing, funding and organisations for those vested with traffic control and enforcement responsibilities. There is an overall shortage of traffic police and insufficient vehicles and equipment. The traffic police requires restructuring and possibly combining with other transport police units to create a new command - ie Kenya Transport Police. The programme to achieve a modern, non-corrupt and effective traffic police force is proposed below:

- Review performance and establish the needs of traffic police; review the organisation and management of the road traffic police, taking into consideration other specialised organisations for rail, airport and ports.
- Support restructuring the road traffic police possibly incorporate with other sub-sector police and place under one roof (the MoTC) call new force the KTP Kenya Transport Police.
- Preparation of a maintain a sustainable road traffic enforcement programme including preparation of programmes and budgets
- Set up procurement programme for vehicles and equipment
- Prepare and support implementation of training programme
- Set monitoring for enforcement of the traffic regulations; Enforcement of by-laws regarding utility (e.g. electricity, telephone and water) provision above and below road space; encroachment on road space by hawkers and other non-road users other offences etc.

Results:

Reduction of x% of various traffic offences, better traffic operations, equitable and effective application of the law for all transport modes

Overall cost: Ksh 5.55 billion, including police remuneration; of which Ksh 230 for TA

Implementation Programme: TA 2005 2008; procurement 2005 - 2010

1.8 Traffic Enforcement

Ref	Total Cost	Start	End	Cost Ksh	Annual Expenditure										Organisation		
					2004	2005	2006	2007	2008	2009	2010	2015	2020	By			
1	Restructure and strengthen traffic police																
1	Assess performance of the Traffic Police	2005	2006	20.0	20.0												MoTC/Police
2	Amend Police and Road Traffic Acts				20.0												MoTC/Police
3	Establish Transport and Traffic Police Board (TTPB)	2004	2005	1.3	0.1	0.3	0.3	0.3	0.3	0.3	0.3						MoTC/Police
4	Restructure Transport (Traffic Police)	2004	2005	40.0	20.0	20.0	20.0	20.0									MoTC/Police
5	Change Management						5.0	5.0									MoTC/Police
6	Training Needs Assessment	2004		10.0	10.0	10.0	10.0	10.0									MoTC/Police
7	Police Training Programme	2005	2020	20.0			10.0	10.0	10.0	10.0	10.0						MoTC/Police
	Sub Total			91.3	0.0	20.1	50.3	45.3	15.3	10.3	10.3	0.0	0.0				
2	Ensure Funding of Traffic Police																
1	Earmark vehicle license for funding the TTPB	2006															MoF/MoTC/
2	Development performance targets i.e. accident reduction, overloading, speeding etc	2007		40.0			40.0										MoTC/Police
3	Annual programming to achieve targets	2007	2020	40.0						40.0							MoTC/Police
4	Develop structure of Transport (Traffic Police) i.e. function (mode) geographical	2006	2007	40.0		40.0											MoTC/Police
5	Re-equip traffic police force (Cars and Equipment)			71.8	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0					MoTC/Police
6	TTPB financing (receive funding from fines and licensing of needed)			5269.5	585.5	585.5	585.5	585.5	585.5	585.5	585.5	585.5	585.5				
	Sub Total			5461.3	585.5	597.5	637.5	637.5	637.5	597.5	597.5	585.5	585.5				
	TOTAL EXPENDITURE			5552.6	585.5	617.5	687.7	682.7	652.7	607.7	607.7	585.5	585.5				

2 Road Infrastructure Provision

2.1 Introduction

2.2 Routine Maintenance Programme

Implementing Agency:

Objective/s:

- Keep all maintainable roads in maintainable condition
- Minimise vehicle operating costs due to road pavement conditions

Brief Description:

Routine maintenance is necessary to keep the road network in good condition. Routine maintenance includes periodic maintenance that is needed every 5 to 8 years. This has been seriously neglected with the result that more roads slip in to disrepair so requiring much more expenditure to return them to good order than would have been needed to keep them in good order. The reasons for this are many, including corruption. Even when roads have been brought to maintainable condition they have not been maintained. The MoRPWH preference is to spend on rehabilitation and reconstruction work. This practice has to cease no matter how much political pressure is exerted. The policy that routine maintenance must be carried out on maintainable roads effectively depoliticises maintenance – as it should be.

The political requirement is to determine how much network the country should afford to maintain? The assumption in the programme proposed is that 1.5 % of GDP should eventually be spent on road maintenance. Arising from this assumption, the programme includes targets for each road type, such that all AB paved is maintained; 50% of CDE paved is maintained and 90% of urban roads are maintained. Of the non-paved network, 75% of AB and Urban roads and 60% of all other non-paved roads are brought up to then kept in maintainable condition. The rest receives holding maintenance, the roads being kept open only. The expenditure programme is built on two elements, firstly expenditure on full routine maintenance including annualised periodic maintenance for all roads whether or not paved that are assumed to be in good condition. For all roads that are in fair or poor condition the second part of the expenditure is to pay for holding maintenance until the roads have been received backlog, rehab', or recon' works to bring them to a maintainable condition.

Results: Year on year increasing length of the network maintained in good condition as follows:

Paved Roads

AB from 1,192 km to 5,381 km

CDE from 1,011 km to 4,037km

Urban from 758 km to 3,847 km

Non-Paved Roads

AB from 1,279 km to 560 km

CDE from 26,931 km to 29,545 km

Urban from 6,196 km to 7,423 km

Unclassified from 30,252 km to 35,481 km

The length of road kept with holding maintenance in 2020 is approximately

Paved 3,000 km; Non-paved 56,000 km.

Overall cost: Annual expenditure programmes for each part of the network are as detailed in the following tables. The annual expenditure on routine maintenance is set to rise to 2020 as indicated below.

AB from Ksh 0.79 billion to Ksh 3.6 billion

CDE from Ksh 3.65 billion to Ksh 6.9 billion

Urban from Ksh 1.82 billion to Ksh 5.85 billion

Non-classified from Ksh 1.92 billion to 2.47 billion

Note that the current annual expenditure on maintenance is not the sum of the starting figures above, that is to say Ksh 8.18 billion as this represents what should be allocated to routine maintenance today to keep roads in good condition. GoK might only be spending about 10% of that which is needed. It is a very serious situation.

Implementation Programme: No programme is needed as all roads that are in maintainable condition must be kept in maintainable condition.

Refer to following tables for indications of the increasing length of the network to be maintained. Year 2003 has been included for reference and validation.

Routine Maintenance Classified	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
AB Network	6560	6560	6560	6560	6560	6560	6560	6560	6560	6560
Paved	4320	4320	4320	4320	4320	4320	4320	4320	5067	5813
Not Paved	2240	2240	2240	2240	2240	2240	2240	2240	1493	747
Maintainable Condition										
Paved	743	1192	1642	2091	2540	2989	3439	3888	4635	5381
Not Paved	1254	1279	1304	1330	1355	1380	1405	1430	1037	560
Not Maintainable Condition										
Paved	3577	3128	2678	2229	1780	1331	881	432	432	432
Not Paved	986	961	936	910	885	860	835	810	457	187
CDE Network	56740	56740	56740	56740	56740	56740	56740	56740	56740	56740
Paved	4620	4620	4620	4620	4620	4620	4620	4620	5483	6347
Not Paved	52120	52120	52120	52120	52120	52120	52120	52120	51257	50393
Maintainable Condition										
Paved	795	1011	1228	1444	1661	1877	2094	2310	3173	4037
Not Paved	26659	26931	27202	27473	27745	28016	28287	28559	29052	29545
Not Maintainable Condition										
Paved	3825	3609	3392	3176	2959	2743	2526	2310	2310	2310
Not Paved	25461	25189	24918	24647	24375	24104	23833	23561	22205	20848

Notes to all tables:

Distances in Km

Year on year shows progressive change in length – increases in roads in maintainable condition and decreases in not-maintainable condition.

Relates to targets for change

Years 2015 and 2020 – results are for that year

Totals include x 5 for 2010 – 2015 and 2015 - 2020

Upgraded paved roads included from 2010

Programme Annual Expenditure Billions Ksh

Routine Maintenance Classified	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
AB Network	0.791	0.980	1.175	1.375	1.580	1.792	2.010	2.360	2.935	3.606
Paved	0.647	0.834	1.027	1.225	1.428	1.638	1.854	2.197	2.817	3.542
Not Paved	0.144	0.146	0.148	0.150	0.152	0.154	0.157	0.163	0.118	0.064
Maintainable Condition										
Paved	0.356	0.578	0.806	1.040	1.279	1.526	1.779	2.159	2.777	3.500
Not Paved	0.107	0.110	0.113	0.116	0.119	0.122	0.125	0.132	0.100	0.057
Holding Maintenance										
Paved	0.292	0.256	0.221	0.185	0.149	0.112	0.075	0.038	0.040	0.042
Not Paved	0.037	0.036	0.035	0.034	0.033	0.032	0.032	0.031	0.018	0.008
CDE Network	3.648	3.749	3.868	3.990	4.115	4.242	4.373	4.625	5.279	6.017
Paved	0.680	0.764	0.856	0.950	1.046	1.145	1.246	1.411	1.978	2.620
Not Paved	2.967	2.984	3.012	3.040	3.068	3.097	3.126	3.214	3.300	3.397
Maintainable Condition										
Paved	0.372	0.473	0.581	0.691	0.804	0.919	1.037	1.214	1.774	2.408
Not Paved	2.268	2.292	2.325	2.359	2.393	2.428	2.463	2.550	2.665	2.792
Holding Maintenance										
Paved	0.308	0.291	0.275	0.259	0.243	0.226	0.210	0.198	0.204	0.212
Not Paved	0.699	0.693	0.687	0.681	0.675	0.669	0.663	0.664	0.635	0.606

Notes to all tables

Billions Ksh

Year on year shows expenditure – increases in roads in maintainable condition and decreases in not-maintainable condition.

Relates to targets for change

Years 2015 and 2020 – results are for that year

Totals include x 5 for 2010 – 2015 and 2015 - 2020

Upgraded paved roads included from 2010

Programme Annual Output Km

	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
Routine Maintenance										
Unclassified Network	60000	60000	60000	60000	60000	60000	60000	60000	60000	60000
Paved	200	200	200	200	200	200	200	200	399	599
Not Paved	59800	59800	59800	59800	59800	59800	59800	59800	59601	59401
Maintainable Condition										
Paved	38	46	55	63	71	80	88	96	338	579
Not Paved	29900	30252	30604	30955	31307	31659	32011	32362	33922	35481
Not Maintainable Condition										
Paved	162	154	145	137	129	120	112	104	62	20
Not Paved	29900	29548	29196	28845	28493	28141	27789	27438	25679	23920
Urban Network										
2003	14528	14528	14528	14528	14528	14528	14528	14528	14528	14528
Paved	2491	2491	2491	2491	2491	2491	2491	2491	3293	4096
Not Paved	12037	12037	12037	12037	12037	12037	12037	12037	11235	10432
Maintainable Condition										
Paved	623	758	893	1028	1162	1297	1432	1567	3044	3847
Not Paved	6019	6196	6373	6550	6727	6904	7081	7258	7340	7423
Not Maintainable Condition										
Paved	1868	1733	1598	1463	1329	1194	1059	924	249	249
Not Paved	6019	5841	5664	5487	5310	5133	4956	4779	3894	3009

Programme Annual Expenditure Billions Ksh

	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
Unclassified Network	1.921	1.927	1.937	1.948	1.960	1.971	1.983	2.054	2.234	2.474
Paved	0.016	0.019	0.022	0.025	0.029	0.033	0.037	0.046	0.184	0.378
Not Paved	1.905	1.908	1.916	1.923	1.931	1.939	1.947	2.007	2.049	2.096
Maintainable Condition										
Paved	0.013	0.016	0.019	0.023	0.026	0.030	0.034	0.044	0.183	0.377
Not Paved	1.082	1.095	1.108	1.120	1.133	1.146	1.158	1.199	1.257	1.315
Holding Maintenance										
Paved	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.001	0.001
Not Paved	0.823	0.813	0.808	0.803	0.798	0.793	0.788	0.808	0.793	0.782
Urban Network	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
	1.816	1.902	2.011	2.124	2.241	2.364	2.491	2.793	4.401	5.858
Paved	1.023	1.093	1.178	1.268	1.362	1.459	1.561	1.796	3.352	4.744
Not Paved	0.793	0.810	0.832	0.856	0.880	0.905	0.930	0.996	1.048	1.114
Maintainable Condition										
Paved	0.497	0.605	0.725	0.849	0.978	1.111	1.250	1.509	3.270	4.656
Not Paved	0.673	0.693	0.719	0.745	0.772	0.800	0.829	0.896	0.964	1.046
Holding Maintenance										
Paved	0.526	0.488	0.454	0.419	0.384	0.348	0.312	0.287	0.082	0.088
Not Paved	0.120	0.117	0.114	0.111	0.108	0.104	0.101	0.100	0.085	0.068

2.3 Backlog Periodic Maintenance Programme

Implementing Agencies: MoTC Policy, KRB Programming and Funding, Highways Agencies according to road classification

Objective/s: Minimise vehicle operating costs due to road pavement conditions

Brief Description:

Of the roads that are not currently in maintainable condition 43% of classified and 33% of urban roads are assumed to require periodic backlog maintenance to raise them to a maintainable condition. This percentage applies to paved roads. Related proportions have been assumed for non-paved roads in the classified, urban and non-classified network. These assumptions will require updating once the detailed inventory and condition survey is completed, this is expected in 2004.

Preparation of the programmes are expected to be those of the various highways agencies with works prioritised according to the criteria laid down by the MoTC and overseen by the KRB. Notes on criteria are in section 3.1 of the report.

The targets assumed for the programme are:

Classified 2,277 km

Urban 411km

Refer to the next table for an annual breakdown and to the flowing table for the financing plan.

These targets are subject to revision

Results: Roads raised to maintainable condition

Overall cost: Ksh 13.0billion (subject to revision and excluding overheads and contingencies)

Implementation Programme: 2004 to 2015, AB works 2004 to 2010

Backlog Periodic Maintenance Programme Classified		2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
Total		1537	192	192	192	192	192	192	192	0	0
Paved		0	0	0	0	0	0	0	0	0	0
Not Paved		1537	192	192	192	192	192	192	192	0	0
CDE Network		740	93	93	93	93	93	93	93	0	0
Paved		0	0	0	0	0	0	0	0	0	0
Not Paved		740	93	93	93	93	93	93	93	0	0
Total Classified		2277	285	285	285	285	285	285	285	0	0
Paved		0	0	0	0	0	0	0	0	0	0
Not Paved		2277	285	285	285	285	285	285	285	0	0
Unclassified Network		50	3	3	3	3	3	3	3	3	3
Paved		0	0	0	0	0	0	0	0	0	0
Not Paved		50	3	3	3	3	3	3	3	3	3
Urban Network		361	45	45	45	45	45	45	45	0	0
Paved		0	0	0	0	0	0	0	0	0	0
Not Paved		361	45	45	45	45	45	45	45	0	0
Total Unclassified		411	48	48	48	48	48	48	48	3	3
Paved		0	0	0	0	0	0	0	0	0	0
Not Paved		411	48	48	48	48	48	48	48	3	3

Programme Expenditure Million Ksh

Classified	Total	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
AB Network	7468	934	934	934	934	934	934	934	934	0	0
Paved											
Not Paved	0	0	0	0	0	0	0	0	0	0	0
CDE Network	3556	445	445	445	445	445	445	445	445	0	0
Paved											
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Total Classified	11025	1378	1378	1378	1378	1378	1378	1378	1378	0	0
Paved											
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Unclassified Network	195	11	11	11	11	11	11	11	11	11	11
Paved											
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Urban Network	2003	250	250	250	250	250	250	250	250	0	0
Paved											
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Total Unclassified	2198	261	250	250	250	250	250	250	250	11	11
Paved											
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Total	13039	1639	1628	1628	1628	1628	1628	1628	1628	0	0

2.4 Rehabilitation Programme

Implementing Agencies: MoTC Policy, KRB Programming and Funding, Highways Agencies according to road classification

Objective/s: Minimise vehicle operating costs due to road pavement conditions

Brief Description:

Of the roads that are not currently in maintainable condition 37% of classified and 54% urban roads are assumed to require rehabilitation to raise them to a maintainable condition. This percentage applies to paved roads. Related proportions have been assumed for non-paved roads in the classified, urban and non-classified network. These assumptions will require updating once the detailed inventory and condition survey is completed, this is expected in 2004.

Preparation of the programmes are expected to be those of the various highways agencies with works prioritised according to the criteria laid down by the MoTC and overseen by the KRB. Notes on criteria are in section 3.1 of the report.

The targets assumed for the programme are:

3,000 km paved

14,380 km non paved

Refer to the next table for an annual breakdown and to the flowing table for the financing plan.

These targets are subject to revision

Results: Roads raised to maintainable condition

Overall cost: Ksh 44.9billion (subject to revision and excluding overheads and contingencies)

Implementation Programme: 2004 to 2015, AB 2004 to 2010

Rehabilitation Programme Annual Output Km

Classified	Total	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
AB Network	Total	1331	166	166	166	166	166	166	166	0	0
Paved											
Not Paved	778	24	24	24	24	24	24	24	24	67	51
CDE Network											
Paved	641	80	80	80	80	80	80	80	80	0	0
Not Paved	4610	256	256	256	256	256	256	256	256	256	256
Total Classified	1972	247	247	247	247	247	247	247	247	0	0
Not Paved	5388	280	280	280	280	280	280	280	280	323	307
Unclassified Network											
Paved	81	5	5	5	5	5	5	5	5	5	5
Not Paved	5982	332	332	332	332	332	332	332	332	332	332
Urban Network											
Paved	949	73	73	73	73	73	73	73	73	73	0
Not Paved	3010	167	167	167	167	167	167	167	167	167	167
Total Unclassified	1030	78	78	78	78	78	78	78	78	78	5
Not Paved	8992	500	500	500	500	500	500	500	500	500	500

Programme Annual Expenditure Billions Ksh

Rehabilitation Projects Classified		2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
AB Network	Total	2346	2346	2346	2346	2346	2346	2346	2346	0	0
	Paved										
	Not Paved	20	20	20	20	20	20	20	20	57	44
CED Network	Total	926	926	926	926	926	926	926	926	0	0
	Paved										
	Not Paved	205	205	205	205	205	205	205	205	205	205
Total Classified	Paved	22902	3272	3272	3272	3272	3272	3272	3272	0	0
	Not Paved	4130	225	225	225	225	225	225	225	262	249
Unclassified Network	Total	867	51	51	51	51	51	51	51	51	51
	Paved										
	Not Paved	4519	266	266	266	266	266	266	266	266	266
Urban Network	Total	11288	941	941	941	941	941	941	941	941	0
	Paved										
	Not Paved	1228	72	72	72	72	72	72	72	72	72
Total Unclassified	Paved	12155	1207	1207	1207	1207	1207	1207	1207	1207	266
	Not Paved	5748	72	72	72	72	72	72	72	72	72
Total	Total	44934	4776	4776	4776	4776	4776	4776	4776	1541	587

2.4 Reconstruction Programme

Implementing Agencies: MoTC Policy, KRB Programming and Funding, Highways Agencies according to road classification

Objective/s: Minimise vehicle operating costs due to road pavement conditions

Brief Description:

Of the roads that are not currently in maintainable condition 17% are assumed to require total reconstruction to raise them to a maintainable condition. That is to say the foundations have failed. This percentage applies to paved roads. Related proportions have been assumed for non-paved roads in the classified, urban and non-classified network. These assumptions will require updating once the detailed inventory and condition survey is completed, this is expected in 2004.

Preparation of the programmes are expected to be those of the various highways agencies with works prioritised according to the criteria laid down by the MoTC and overseen by the KRB. Notes on criteria are in section 3.1 of the report.

The targets assumed for the programme are:

920 km paved

329 km non-paved

Refer to the next table for an annual breakdown and to the flowing table for the financing plan.

These targets are subject to revision

Results: Roads raised to maintainable condition

Overall cost: Ksh 43.25 billion (subject to revision and excluding overheads and contingencies))

Implementation Programme: 2004 to 2015, AB 2004 to 2010

**Programme Annual Output Km
Reconstruction Programme**

Classified	Total	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
AB Network											
Paved	621	78	78	78	78	78	78	78	78	0	0
Not Paved	0	0	0	0	0	0	0	0	0	0	0
CDE Network											
Paved	299	37	37	37	37	37	37	37	37	0	0
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Total Classified											
Paved	920	115	115	115	115	115	115	115	115	0	0
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Unclassified Network											
Paved	26	1	1	1	1	1	1	1	1	1	1
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Urban Network											
Paved	303	23	23	23	23	23	23	23	23	23	0
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Total Unclassified											
Paved	329	25	25	25	25	25	25	25	25	25	1
Not Paved	0	0	0	0	0	0	0	0	0	0	0

Programme Annual Expenditure Billions Ksh

Reconstruction Projects		2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
Reconstruction Projects Classified		Total									
AB Network											
Paved		12668	1810	1810	1810	1810	1810	1810	1810	0	0
Not Paved		0	0	0	0	0	0	0	0	0	0
CDE Network											
Paved		5228	747	747	747	747	747	747	747	0	0
Not Paved		0	0	0	0	0	0	0	0	0	0
Total Classified		17896	2557	2557	2557	2557	2557	2557	2557	0	0
Unclassified Network											
Paved		277	16	16	16	16	16	16	16	16	16
Not Paved		0	0	0	0	0	0	0	0	0	0
Urban Network											
Paved		7275	606	606	606	606	606	606	606	606	0
Not Paved		0	0	0	0	0	0	0	0	0	0
Total Unclassified		7551	606	606	606	606	606	606	606	606	0
Total		25447	3163	3163	3163	3163	3163	3163	3163	606	0

2.5 Upgrading and Dualling Programme

Implementing Agencies: MoTC Policy, KRB Programming and Funding, Highways Agencies according to road classification

Objective:

- To efficiently accommodate increases in traffic on the road network
- To prepare for new strategic links
- To relieve built up areas with relief roads and bypasses

Brief Description:

Traffic will increase by between 2% and 3% pa depending on road classification and will necessitate upgrading from about 2010. The programme also included upgrading and dualling roads, bypasses and new routes to be identified. The MoTC as the policy-making organisation and the one that has most information on economic, strategic and social development shall prepare is expected to prepare the roads upgrading and development indicative programme based on their traffic prognosis. The Northern Corridor and other strategic routes shall be a part of this programme.

The GoK also plans to construct new roads such as Isiolo – Moyale; Lamu- Garissa-Wajir –Mandara during the next 10 years. But neither new roads nor the effects of possible reclassification, has been included. However, given the considerable expenditure needed to upgrade and keep up with the demands of future traffic, finance for new roads might only be available at the expense of existing roads. If the economy expanded faster than the 3% pa assumed, finance for new roads may be more likely.

To be paved:

Classified roads 3,220 km

Urban Roads 2,004 km

Dual Carriageway:

AB roads 1220 km

Urban roads 435 km

These targets are all subject to revision pending the outcome of the planning exercises referred to in other programmes previously described:

Refer to the next table for an annual breakdown and to the flowing table for the financing plan.

Results: Economic development of the roads network, traffic, development of new trade routes, environmental and accident reduction,

Overall cost: Ksh 140.1 billion on upgrading and Ksh 86.8 billion on dualling (subject to revision and excluding overheads and contingencies)

Implementation Programme: Northern Corridor work form 2006 and the rest from 2010 to 2020.

Programme Annual Output Km

Upgrading Classified	Total	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
AB Network	1493	0	0	0	0	0	0	0	0	149	149
Paved	1493	0	0	0	0	0	0	0	0	149	149
Not Paved	0	0	0	0	0	0	0	0	0	0	0
CDE Network	0	0	0	0	0	0	0	0	0	0	0
Paved	1727	0	0	0	0	0	0	0	0	173	173
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Total Classified	3220	0	0	0	0	0	0	0	0	322	322
Paved	0	0	0	0	0	0	0	0	0	0	0
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Unclassified Network	399	0	0	0	0	0	0	0	0	40	40
Paved	0	0	0	0	0	0	0	0	0	0	0
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Urban Network	0	0	0	0	0	0	0	0	0	160	160
Paved	1605	0	0	0	0	0	0	0	0	160	160
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Total Unclassified	2004	0	0	0	0	0	0	0	0	200	200
Paved	117	0	0	0	0	0	0	0	0	0	23
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Dualling	Total	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
AB Network	1220	0	0	0	35	35	50	50	50	100	100
Urban Network	435	0	0	0	0	0	0	0	10	35	50
Total	1655	0	0	0	35	35	50	50	60	135	150

Programme Annual Expenditure Billions Ksh

	Total	2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
Upgrading Classified											
AB Network											
Paved	40320	0	0	0	0	0	0	0	0	4032	4032
Not Paved	0	0	0	0	0	0	0	0	0	0	0
CED Network											
Paved	43167	0	0	0	0	0	0	0	0	4317	4317
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Total Classified											
Paved	83487	0	0	0	0	0	0	0	0	8349	8349
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Unclassified Network											
Paved	8771	0	0	0	0	0	0	0	0	877	877
Not Paved	0	0	0	0	0	0	0	0	0	0	0
Urban Network											
Paved	48148	0	0	0	0	0	0	0	0	4815	4815
Not Paved	513	0	0	0	0	0	0	0	0	0	103
Total Unclassified											
Paved	56919	0	0	0	0	0	0	0	0	4815	4815
Not Paved	513	0	0	0	0	0	0	0	0	0	103
Total	140918	0	0	0	0	0	0	0	0	13163	13266
Dualling											
AB Network		Total	2004	2005	2006	2007	2008	2009	2010	2015	2020
Urban Network	58560	58560	0	0	1680	1680	2400	2400	2400	4800	4800
Total	28275	28275	0	0	0	0	0	0	650	2275	3250
	86835	86835	0	0	1680	1680	2400	2400	3050	7075	8050

2.6 Special Works Programme

Implementing Agency: MoTC Policy, KRB Programming and Funding, Highways Agencies according to road classification

Objective/s:

- Prevention of road accidents
- Reduction of environmental impacts
- Providing emergency relief works

Brief Description:

There is always a need to make provisions for special works, which may be not be so easy to programme or prioritise. These may include accident black spot remedial works to prevent more accidents at very accident prone locations; environmental works to protect serious adverse affects such as water contamination, serious noise or visual problems or even animal protection with fences culverts etc. and finally there is always need to provide a fund for emergencies such as wash outs.

Budgets are proposed as being simple percentages of planned road works expenditure as follows:

Black spot programme 5% of backlog maintenance programme, to be part of road safety programme 1.4.

Environmental programme 5% of rehabilitation and reconstruction programme

Emergency programme 2.5% of routine maintenance programme (note the increases due to upgrading 2010 to 2020)

Upgrading works are expected to include all appropriate safety and environmental features.

Results: Immediate response to solve urgent safety, environmental and social problems due to roads

Overall cost: Ksh 10.63 billion (subject to revision and excluding overheads and contingencies))

Implementation Programme: 2004 to 2020

Programme Annual Expenditure Billions Ksh

		2003	2004	2005	2006	2007	2008	2009	2010	2015	2020
7 Special Projects	Total	0.66	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.00	0.00
7.1 Black Spot Projects	5.00%	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.00	0.00
7.2 Environmental Projects	5.00%	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.40	0.11	0.03
7.3 Emergency Relief Projects	2.50%	0.20	0.21	0.22	0.24	0.25	0.26	0.27	0.30	0.37	0.45
Sub Total		10.63	0.70	0.71	0.72	0.73	0.74	0.75	0.78	0.48	0.48

3 Road Management and Organisation Programme

Implementing Agency/s: MoTC, MoRPWH, KRB,

Objective/s:

- Integrate roads with transport policy
- Improve management of roads sub-sector
- Increase user awareness

Brief Description:

The road management initiative is only partly implemented in Kenya. The Road Maintenance Levy Fund is created and well financed but expenditure has been wasted through, political interference, mismanagement and corruption. The road sub-sector must continue to reform if it is to provide the road user with roads comparable to payment made. There are several steps that should be taken that will require persistent support from development partners:

- Defining Legislated Responsibility for Highways
- Integration of transport Policy
- Promotion of public awareness
- Support and implementation of good governance actions
- Improvement in management
- Development of human resources
- Reduction in corruption

Specific requirements of the foregoing programmes are as follows:

Legislation

- Legislation will be updated and harmonised to define statutory responsibility for all public roads, and to define a functional hierarchy based on user and social needs
- Legislation will require those with statutory responsibility to compile, publish and update a gazette of adopted roads, and the Minister responsible for roads policy will consult with others with statutory responsibility for roads and resolve any conflicts relating to responsibility, and to ensure that any road appears in only one gazetted list

Policy

- Responsibility for transport policy for all modes, including roads and rural transport infrastructure, covering both the use and provision of transport facilities, will be assigned to one ministry to enable transport policy to be integrated and considered in a holistic manner
- The Kenya Roads Board and all road agencies will increase the amount of public consultation and participation in its activities to promote a sense of ownership among stakeholders in the road network
- Performance indicators on user satisfaction will be developed by KRB and be applied to all road agencies receiving finance from KRB; comparative indicators will be published by KRB at least annually

Awareness

- To achieve more transparency and greater accountability, the road sub-sector will be organised in a manner that separates road administration and management from the political role of Government; within road agencies, there will be separation of the client and supplier functions as far as practicable

Governance

- Independent roads agencies will be established to provide road-works for various categories of roads in urban and in rural areas

- Published annual technical and financial audits of all road agencies will be mandatory, and sanctions may be imposed in the event of non-compliance
- Performance indicators will be developed by the Kenya Roads Board and be applied to all road agencies receiving finance from KRB
- KRB will publish comparative indicators for all road agencies at least annually
- KRB will report to the Minister responsible for roads

Management

- KRB and road agencies will determine their customer needs by instituting advisory groups of their customers and undertaking regular customer satisfaction market surveys
- Road agencies will develop and publish aims and objectives geared to meeting customer needs, as determined above; key objectives will be used to derive performance indicators and achievement against these will be published at least annually
- Road agencies will adopt commercial management practices more commonly found in the private sector
- Road agencies will produce annual reports including, among other things, details of their road network and its condition, and other management performance information

Human resources

Clearly substantial investment in human capacity building / training will be required for personnel in the new organisation structures if they are to work effectively.

- Appropriate, administrative and management arrangements will be introduced to encourage an improved professional and motivational environment for staff through the creation of autonomous and independent agencies
- Human resource development (HRD) will receive higher priority
- Senior management staff in KRB and road agencies will be employed on performance-based contracts
- KRB will set up a training fund

Corruption

The Government's existing anti-corruption strategy will be applied vigorously to the road sub-sector at all levels. In addition, the following are proposed:

- The KRB will participate in contractor payments, including transfers to force account for direct works, and exercises a veto over payments where potential irregularities are suspected¹.
- In so doing, the KRB shall assume their mandated and statutory responsibility for the effectiveness of fund disbursement, including strengthening the compliance unit, and dealing with complaints, accusations of fraud and misappropriation, ethics and professional standards.
- A new system of accounting, which reflects commercial requirements, will be adopted by the funding agency in consultation with stakeholders.
- A timescale shall be fixed whereby annual audits of agency accounts will become a pre-condition for funding.
- Stipulate in a future agreement between the funding agency and the highways implementing agency that an independent due-diligence or audit of the agencies activities is enforceable at any time without notice

¹ This is generally strongly resisted by KRB and the Roads Department and yet it is quite normal for Funding Agencies to pay contractors directly as does the EU and World Bank with its consultants and contractors. In the short term it represents the best way to control the outflow of finance until spending agencies are quality assured. It also must be realised that as the Roads Department undergoes traumatic change, in house controls will deteriorate. The intervention of KRB in contractor payments was fully supported by all Consulting Team Members.

In the event that implementing agencies are not in compliance with stipulated requirements, clearly-specified sanctions will be applied by the funding agency to the implementing agency. Where the KRB is managing development partner funding, the conditionalities (especially those of third parties) will be transferred to the implementing agency

Results: More roads constructed and repaired at less cost, more efficient roads programming and implementation; more expeditious allocation of funds; greater awareness by providers and users.

Overall cost: Ksh 1.29 billion of which Ksh 450 TA until 2010

Implementation Programme: Refer to each of the 7 sub-programmes in the following pages

9 Organisation & Management	Total	2004	2005	2006	2007	2008	2009	2010	2015	2020
9.1 Legislated responsibility	0.121	0.000	0.021	0.020	0.020	0.020	0.020	0.020	0.000	0.000
9.2 Responsibility for policy	0.008	0.000	0.004	0.004	0.000	0.000	0.000	0.000	0.000	0.000
9.3 Public awareness	1.941	0.004	0.002	0.013	0.046	0.024	0.030	0.063	0.176	0.176
9.4 Governance	0.186	0.000	0.014	0.062	0.062	0.016	0.016	0.016	0.000	0.000
9.5 Management	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9.6 Human resources	0.850	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050	0.050
9.7 Corruption	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
9 Total	1.298	0.054	0.090	0.149	0.179	0.110	0.116	0.149	0.226	0.226

3.1 Legislated responsibility for the road network

Ref.	Description of Strategy	Start	End	Total Cost M Ksh	Annual Expenditure						By	Organisation		
					2004	2005	2006	2007	2008	2009			2010	2015
1	Update Public Roads Act Ministerial task force Sub Total	2005	2006	0 0	0 0	0 0	0 0					In-house	*	
2	Update Local Government Act Ministerial task force Sub Total	2005	2005	0 0	0 0	0 0						In-house		
3	Road classification													
1	Secure funding	2004	2005	0	0							In-house	*	
2	Draft ToR and let contract	2005	2005	0.8	0.8							TA		
3	Specify classification criteria	2005	2005	0	0							In-house		
3	Undertake study	2005	2006	40	20	20						TA		
4	Agreement to recommendations	2006	2006	0	0							In-house		
5	Implement changes	2007	2010	80			20	20	20	20		TA		
6	Regular update of classification	2010	2020	80								TA		
	Sub Total			120.8	0	20.8	20	20	20	20	20	20	20	Road agencies
	TOTAL EXPENDITURE			120.8	0	20.8	20	20	20	20	20	20	20	

Ref.	Description of Strategy	Start	End	Total Cost MKsh	Annual Expenditure						By	Organisation		
					2004	2005	2006	2007	2008	2009			2010	2015
1	Cabinet task force													
1	Establish task force	2004	2004	0	0							In-house	Cabinet	
2	Consultation with ministries and other relevant bodies	2004	2004	0	0							In-house	Cabinet	
3	Revise and gazette decrees for the revised organisational structure	2005	2005	0	0							In-house	Cabinet	
	Sub Total			0	0	0	0	0	0	0	0			
2	Transport policy task force													
1	Establish task force	2003	2004	0	0							In-house	MoTC	
2	Consultation with ministries and other relevant bodies	2003	2004	0	0							In-house	MoTC	
3	Green Paper on transport policy	2004	2004	0	0							In-house	MoTC	
4	White paper	2005	2005	0	0							In-house	MoTC	
5	Submit to National Assembly	2006	2006	0	0			0				In-house	MoTC	
6	Transport Act	2006	2006	0	0			0				In-house	MoTC	
	Sub Total			0	0	0	0	0	0	0	0			
3	Change management													
1	ToR for change management team and let contract	2004	2004	0	0							In-house	Cabinet	
2	Change management process in organisations	2005	2006	8	4	4						TA	Cabinet	
	Sub Total			8	4	4	4	4	4	4	4			
	TOTAL EXPENDITURE			8	4	4	4	4	4	4	4			

3.3 Public awareness and stakeholder involvement

Ref.	Description of Strategy	Start	End	Total Cost MKsh	2004	2005	2006	2007	2008	2009	2010	2015	2020	By	Organisation
1	KRB annual report														
1	KRB to publish annual report	2004	2020	0	0	0	0	0	0	0	0	0	0	In-house	KRB
	Sub Total			0	0	0	0	0	0	0	0	0	0		
2	Agencies' annual reports														
1	Road agencies to publish annual reports	2005	2020	0	0	0	0	0	0	0	0	0	0	In-house	Road agencies
	Sub Total			0	0	0	0	0	0	0	0	0	0		
3	KRB telephone hot-line and web-site														
1	Purchase call-logging system	2004	2004	0.8	0.8									In-house	KRB
2	Establish dedicated phone line	2004	2004	0	0									In-house	KRB
3	Advertising campaign	2004	2020	13.6	0.8	0.8	0.8	0.8	0.8	0.8	0.8	4	4	TA	KRB
4	Establish web-site	2004	2004	2	2									TA	KRB
5	Maintain web-site	2005	2020	12.8	0.8	0.8	0.8	0.8	0.8	0.8	0.8	4	4	TA	KRB
	Sub Total			29.2	3.6	1.6	1.6	1.6	1.6	1.6	1.6	8	8		
4	Road agencies' telephone hot-lines														
1	Purchase call-logging system	2006	2010	28		5.6	5.6	5.6	5.6	5.6	5.6			In-house	Road agencies
2	Establish dedicated phone line	2006	2010	0	0	0	0	0	0	0	0			In-house	Road agencies
3	Advertising campaign	2006	2020	364	5.6	11.2	16.8	22.4	28	28	28	140	140	TA	Road agencies
	Sub Total			392	11.2	16.8	22.4	28	33.6	28	33.6	140	140		
5	User-satisfaction surveys														
1	Design of user surveys and PIs	2006	2006	0	0	0	28	28	28	28	28	28	28	In-house	KRB
2	User surveys at 3-year intervals	2007	2020	112										TA	Road agencies
3	PIs to be published	2008	2020	0					0	0	0	0	0	In-house	KRB
	Sub Total			112	0	0	28	0	28	28	28	28	28		
	TOTAL EXPENDITURE			533.2	3.6	1.6	12.8	46.4	24	29.6	63.2	176	176		

3.4 Governance		Description of Strategy	Start	End	Total Cost MKsh	Annual Expenditure						By	Organisation	
Ref.	2004					2005	2006	2007	2008	2009	2010			2015
1		National Highways Agency												
1		Draft enabling legislation	2004	2004	0							In-house	Cabinet	
2		ToR and let contract for change management consultants	2004	2004	0							In-house	KRB	
3		Change management consultancy	2005	2007	40	14	13	13				TA	KRB	
4		Appointment of Chief Executive and initial staff	2006	2007	3.2	1.6	1.6					TA	KRB	
5		Develop systems and procedures	2006	2007	80	40	40					TA	NHA	
6		Transfer of responsibility	2008	2008	0			0				In-house	Cabinet	
		Sub Total			123.2	0	14	54.6	54.6	0	0			
2		Local road agencies												
1		Draft enabling legislation	2005	2005	0	0						In-house	Cabinet	
2		ToR and let contract for change management consultants	2005	2005	0							In-house	KRB	
3		Change management consultancy	2006	2007	16		8	8	16	16		TA	KRB	
4		Roll-out of change management programme	2008	2010	48							TA	KRB	
		Sub Total			64	0	8	8	16	16	16			
3		Audit												
1		Technical and financial audit of agencies and publish results	2004	2020	0	0	0	0	0	0	0	In-house	KRB	
		Sub Total			0	0	0	0	0	0	0			
4		Performance indicators												
1		KRB to draft PIs	2006	2006	0		0					In-house	KRB	
2		Agencies to report on PIs	2007	2020	0			0	0	0	0	In-house	Road agencies	
3		KRB to publish comparison of PIs	2008	2020	0			0	0	0	0	In-house	KRB	
		Sub Total			0	0	0	0	0	0	0			
		TOTAL EXPENDITURE			187.2	0	14	62.2	62.2	16	16	16	0	0

3.5 Management

Ref.	Description of Strategy	Start	End	Total Cost MKsh	Annual Expenditure							By	Organisation		
					2004	2005	2006	2007	2008	2009	2010			2015	2020
1	KRB customer satisfaction Introduction of customer-satisfaction surveys	2005	2020	0	0	0	0	0	0	0	0	0	0	In-house	KRB
	Sub Total			0	0	0	0	0	0	0	0	0	0		
2	Commercialisation requirement for KRB funding Funding dependent on annual participation agreement	2005	2030	0	0	0	0	0	0	0	0	0	0	In-house	KRB
2	Funding dependent on commercialisation of agencies	2008	2020	0	0	0	0	0	0	0	0	0	0	In-house	Road agencies
	Sub Total			0	0	0	0	0	0	0	0	0	0		
3	Condition-based requirement for KRB funding Funding dependent on condition-based development of work programme	2008	2020	0	0	0	0	0	0	0	0	0	0	In-house	Road agencies
	Sub Total			0	0	0	0	0	0	0	0	0	0		
4	Annual reports Funding dependent on production of annual reports	2006	2020	0	0	0	0	0	0	0	0	0	0	In-house	Road agencies
	Sub Total			0	0	0	0	0	0	0	0	0	0		
	TOTAL EXPENDITURE			0	0	0	0	0	0	0	0	0	0		

3.6 Human resources

Ref.	Description of Strategy	Start	End	Total Cost MKsh	Annual Expenditure										By	Organisation		
					2004	2005	2006	2007	2008	2009	2010	2015	2020					
1	HRD impact on KRB funding Funding dependent on HRD specialists and programmes Sub Total	2008	2020	0 0				0	0	0	0	0	0	0	0	0	In-house	Road agencies
2	Management employment contracts KRB funding dependent on senior management employed on performance contracts Sub Total	2008	2020	0 0				0	0	0	0	0	0	0	0	0	In-house	Road agencies
3	Training funds Funding of road management training Sub Total	2005	2020	850 850	50	50	50	50	50	50	50	50	250	250	50	50	In-house	Road agencies
	TOTAL EXPENDITURE			850	50	50	50	50	50	50	50	50	50	50	50	50		

3.7 Corruption

Description of Strategy	Start	End	Total Cost	Annual Expenditure							By	Organisation		
				2004	2005	2006	2007	2008	2009	2010			2015	2020
Zero tolerance of corruption			MKsh											
KRB to be involved in contractor payments	2004	2008	0	0	0	0	0	0	0	0	0	0	In-house	KRB
Strengthen Compliance Function	2005	2006	0	0	0	0	0	0	0	0	0	0	In-house	KRB
Carry out technical and financial audits	2004	2005	0	0	0	0	0	0	0	0	0	0	In-house	KRB
Routine audits of Highways Agencies	2005	2020	0	0	0	0	0	0	0	0	0	0	In-house	KRB
Establish and Implement Sanctions	2005	2020	0	0	0	0	0	0	0	0	0	0	In-house	KRB
Sub Total			0	0	0	0	0	0	0	0	0	0		
TOTAL EXPENDITURE			0	0	0	0	0	0	0	0	0	0		

Note that expenditure will be included in Administration of KRB, training etc

4 Roads Administration and Training

The expenditure plan set out on the following table indicates budgeting for all organisation and management inputs required for the road sector.

Details are as follows: (numbering in brackets refers to budget line in model)

(9) Organisation and Management

Budgets for the reform process as detailed in the previous section.

4.1 (10) Administration.

The administration assumes that the MoRPWH will be restructured and that Highways Agencies will do most of the implementation for each group of roads. The cost heading may not correspond with the organisation proposed herein. This exercise has as its objective to obtain a financing plan for the sub-sector. Whilst the organisational structure may change but the cost of administration is not expected to differ significantly. Budget assumptions are as follows:

(10.1) MoTC will take charge of road policy.

Budget fixed at 1.5 % of all transport and traffic expenditure

(10.2) MoRPWH will have overall charge of road implementation admin unless merged with the MoTC as proposed in the O&M plan herein².

Budget fixed at 3% of all roads expenditure – will transfer to MoTC upon merger

(10.3) MoLG will have charge of traffic management etc

Budget fixed at 1.5% of transport planning and traffic expenditure

(10.4) Primary Roads Agency / National Highways Agency will have charge for implementation of strategic roads A B

Budget fixed at 10% all AB roads expenditure

(10.5) Secondary Roads Agency (name not fixed³) will have charge over implementation of CDE and other classified roads.

Budget fixed at 10% of all CDE and other roads expenditure

(10.6) Urban Roads Agency (name not fixed) will have charge over all urban roads

Budget fixed at 10% of all Urban road expenditure

(10.7) Rural Roads Agency (name not fixed) will have charge over the implementation of works over all unclassified non-urban roads

Budget fixed at 10% of the non-classified (non-urban) roads expenditure programme.

(10.8) Kenya Roads Board will have charge over the programming and funding of all roads

Budget fixed at 1.5% of entire roads expenditure.

² Options for a institutional reform produced by MoRPWH (Dec 03) do not envisage any merger.

³ The names of the agencies used herein are purely speculative and only used for the sake of establishing a budget line.

4.2 Training

Specific budgets require to be ring fenced for training as follows:

(11.1) Training for public sector

Budget fixed at 1.5 % of all roads expenditure

(11.2) Training for private sector collected by levy for training schools etc

Budget fixed at 1.5 % all contracts (assumed 100% at this stage)

4.3 Contingencies

Contingencies have been assumed to reflect contemporary Kenya, these have been proposed as follows

(12.1) Preparation of works 15% reflecting site investigation design and contract documentation.

(12.2) Implementation / Execution of works 15% reflecting supervision, control and contractor.

(12.3) Mismanagement 20% reducing to 0% by year 2010 due to anti-corruption measures.

These are based on consultants judgement. The results from the much needed and delayed technical and financial audit will provide the more appropriate percentages.

Roads for Wealth and Employment Creation

	2004	2005	2006	2007	2008	2009	2010	2015	2020
TOTAL ROADS	23.145	24.338	25.639	27.645	28.161	29.768	31.490	33.976	46.942
Contingencies	Total	2004	2005	2006	2007	2008	2009	2010	2015
Preparation	80.64	3.29	3.46	3.73	3.80	4.02	4.25	4.59	6.34
Implementation	80.64	3.29	3.46	3.73	3.80	4.02	4.25	4.59	6.34
Mismanagement	15.21	3.41	2.51	1.90	1.35	1.00	0.74	0.13	0.03
Sub Total	176.49	9.98	9.44	9.36	8.96	9.04	9.24	9.31	12.71

Units: b Kshs

Appendix H
Road Investment Plan

An outline investment plan for restoration of the paved A, B and C road network

Clearance of backlog periodic maintenance, rehabilitation and reconstruction of the paved network represents an enormous challenge for KRB. With a large proportion of the network in a non-maintainable state, RMLF resources have been channelled into rehabilitation projects rather than 'normal' periodic maintenance on the better roads. The result has been that more and more roads are deteriorating beyond the point where 'normal' periodic maintenance is a viable intervention and more expensive rehabilitation is needed instead.

The KRB asked for help in putting together a prioritised list of roads in a paved road restoration programme, covering the classified paved network. Such a programme should emerge from the work currently underway on the MRPWH Road Inventory and Condition Survey, but the results are not expected for several months. In the interim, it was agreed that a desk study would be done, using limited data, to come up with an indicative programme that KRB could use for forward planning purposes.

Network inventory and condition data was taken from the MRPWH survey team but was found to be incomplete and not compatible with data from other sources. Instead, the analysis was based on a desk study of the A, B and C paved road network conducted by MRPWH Planning Section in 2001, updated with information from a field survey by Materials Branch in 2002 and data on recent or planned projects from KRB and MRPWH. Road sections were defined in terms of good, fair, poor or failed condition based on the following description:

- Good: Within maintenance cycle, not overdue for periodic maintenance, roughness not more than 4m/km. These roads do not require restoration and are therefore not included in the programme.
- Fair: Overdue for periodic maintenance. Modest patching needed. Roughness not more than 7m/km.
- Poor: Overdue for periodic maintenance. Heavy patching required each year. Roughness not more than 10m/km.
- Failed: Reconstruction needed. Excessive patching. Roughness more than 10m/km.

The strategy for carrying out the analysis was as follows:

- The A, B and C paved network was sectioned according to, traffic level and condition;
- Traffic levels were weighted to allow for higher proportions of heavy vehicles (and therefore higher operating cost per vehicle) on the A and B roads compared with C roads;
- Traffic levels were also weighted to reflect higher vehicle operating costs on roads in fair, poor and failed condition;

- Global per km construction costs were defined for each intervention (periodic backlog, rehabilitation and reconstruction) and each type of road. Rates per km were based on recent projects but adjusted to allow for the fact that costs have historically been higher in Kenya compared with other countries and are likely to fall in the future;

Construction rates used (in US\$ per km) are as follows:

Class	Periodic Backlog	Rehabilitation	Reconstruction
A	75,000	175,000	300,000
B	63,000	175,000	275,000
C	56,500	125,000	200,000

Road sections were prioritised on the basis of weighted ADT (benefit) over construction cost per km and sorted lists produced for trunk roads (A and B) and C roads.

Although the above simple procedure is adequate for getting a feel for overall priorities and costs, more detail is required to produce a project level programme. This would involve field work to assess appropriate improvement options and the scope of work required for individual road sections so costs can be estimated more accurately. More information would also be required on traffic volume and composition.

Programming of periodic maintenance for roads in good condition will require a detailed field assessment of pavement condition, together with judgments regarding rate of deterioration of surfacing and the type (and likely timing) of the periodic intervention required;

Subsequent analyses should also include the more heavily trafficked D and E roads which are of greater economic importance than suggested by their classification.

A summary of estimated restoration requirements based on the above strategy is shown in Table 1.

Table 1 Summary of paved A, B and C road restoration requirements

Road Class	Periodic Backlog		Rehabilitation		Reconstruction		Total	
	km	M.Ksh	km	M.Ksh	km	M.Ksh	km	M.Ksh
A	983	5,898	580	9,962	661	14,542	2,224	30,402
B	776	3,913	331	4,634	145	3,190	1,252	11,737
C	1,000	4,520	1,016	10,162	310	4,958	2,326	19,640
Total	2,759	14,331	1,927	24,758	1,116	22,690	5,802	61,779

Table 2 Paved A, B and C roads – Prioritised restoration requirements for all roads

Road No.	Section	Section No.	Surface Type	Km	Estimated condition	Remarks	Status	ADT 2001	Estimated Cost M.Ksh	Priority Ranking
A1	Isebania- Mukuyu	1	Paved	30	Good	Under Routine Mice	No project	1000	-	
A1	Kisii - Ahero	3	Paved	87	Good	Overlay in 1999/2000	No project	1250	-	
A1	Kakuma-Lokichokio	8	Paved	125	Good	Resealed 1999/2001	No project	300	-	
A104	Longonot t'off- Naivasha	6	Paved	31	Good	Under Routine Mice	No project	6000	-	
A109	Saba Saba- Miritini	1	Paved	22	Good	RMLF periodic complete	No project	4500	-	
A109	Maji Chumvi-Bachuma Gate	3	Paved	55	Good	Rehab complete 2003	No project	3000	-	
A109	Bachuma Gate-Mitito Andei	4	Paved	150	Good	Newly Constructed 2003	No project	2500	-	
A2	Marua-Kiganjo-Nanyuki	5	Paved	61	Good	Rehabilitated 2000/01	No project	1500	-	
B1	Yala-Busia	4	Paved	70	Good	Under Routine Mice	No project	1000	-	
B2	Mois Bridge-Kitale	2	Paved	28	Good	Under Routine Mice	No project	1500	-	
B3	Rironi-Maai Mahiu	1	Paved	20	Good	Resealed	No project	1100	-	
B3	Narok-Amala River	3	Paved	49	Good	Under Routine Mice	No project	300	-	
B8	Malindi-Garsen	2	Paved	100	Good	Under Routine Mice	No project	1000	-	
C23	Kericho – Sotik	1	Paved	43	Good	Periodic mice complete	No project	1600	-	
C25	Kapsoit-Kiptere	1	Paved	19	Good	Under Routine Mice	No project	300	-	
C31	Busia - Mumias	1	Paved	48	Good	Under Routine Mice	No project	300	-	
C37	Kopere-Awasi	3	Paved	48	Good	Under Routine Mice	No project	600	-	
C45	Kitale-Endebess	1	Paved	20	Good	Under Routine Mice	No project	350	-	
C51	Kabarnet-Marigat	2	Paved	65	Good	Under Routine Mice	No project	590	-	
C56	Mau Summit-Molo-Njoro	1	Paved	57	Good	Under Routine Mice	No project	750	-	
C70	Kangema-Othaya-Nyeri	3	Paved	43	Good	RMLF rehab. Complete 2003	No project	600	-	
C72	Muranga-Kahuhia-Weithaga	1	Paved	25	Good	RMLF rehab. Complete 2003	No project	660	-	
C99	Machakos-Katamani	1	Paved	10	Good	Under Routine Mice	No project	1500	-	
A104	Uhuru Highway	3	Paved	8	Fair	Under Routine Mice	No project	20000	48	381.3

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Road No.	Section	Section No.	Surface Type	Km	Estimated condition	Remarks	Status	ADT 2001	Estimated Cost M.Ksh	Priority Ranking
A104	Westlands- Limuru	4	Paved	32	Fair	To Reseal	No project	6000	192	114.4
A104	Limuru- Longonot turn off	5	Paved	28	Fair	Under Routine Mtce	No project	5250	168	100.1
C61	Dagoreti Comer Junct. A104	1	Paved	13.5	Poor	Under Routine Mtce	No project	10000	135	100.0
B10	Junct. A104 -JKIA Airport	1	Paved	8.3	Fair	Reseal 2002/03	No project	4500	42	94.3
A14	Mombasa -Kombani	1	Paved	20	Fair	To be Designed	No project	4500	120	85.8
A2	Nairobi - Thika	1	Paved	40	Poor	To be Designed	No project	15000	960	81.3
C60	Dagoreti Comer-Karen-Ngong	1	Paved	18	Poor	Under Routine Mtce	No project	8000	180	80.0
C110	Moi Airport -Junct. A109	1	Paved	4.9	Poor	Under Routine Mtce	No project	7600	49	76.0
A2	Thika -Makutano	2	Paved	22	Fair	Under Routine Mtce	No project	3700	132	70.5
A2	Sagana - Marua	4	Paved	39	Fair	RMLF ongoing 2003	Ongoing	3400	234	64.8
A2	Makutano-Sagana	3	Paved	44	Fair	Resealed 2000	No project	3000	264	57.2
A104	Mai Mahiu - Lanet	7	Paved	59	Failed	EDF 2004	Planned	6500	1,298	43.0
B6	Makutano-Embu	1	Paved	43	Fair	Under Routine Mtce	No project	2000	217	41.9
A104	Timboroa - Eldoret	10	Paved	65	Fair	Under Routine Mtce	No project	2000	390	38.1
C59	Junct A2-Junct B10 (Outer Ring)	1	Paved	14.6	Failed	Under Routine Mtce	No project	5000	234	35.0
A104	Athi River- Nairobi Airport	2	Paved	25	Poor	W Bank (dual)	Planned	8250	800	33.5
B5	Nakuru-Nyahururu	1	Paved	69	Fair	Under Routine Mtce	No project	1500	348	31.4
B6	Embu-Meru	2	Paved	99	Fair	Under design	No project	1500	499	31.4
A104	Lanet - Mau Summit	8	Paved	64	Failed	W Bank 2005	Planned	4500	1,408	29.8
C396	Jamhuri Station Road	1	Paved	1.3	Fair	Under Routine Mtce	No project	1500	6	29.2
C74	(C73)Kutus-Kerugoya-Kagumo-Karatina(A2 Jun	1	Paved	28	Fair	Under Routine Mtce	No project	1500	127	29.2
A104	Eldoret - Malaba	11	Paved	138	Fair	Under Routine Mtce	No project	1500	828	28.6
C97	Machakos T'off-Machakos	2	Paved	17	Poor	Under Design	No project	2720	170	27.2
C75	A2 Kiganjo-B5 Nyeri	1	Paved	9.2	Fair	Under Routine Mtce	No project	1370	42	26.7
C62	Parklands-Ruaka-Junct. A104	1	Paved	33	Poor	Under Routine Mtce	No project	2500	330	25.0
A1	Kisumu - Kakamega	4	Paved	100	Poor	Design Complete	No project	2650	1,400	24.6
C40	Kakamega - Mumias	1	Paved	31	Fair	Under Routine Mtce	No project	1200	140	23.4

Road No.	Section	Section No.	Surface Type	Km	Estimated condition	Remarks	Status	ADT 2001	Estimated Cost M.Ksh	Priority Ranking
C58	Kiserian-Magadi	1	Paved	111	Fair	Under Routine Mtce	No project	1200	502	23.4
C73	Embu-Kutus-Sangana	1	Paved	34	Fair	Under Routine Mtce	No project	1200	154	23.4
C88	Naivasha-Maai Mahiu	1	Paved	40	Fair	Design Ongoing	No project	1200	181	23.4
B8	Mombasa-Kilifi-Malindi	1	Paved	118	Poor	To be designed	No project	2500	1,652	21.4
B5	Nyahururu-Nyeri	2	Paved	113	Fair	Under Routine Mtce	No project	1000	570	21.0
B6	Meru – Junct.A2	3	Paved	25	Fair	Under Routine Mtce	No project	1000	126	21.0
C87	Kisati Bridge-Kisumu Airport	1	Paved	1	Poor	Under Routine Mtce	No project	2000	10	20.0
A109	Miritini-Maji Chumvi	2	Paved	15	Failed	W Bank 2005	Planned	3000	330	19.9
A104	Namanga-Athi River	1	Paved	140	Fair	Being Designed	No project	1000	840	19.1
A3	Thika- Mwingi	1	Paved	122	Fair	Under Routine Mtce	No project	1000	732	19.1
B1	Mau Summit-Kericho	1	Paved	59	Poor	W Bank 2005	Planned	2200	826	18.9
C54	Eldoret – Nyaru	1	Paved	42	Fair	Under Routine Mtce	No project	940	190	18.3
C39	Eldoret Airport-Chavakali	1	Paved	43	Fair	Designed	No project	910	194	17.7
C114	Mombasa – Junct. A104	1	Paved	13	Failed	On going	No project	2500	208	17.5
B1	Kisumu- Yala	3	Paved	42	Poor	RMLF ongoing 2003	Ongoing	2000	588	17.1
A104	Mau Summit - Timboroa	9	Paved	60	Failed	W Bank 2005	Planned	2500	1,320	16.5
B1	Kericho-Kisumu	2	Paved	67	Poor	W Bank 2005	Planned	1800	938	15.4
C63	Kiambu – Kikuyu	1	Paved	69	Poor	Under Routine Mtce	No project	1500	690	15.0
C66	Thika-Gatukuyu-Thinguri	1	Paved	70	Poor	Under Routine Mtce	No project	1500	700	15.0
C65	Ruiru-Githunguri-Uplands (A104)	1	Paved	47	Fair	Under Routine Mtce	No project	750	212	14.6
B3	Sotik – Kisii	5	Paved	45	Poor	Under Routine Mtce	No project	1600	630	13.7
C51	Sergoiit-Iten-Kabarnet	1	Paved	120	Fair	Under Routine Mtce	No project	700	542	13.6
C55	Kamwoso-Eldama Ravine- K' Moto	1	Paved	81	Fair	Under Routine Mtce	No project	700	366	13.6
C97	Kitui-Machakos	1	Paved	94	Fair	Under Routine Mtce	No project	700	425	13.6
A109	Sultan Hamud- Machakos t'off	6	Paved	65	Poor	Under Routine Mtce	No project	2500	1,560	13.5
A109	Mtito Andei-Sultan Hamud	5	Paved	135	Failed	W Bank 2005	Planned	2000	2,970	13.2
C71	(A2) Makutano-Saba Saba-Muranga	1	Paved	29	Failed	EDF 2003	Ongoing	1800	464	12.6
B7	Embu-Kangonde	1	Paved	84	Fair	RMLF ongoing 2003	Ongoing	600	423	12.6
						Under Routine Mtce	No project			

Road No.	Section	Section No.	Surface Type	Km	Estimated condition	Remarks	Status	ADT 2001	Estimated Cost M.Ksh	Priority Ranking
C70	Thika-Kandara	1	Paved	35	Poor	Under Routine Mtce	No project	1210	350	12.1
A1	Mukuyu – Kisii	2	Paved	60	Poor	Under Routine Mtce	No project	1300	840	12.1
C33	Chwele -Bungoma	1	Paved	27	Fair	Under Routine Mtce	No project	600	122	11.7
A1	Kakamega-Webuye-Kiminini	5	Paved	88	Poor	Under Routine Mtce	No project	1200	1,232	11.1
B4	Nakuru-Mogotio-Marigat	1	Paved	95	Fair	RMLF ongoing 2003	Ongoing	500	479	10.5
A109	Machakos t'off-Athi river	7	Paved	19	Poor	W Bank (dual)	Planned	2500	608	10.2
C91	(B6) Meru-Maua-Kangeta-MutharaMau	1	Paved	152.1	Poor	RMLF ongoing 2003 71.5km	Ongoing	1000	1,521	10.0
C18	Rodi Kopany – Karungu	2	Paved	49	Fair	Under Routine Mtce	No project	500	221	9.7
C77	Nyahururu-Rumuruti	2	Paved	61	Fair	Under Routine Mtce	No project	500	276	9.7
C98	C59 junction-Kangundo	1	Paved	58	Poor	Under Routine Mtce	No project	960	580	9.6
A14	Kombani-Lunga Lunga	2	Paved	94	Fair	To be Designed	No project	500	564	9.5
A1	Kitale –Kapenguria	6	Paved	79	Poor	Under Routine Mtce	No project	1000	1,106	9.3
B2	Leseru-Mois Bridge	1	Paved	38	Failed	Under Routine Mtce	No project	1500	836	9.2
C27	Bondo - Usenge	2	Paved	42	Fair	Under Routine Mtce	No project	470	190	9.2
C33	Bungoma-Mumias	2	Paved	30	Poor	Under Routine Mtce	No project	900	300	9.0
B3	Maai Mahiu- Narok	2	Paved	61	Failed	KFW/AFD ongoing 2003	Ongoing	1400	1,342	8.6
C17	Kisii – Kilgoris	1	Paved	53	Poor	Under Routine Mtce	No project	750	530	7.5
A2	Nanyuki-Isiolo	6	Paved	80	Poor	To be Designed	No project	800	1,120	7.4
C57	Njoro-Mau Narok	1	Paved	39	Fair	Under Routine Mtce	No project	370	176	7.2
C20	Rongo – Homa Bay	2	Paved	30	Failed	Under Routine Mtce	No project	1000	480	7.0
C77	Gilgil – Ol Kalou-Nyahururu	1	Paved	71	Failed	Under Routine Mtce	No project	1000	1,136	7.0
A23	Voi- Mwatate	1	Paved	24	Poor	Under Routine Mtce	No project	700	336	6.5
C19	Katito- Kendu Bay	1	Paved	43	Poor	Under Routine Mtce	No project	650	430	6.5
C38	B1 junction – A1 junction	1	Paved	17	Poor	Under Routine Mtce	No project	640	170	6.4
B8	Garsen-Hola	3	Paved	110	Fair	Under Routine Mtce	No project	300	554	6.3
B8	Hola - Garissa	4	Paved	130	Fair	Under Routine Mtce	No project	300	655	6.3
C27	Kisian - Bondo	1	Paved	40	Poor	NYS project Under Routine Mtce	No project	600	400	6.0

Road No.	Section	Section No.	Surface Type	Km	Estimated condition	Remarks	Status	ADT 2001	Estimated Cost M.Ksh	Priority Ranking
C105	Voi – Junct. A109	1	Paved	7	Fair	Under Routine Mtce	No project	300	32	5.8
C109	Likoni – Mtongwe	1	Paved	4.5	Fair	Under Routine Mtce	No project	300	20	5.8
C51	Ndindika – Nyahururu	4	Paved	66	Fair	Under Routine Mtce	No project	300	298	5.8
C53	Nyaru-Kamwoso	2	Paved	23	Fair	Under Routine Mtce	No project	300	104	5.8
A3	Mwingi-Garissa	2	Paved	231	Fair	Under Routine Mtce	No project	300	1,386	5.7
C29	Luanda-Siaya-Busoga-Lugare	1	Paved	77	Poor	Under Routine Mtce		500	770	5.0
C34	Muhoroni-Miwani-A1 . Kisumu	1	Paved	60.4	Poor	Under Routine Mtce	No project	500	604	5.0
C67	Thika-Gatanga-Kiganjo-Gatura	1	Paved	103	Poor	Under Routine Mtce	No project	500	1,030	5.0
C84	Ai Kachok-AI North Bound	1	Paved	1.5	Poor	Under Routine Mtce	No project	500	15	5.0
C111	Mazaras – Kaloleni	1	Paved	21	Failed	Under Routine Mtce	No project	650	336	4.6
C64	Kimathi – Gatundu-Mangu	1	Paved	58	Poor	Under Routine Mtce	No project	450	580	4.5
C85	A1 Kisumu-Dunga	1	Paved	5.9	Poor	Under Routine Mtce	No project	430	59	4.3
B3	Amala River-Sotik	4	Paved	46	Failed	Rehab. Ongoing RMLF 20%	Ongoing	700	1,012	4.3
C104	Mwatate – Wundanyi	1	Paved	16	Poor	Under tender	No project	420	160	4.2
C68	Magumu - Njabini	1	Paved	18	Failed	RMLF 90% in 2003	Ongoing	510	288	3.6
C86	BIDaraja Mbili-A1 Kiboswa	1	Paved	11.4	Poor	Under Routine Mtce	No project	350	114	3.5
C69	Lanet-Dundori	1	Paved	17.6	Failed	Under Routine Mtce	No project	430	282	3.0
C35	Fort Terman - Muhoroni	2	Paved	24	Poor	Under Routine Mtce	No project	300	240	3.0
C89	A104 Embakasi-Old Airport Term	1	Paved	4.5	Poor	Under Routine Mtce	No project	300	45	3.0
C24	Bomet - Litein	1	Paved	42.3	Failed	Under Routine Mtce	No project	410	677	2.9
C36	Nabkoi – Kapsabet	1	Paved	53.4	Failed	Under Routine Mtce	No project	400	854	2.8
A1	Kapenguria-Lodwar-Kakuma	7	Paved	328	Failed	Under Routine Mtce	No project	300	7,216	2.0

Table 3 Paved Trunk Roads (Class A and B) – Prioritised Restoration Requirements

Road No.	Section	Km	Estimated condition	Remarks	Status	ADT 2001 (Est)	Estimated Cost (USD millions)	Estimated Cost (M.Ksh)	Priority Index
Backlog periodic maintenance									
A104	Uhuru Highway	8	Fair	Under Routine Mtce	No project	20000	0.6	48	381.3
A104	Westlands- Limuru	32	Fair	To Reseal	No project	6000	2.4	192	114.4
A104	Limuru- Longonot turn off	28	Fair	Under Routine Mtce	No project	5250	2.1	168	100.1
B10	Junct. A104 –JKIA Airport	8.3	Fair	Reseal 2002/03	No project	4500	0.5	42	94.3
A14	Mombasa –Kombani	20	Fair	To be Designed	No project	4500	1.5	120	85.8
A2	Thika –Makutano	22	Fair	Under Routine Mtce	No project	3700	1.7	132	70.5
A2	Sagana - Marua	39	Fair	RMLF ongoing 2003	Ongoing	3400	2.9	234	64.8
A2	Makutano-Sagana	44	Fair	Resealed 2000	No project	3000	3.3	264	57.2
B6	Makutano-Embu	43	Fair	Under Routine Mtce	No project	2000	2.7	217	41.9
A104	Timboroa - Eldoret	65	Fair	Under Routine Mtce	No project	2000	4.9	390	38.1
B5	Nakuru-Nyahururu	69	Fair	Under Routine Mtce	No project	1500	4.3	348	31.4
B6	Embu-Meru	99	Fair	Under design	No project	1500	6.2	499	31.4
A104	Eldoret - Malaba	138	Fair	Under Routine Mtce	No project	1500	10.4	828	28.6
B5	Nyahururu-Nyeri	113	Fair	Under Routine Mtce	No project	1000	7.1	570	21.0
B6	Meru – Junct.A2	25	Fair	Under Routine Mtce	No project	1000	1.6	126	21.0
A104	Namanga-Athi River	140	Fair	Under Routine Mtce	No project	1000	10.5	840	19.1
A3	Thika- Mwingi	122	Fair	Being Designed	No project	1000	9.2	732	19.1
B7	Embu-Kangonde	84	Fair	Under Routine Mtce	No project	600	5.3	423	12.6
B4	Nakuru-Mogotio-Marigat	95	Fair	Under Routine Mtce	Ongoing	500	6.0	479	10.5
A14	Kombani-Lunga Lunga	94	Fair	RMLF ongoing 2003	No project	500	7.1	564	9.5
B8	Garsen-Hola	110	Fair	To be Designed	No project	300	6.9	554	6.3
B8	Hola - Garissa	130	Fair	Under Routine Mtce	No project	300	8.2	655	6.3
A3	Mwingi-Garissa	231	Fair	NYS project	No project	300	17.3	1,386	5.7
Total		1,759.3					122.6	9,811	

Road No.	Section	Km	Estimated condition	Remarks	Status	ADT 2001 (Est)	Estimated Cost (USD millions)	Estimated Cost (M.Ksh)	Priority Index
Rehabilitation									
A2	Nairobi - Thika	40	Poor	To be Designed	No project	15000	12.0	960	81.3
A104	Athi River- Nairobi Airport	25	Poor	W Bank (dual)	Planned	8250	10.0	800	33.5
A1	Kisumu - Kakamega	100	Poor	Design Complete	No project	2650	17.5	1,400	24.6
B8	Mombasa-Kilifi-Malindi	118	Poor	To be designed	No project	2500	20.7	1,652	21.4
B1	Mau Summit-Kericho	59	Poor	W Bank 2005	Planned	2200	10.3	826	18.9
B1	Kisumu-Yala	42	Poor	RMLF ongoing 2003	Ongoing	2000	7.4	588	17.1
B3	Kenicho-Kisumu	67	Poor	W Bank 2005	Planned	1800	11.7	938	15.4
A109	Sultan Hamud- Machakos t'off	45	Poor	Under Routine Mtce	No project	1600	7.9	630	13.7
A1	Mukuyu - Kisii	65	Poor	W Bank 2005	Planned	2500	19.5	1,560	13.5
A1	Kakamega-Webuye-Kiminini	60	Poor	Under Routine Mtce	No project	1300	10.5	840	12.1
A109	Machakos t'off-Athi river	88	Poor	Under Routine Mtce	No project	1200	15.4	1,232	11.1
A1	Kitale -Kapenguria	19	Poor	W Bank (dual)	Planned	2500	7.6	608	10.2
A2	Nanyuki-Isiolo	79	Poor	Under Routine Mtce	No project	1000	13.8	1,106	9.3
A23	Voi- Mwatate	80	Poor	To be Designed	No project	800	14.0	1,120	7.4
Total		24	Poor	Under Routine Mtce	No project	700	4.2	336	6.5
		911					182.5	14,596	
Reconstruction									
A104	Mai Mahiu - Lanet	59	Failed	EDF 2004	Planned	6500	16.2	1,298	43.0
A104	Lanet - Mau Summit	64	Failed	W Bank 2005	Planned	4500	17.6	1,408	29.8
A109	Miritini-Maji Chumvi	15	Failed	W Bank 2005	Planned	3000	4.1	330	19.9
A104	Mau Summit - Timboroa	60	Failed	W Bank 2005	Planned	2500	16.5	1,320	16.5
A109	Mito Andei-Sultan Hamud	135	Failed	EDF 2003	Ongoing	2000	37.1	2,970	13.2
B2	Leseru-Mois Bridge	38	Failed	Under Routine Mtce	No project	1500	10.5	836	9.2
B3	Maai Mahiu- Narok	61	Failed	KFW/AFD ongoing 2003	Ongoing	1400	16.8	1,342	8.6
B3	Amala River-Sotik	46	Failed	Rehab. Ongoing RMLF 20%	Ongoing	700	12.7	1,012	4.3
A1	Kapenguria-Lodwar-Kakuma	328	Failed	Under Routine Mtce	No project	300	90.2	7,216	2.0
Total		806					221.7	17,732	

Table 4 Paved Secondary Roads (Class C) – Prioritised Restoration Requirements

Road No.	Section	Km	Estimated condition	Remarks	Status	ADT 2001 (Est)	Estimated Cost M.Ksh	Priority Index
Backlog periodic maintenance								
C396	Jamhuri Station Road	1.3	Fair	Under Routine Mtce	No project	1500	6	29.2
C74	(C73)Kutus-Kerugoya-Kagumo-Karatina(A2 Jun	28	Fair	Under Routine Mtce	No project	1500	127	29.2
C75	A2 Kiganjo-B5 Nyeri	9.2	Fair	Under Routine Mtce	No project	1370	42	26.7
C40	Kakamega – Mumias	31	Fair	Under Routine Mtce	No project	1200	140	23.4
C58	Kiserian-Magadi	111	Fair	Under Routine Mtce	No project	1200	502	23.4
C73	Embu-Kutus-Sangana	34	Fair	Under Routine Mtce	No project	1200	154	23.4
C88	Naivasha-Maai Mahiu	40	Fair	Design Ongoing	No project	1200	181	23.4
C54	Eldoret – Nyaru	42	Fair	Under Routine Mtce	No project	940	190	18.3
C39	Eldoret Airport-Chavakali	43	Fair	Designed	No project	910	194	17.7
C65	Ruiru-Githunguri-Uplands (A104)	47	Fair	Under Routine Mtce	No project	750	212	14.6
C51	Sergoit-Iten-Kabarnet	120	Fair	Under Routine Mtce	No project	700	542	13.6
C55	Kamwoso-Eldama Ravine- K` Moto	81	Fair	Under Routine Mtce	No project	700	366	13.6
C97	Kitui-Machakos	94	Fair	Under Routine Mtce	No project	700	425	13.6
C33	Chwele -Bungoma	27	Fair	Under Routine Mtce	No project	600	122	11.7
C18	Rodi Kopany – Karungu	49	Fair	Under Routine Mtce	No project	500	221	9.7
C77	Nyahururu-Rumuruti	61	Fair	Under Routine Mtce	No project	500	276	9.7
C27	Bondo - Usenge	42	Fair	Under Routine Mtce	No project	470	190	9.2
C57	Njoro-Mau Narok	39	Fair	Under Routine Mtce	No project	370	176	7.2
C105	Voi – Junct. A109	7	Fair	Under Routine Mtce	No project	300	32	5.8
C109	Likoni – Mtongwe	4.5	Fair	Under Routine Mtce	No project	300	20	5.8
C51	Ndindika – Nyahururu	66	Fair	Under Routine Mtce	No project	300	298	5.8
C53	Nyaru-Kamwoso	23	Fair	Under Routine Mtce	No project	300	104	5.8
Total		1,000.00					4,520	

Road No.	Section	Km	Estimated condition	Remarks	Status	ADT 2001 (Est)	Estimated Cost M.Ksh	Priority Index
Rehabilitation								
C61	Dagoreti Corner Junct. A104	13.5	Poor	Under Routine Mtce	No project	10000	135	100.0
C60	Dagoreti Corner-Karen-Ngong	18	Poor	Under Routine Mtce	No project	8000	180	80.0
C110	Moi Airport -Junct. A109	4.9	Poor	Under Routine Mtce	No project	7600	49	76.0
C97	Machakos T' off-Machakos	17	Poor	Under Design	No project	2720	170	27.2
C62	Parklands-Ruaka-Junct. A104	33	Poor	Under Routine Mtce	No project	2500	330	25.0
C87	Kisumu Bridge-Kisumu Airport	1	Poor	Under Routine Mtce	No project	2000	10	20.0
C63	Kiambu - Kikuyu	69	Poor	Under Routine Mtce	No project	1500	690	15.0
C66	Thika-Gatukuyu-Thinguri	70	Poor	Under Routine Mtce	No project	1500	700	15.0
C70	Thika-Kandara	35	Poor	Under Routine Mtce	No project	1210	350	12.1
C91	(B6) Meru-Maua-Kangeta-MutharaMau	152.1	Poor	RMLF ongoing 2003 71.5km	Ongoing	1000	1,521	10.0
C98	C59 junction-Kangundo	58	Poor	Under Routine Mtce	No project	960	580	9.6
C33	Bungoma-Mumias	30	Poor	Under Routine Mtce	No project	900	300	9.0
C17	Kisii - Kilgoris	53	Poor	Under Routine Mtce	No project	750	530	7.5
C19	Katito- Kendu Bay	43	Poor	Under Routine Mtce	No project	650	430	6.5
C38	B1 junction - A1 junction	17	Poor	Under Routine Mtce	No project	640	170	6.4
C27	Kisian - Bondo	40	Poor	Under Routine Mtce	No project	600	400	6.0
C29	Luanda-Siaya-Busoga-Lugare	77	Poor	Under Routine Mtce	No project	500	770	5.0
C34	Muhoroni-Miwani-A1 . Kisumu	60.4	Poor	Under Routine Mtce	No project	500	604	5.0
C67	Thika-Gatanga-Kiganjo-Gatura	103	Poor	Under Routine Mtce	No project	500	1,030	5.0
C84	Ai Kachok-A1 North Bound	1.5	Poor	Under Routine Mtce	No project	500	15	5.0
C64	Kimathi—Gatundu-Mangu	58	Poor	Under Routine Mtce	No project	450	580	4.5
C85	A1 Kisumu-Dunga	5.9	Poor	Under Routine Mtce	No project	430	59	4.3
C104	Mwatate - Wundanyi	16	Poor	Under tender	No project	420	160	4.2
C86	BIDaraja Mbili-A1Kiboswa	11.4	Poor	Under Routine Mtce	No project	350	114	3.5
C35	Fort Terman - Muhoroni	24	Poor	Under Routine Mtce	No project	300	240	3.0
C89	A104 Embakasi-Old Airport Term	4.5	Poor	Under Routine Mtce	No project	300	45	3.0
Total		1,016.20					10,162	

Road No.	Section	Km	Estimated condition	Remarks	Status	ADT 2001 (Est)	Estimated Cost M.Ksh	Priority Index
Reconstruction								
C59	Junct A2-Junct B10 (Outer Ring)	14.6	Failed	Under Routine Mtce	No project	5000	234	35.0
C114	Mombasa – Junct. A104	13	Failed	On going	No project	2500	208	17.5
C71	(A2) Makutano-Saba Saba-Muranga	29	Failed	RMLF ongoing 2003	Ongoing	1800	464	12.6
C20	Rongo – Homa Bay	30	Failed	Under Routine Mtce	No project	1000	480	7.0
C77	Gilgil – Ol Kalou-Nyahururu	71	Failed	Under Routine Mtce	No project	1000	1,136	7.0
C111	Mazeras – Kaloleni	21	Failed	Under Routine Mtce	No project	650	336	4.6
C68	Magumu - Njabini	18	Failed	RMLF 90% in 2003	Ongoing	510	288	3.6
C69	Lanet-Dundori	17.6	Failed	Under Routine Mtce	No project	430	282	3.0
C24	Bomet - Litein	42.3	Failed	Under Routine Mtce	No project	410	677	2.9
C36	Nabkoi – Kapsabet	53.4	Failed	Under Routine Mtce	No project	400	854	2.8
Total		309.9					4,959	

Appendix I

List of Persons/Organisations Consulted



Meetings Schedule

Date	Organisation	Persons met	Main purpose of meeting
26.06	KRB	KRB Officials	Kick off meeting
27.06	EU	Hans Joachim Buse Andrew Gitonga	Start up briefing
02.07	World Bank	Josphat Sasia	Discussion of Institutional Roles
07.07	Ministry of Transport	DPS Ndemo	Introductory Discussion – Policy
08.07	MoRPWH	Chief Engineer Roads Barnabas Ariga	Introductory Discussion – Policy
09.07	Ministry of Local Govt	PS Zachary Ogongo	Introductory Discussion – Policy
09.07	KRB	Executive Director	Debriefing and planning
10.07	KRB + EU	KRB and EU officials	Presentation of Draft IR
11.07			Concession Workshop
17.07	Roy Jorgensen Consultants	Bill Grenke Road Engineer	Fact finding on Road Inventory and Condition Survey Project
17.07	MoRPWH	Regina Ombam Economist, Planning Section	Network data and road traffic information.
23.07	MoRPWH Roads Inspectorate	John Ogango Chief Engineer	Fact finding on contract monitoring
24.07	MoRPWH Maintenance Division	Eng Mwangi Mwingi Chief Engineer Maintenance	Fact finding on contract performance
25.07	MoRPWH Roads 2000	Eng Gitao Programme Coordinator	Fact finding on Roads 2000 Programme
28.07	KRB/DANIDA	Eric Goss Roads 2000 Coordinator	Fact finding on Roads 2000 Programme
30.07	MoRPWH	Eng Kilimi DRE Taita Taveta	Fact finding on DRC activities and Roads 2000
30.07	Meeting for Coastal Province Roads and Mechanical Departments in Voi Taita Taveta District	Chaired by: F.D. Karanja, PWO Coast	Appreciation of situation of road management at the province and district levels
31.07	MoRPWH, Mariakani Weighbridge	Mr Kamera Deputy Officer in Charge	Fact finding on axle load control
30.07	Meeting for Coastal Province Roads and	Chaired by: F.D. Karanja, PWO Coast	Appreciation of situation of road management at the province and district

	Mechanical Departments in Voi Taita Taveta District		levels
01.08	Mombasa City Council	Eng C.M Chiuri	Inspection of road maintenance works in Mombasa town.
01.08	Provincial Roads Department	Eng G M Kiiru	Nyanza - Various Issues
01.08	Municipal Engineers Department, Mombasa	Eng. Choragin – Municipal Engineer	Overview of urban roads management: funding, capacity, and policies
01.08	Municipal Engineers Department, Mombasa	Eng. Matuku, Works Engineer	Work plans and execution
01.08	Northern Corridor Transit Traffic Coordinating Agreement Secretariat	Mr. Godfrey Matata Onyango, Executive Secretary	Appreciation of axle load control problems along the Northern Corridor in general and Mombasa- Malaba Section in particular and regional road policies and strategies
01.08	Kenya Transporters Association	Mr. Sam Machio, Executive Officer	Appreciation of involvement of road users in road management, policy formulation and axle-load control
08.03	Ministry of Transport	Mr Garrison Ikiara, Permanent Secretary.	Background to Transport Policy
04.08	Steering Committee	KRB, PS MoT, EU ++	Progress and direction
04.08	Steering Committee	KRB, PS MoT, EU	Progress and direction
04.08	Nairobi City Council	Sammy Muthama	A brief on the management of the urban roads and status and future policy and strategy
04.08	Nairobi City Council	Amos Onyango	
04.08	Nairobi City Council	Albert Kewo	
04.08	Nairobi City Council	Eng S.K Mburu	
08.08	KRB	Wilson Shollei Road Fund Finance Manager	Fact finding on KRB financial procedures
08.08	KRB	Wilson Shollei Road Fund Finance Manager	Fact finding on KRB financial procedures

08.08	Kenya Wildlife Services	QS J B Munyori. Head of Technical Services & Eng. Edwin Muchugia, Engineer Roads	Appreciation of road management issues of KWS road network
09.08	Ministry of Local Government	Eng. Mulli, Director of Urban Development	Appreciation of Urban Roads management issues
	Nairobi City Council	Sammy Muthama	
	Nairobi City Council	Amos Onyango	
	Nairobi City Council	Albert Kewo	
	Nairobi City Council	Eng S.K Mburu	
	Dro Kwale	L.M. Mbogho	
	Dro Malindi	J.H.Thiongo	
	Dro Hola	D.K. Nzioki	
	Dre Kilifi	P.K. Kandie	
	Dwo Kilifi	G.I. Mburu	
	Dmo Taita-Taveta	S.M.M Mohoud	
	Dro Lamu	M.M. Rashid	
	Dre Mombasa	Eng G.W. Chiaji	
	R.C Mwatate	J.K. Kimamo	
	Dmo Malindi	F.M. Chinago	
	Roads 2000 Coast	Mr.Stanley C. Ruwa	
	Taita-Taveta	Mr. M.M Thiaka	
	Dme Taita-Taveta	Mr.P.M. Kopejo	
	Dwo Lamu	Kamale M. Bonaya	
	Dwo Tana-River	J.M. Kamau	
	Dme Coast	Eng S. Mwenda	
	Krb	Eng. Margaret Ogai	
	Dwo Malindi	J.O. Olawo	
	Dwo Kwale	P.M. Wachai	
	Dwo Taita-Taveta	P.T. Kirimi	
	Pwo Coast	F.D. Karanja	
	Pre Coast	K.I. Mudulia	
	Nairobi City Council	Eng C.M Chiuri	
11.08	Morpw	Mr.Ruffin Alex Oundo	
11.08	Steering Committee	Steering Committee	Progress & Direction.
14.08	Police Commandant Traffic, Nyika Road Nairobi	Richard Kerich, SOR&P	Appreciation of road safety management issues

04.09	Steering Committee	Steering Committee	Progress & Direction
8/9.9	Workshop 1	Workshop 1	Workshop 1
15.09	KRB	Eng.Margaret Ogai, Contracts Engineer	Contract performance and costs.
15.09	MoRPWH	Eng Ogada Deputy, Planning Section	Road network data collection.
17.09	Kenya Pipeline Co. Ltd	Mr Edwin Nyawade, Deputy Manager	Fact finding on pipeline policy and strategy
19.09	Kenya Railways	Engineer Onyango	Discussion of role of KR in the overall Transport Sector
22.09	MoRPWH	Eng. Tonui	Axle Load Control
23.09	Kenya Airports Authority	Engineer Mukwana	Discussion of role of Air Transport in the Overall Transport Sector
23.09	MoRPWH	Eng. G.M. Mwangi	Road Maintenance
25.09	Steering Committee	Steering Committee	Progress & Direction
25.09	MoRPWH	Eng. B. Ariga	Network Development
30.10	Steering Committee	Steering Committee	Progress & Direction.
03.11	World Bank	Anil Bhandari / Josphat Sasia	Merging of Workshops
06.11	World Bank	Anil Bhandari	Discussion on Road Management and Policy issues
11/13.11	Workshop 2	Workshop 2	Workshop 2
09.12	Steering Committee	Steering Committee	Progress & Direction.

Appendix J

Literature and Documentation Consulted

Bibliography

No.	Title	Author	Publication	Date
1	Towards Sustainable Transport Infrastructure	KRB	Report	2003
2	Executive Summary (Jica)	MOR&PW	Draft Final Report	2002
3	Inception Report	SW	Draft	2002
4	Kenya Roads Board Act	Gov't	Legislation	1999
5	Kenya Road Concessioning Assessment	Worldbank	Executive Summary	2002
6	Project Description Summary	Worldbank	Report	2003
7	Technical Proposal	Scottwilson	Report	2003
8	Road Maintenance Levy Fund	Gov't	Legislation	1993
9	Strategic Plan For The Road Sector	Gov't	Report	1997
10	Jica Final Report	MOR&PW	Executive Summary (Vol 1)	2003
11	Jica Final Report	MOR&PW	Executive Summary (Vol 2)	2003
12	Jica Final Report	MOR&PW	Executive Summary (Vol 3)	2003
13	Road Sector Institutional Study	MOR&PW	Final Report	1999
14	Laws of Kenya	Kenya Gov't	Laws Of Kenya	1987
15	Review of The Kenya Road Sector		Draft Mission Report	
16	Road Sector Strategy ...Conference	KRB	Workshop Report	2002
17	Tor	SW	Tor	2003
18	Kenya Country Assistance Evaluation	World Bank	Report	2000
19	Public Roads & Roads Of Access Act (Cap 399)	Kenya Gov't	Laws Of Kenya	1972
20	The Streets Adoption Ac	Kenya Gov't	Laws Of Kenya	1984
21	The Traffic Act	Kenya Gov't (Cap 403)	Laws Of Kenya	1993
22	KRB Implementation Report	MOR&PW	Report	2000
23	Paper For Presentation To The Krb Workshop (April 2001)	Nairobi City Council	Report	2001
24	Poverty Reduction Strategy Paper	Kenya Gov't	Volume 1	2001
25	Poverty Reduction Strategy Paper	Kenya Gov't	Volume 2	2001
26	Statistical Abstract	Central Bureau Of Statistics	Report	2001
27	Strategic Plan For The Year 2003-2008	MORPW	Report	2003
28	Challenges Facing The Road Transport Sub-Sector	Kenya Transport Association	Report	2003
29	Historic Trends & Current Challenges	KIPPRA	Working Paper No.1	2001
30	Road Maintenance Management Concepts And Systems	Richard Robinson, Uno Danielson & Martin Snaith	Book	1998
31	Historic Trends & Current Challenges	Kippira	Report	2001
32	Road Maintenance Management Concepts And Systems	Richard Robinson, Uno Danielson & Martin Snaith	Report	1998
33	Resolutions For Roads Maintenance Workshop	Morpw	Report	2003
34	Urban Mobility Strategy For Nairobi	World Bank	Report	2003
35	Transport Sector Memo	World Bank	Working Paper No.1	2003

36	Transport Sector Memo	World Bank	Volume	2003
37	Transport Sector Memo	World Bank	Report	2003
38	Concessioning Journal	Roads & Highways	Final Report	2003
39	Proposed Expansion Of Facilities At Jkia	Kenya Airports Authority	Volume 3	2003
40	Monthly Progress Report Mombasa District Roads Committee	Morpw	Volume 1	2003

Appendix K
CVs of the Consultants

CURRICULUM VITAE:**Andrew KASEKENDE****Position in the programme: Project Manager**

1. **Name:** Andrew Kasekende
2. **Date of Birth:** 1969
3. **Nationality:** Ugandan in resident in UK
4. **Education**

Institution	Henley Management College UK
Date: from	2002
To	Ongoing
Degree(s) or Diploma(s) obtained	MBA
Institution	Loughborough University UK
Date: from	1997
To	1998
Degree(s) or Diploma(s) obtained	M.Sc Construction Management
Institution	University of Dar es Salaam UK
Date: from	1989
To	1994
Degree(s) or Diploma(s) obtained	B. Sc Civil Engineering

5. **Years in experience**
10 years in engineering sector, 4 years as project manager
6. **Key qualifications: (relevant to the programme)**

Andrew has had varied experience in structures, water & environmental works, roads and project management. He has gained working experience in the UK and from Africa where he has spent most of his earlier part of his carrier as an Engineer. Currently he is attached to the International Operations (IO) Unit as a project manager in charge of Scott Wilson projects undertaken in Sub-Saharan Africa. His current duties include provision of UK based back-up support, financial project monitoring, invoicing, quality assurance, market intelligence and business development, and preparation of tender bids..

7. **Related Experience in Sub Saharan Africa**

Country	Date from - to	Position and Project Title
Ethiopia	08.01 ongoing	Project Manager for the design review and preparation of tender document for Adigrat- Adwa – Shire Road Upgrading Project, funded by World Bank
Ethiopia	09.01 Ongoing	Project Manager for the District Maintenance Organisation Capacity Building project funded by DFID
Ethiopia	07.99 Ongoing	Project Manager for the construction supervision of Hirna – Kulubi Road Project in Eastern Ethiopia funded by the World Bank
Zambia	04.01 Ongoing	Project Manager for the detailed engineering design and later on the construction supervision of Lusaka to Mongu Road funded by DANIDA
Kyrgystan	07.00 – 09.02	Project Manager including technical support and financial management for the Urban Transport Study in Bishkek
Uganda	07.99 – 01.03	Project Manager and Highway Engineer for the Central Roads Maintenance Study of 1500 km of roads in Central Uganda funded by AfDB
Uganda	03.98 – 07.03	Project Manager and highway engineer for the detailed engineering design and feasibility study for Kasese – Katunguru Road in western Uganda

CURRICULUM VITAE:**Andrew KASEKENDE****Position in the programme: Project Manager**

1. **Name:** Andrew Kasekende
2. **Date of Birth:** 1969
3. **Nationality:** Ugandan in resident in UK
4. **Education**

Institution	Henley Management College UK
Date: from	2002
To	Ongoing
Degree(s) or Diploma(s) obtained	MBA
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To	1998
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5. **Years in experience**
10 years in engineering sector, 4 years as project manager
6. **Key qualifications: (relevant to the programme)**

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Uganda	03.98 – 07.03	Project Manager and highway engineer for the detailed engineering design and feasibility study for Kasese – Katunguru Road in western Uganda



Position in the programme: Planner

1. **Name:** Charles Kisala Kaira
2. **Date of Birth:** 1946
3. **Nationality:** Ugandan

Institution	Howard University, Washington DC, USA
Date: from To	1966 1970
Degree(s) or Diploma(s) obtained	B. Sc Civil Engineering
Institution	West Virginia University, Morgantown, USA
Date: from To	1970 1971
Degree(s) or Diploma(s) obtained	M. Sc Transport Planning and Economics
Institution	University of Karlsruhe, West Germany
Date: from To	1978 1983
Degree(s) or Diploma(s) obtained	Dr.Ing Civil Engineering with a specialisation in transport planning

4 Years in experience

32 years in transport sector, **19 years** as international consultant

5. Key qualifications: (relevant to the programme)

Freelance consultant in transportation projects in areas of policy, visioning & strategic planning, restructuring, and rural transport and travel in African countries since the early 1980's. Has lead project missions in Zambia (GTZ: 1984), Tanzania (IDA: 1992-1996, DFID: 1997 & 1999), Mozambique (1998) and Nigeria (2003).

Sub- Sector experience road, rural travel & transport, urban, and – a little port & rail.

Specific activities have included technical assistance and training, project preparation, policy and strategic planning projects, rural travel and transport research projects, and workshop facilitation.

Since 1983 has worked on transport sector projects in over 20 countries. Has carried out many projects in Sub-Saharan Africa. Has good facilitation and communication skills.

6. Related Experience in Sub Saharan Africa

Country	Date from - to	Position and Project Title
Nigeria	01.03 06.03	Short-Term Consultant, Draft Rural Travel and Transport Policy And Strategy, Ministry of Agriculture and Rural Development, World Bank 2003
ECOWAS countries	04.03 05.03	Short-Term Consultant, Prioritization of NEPAD Short-Term Projects, African Development Bank, Tunis 2003
Uganda	10.01 02.02	Transport Planner, Update of the Road Sector Development Programme (2002-2011), PROME Consultants Ltd, Ministry of Economic Development and Planning, 2001
Kenya and Uganda	08.01 12.01	Transport Economist, Kenya – Uganda Oil Pipeline Extension: Complementary Study, Nexant Ltd, UK/PROME Consultants, Ministries of Energy and Mineral Resources of Kenya and Uganda, 2001
Uganda	05.01 12.01	Policy and Legislation / Institutional Specialist, Uganda Road Agency Study, Road Agency Formation Unit, WSP International UK/ PROME Consultants, Ministry of Works, Housing & Communications, Uganda, 2001
Tanzania	01.99 06.99	Short-Term Consultant, Preparation of a Draft National Transport Policy for Tanzania, Ministry of Communications and Transport, DFID, East & Southern Africa, 1999
Uganda	10.98 09.99	Development Economist, Review and Update of the Rehabilitation and Maintenance Strategy for the District and Urban Roads in Uganda, AFRICON, South Africa, Road Agency Formation Unit, Ministry of Works, Housing & Communications, 1999
Mozambique	10.98 04.99	Short-Term Consultant, Preparation of a Policy and Strategy Framework for Rural Transport Services in Mozambique, World Bank 1998
Uganda	05.97 10.98	Infrastructure Expert, Preparation of Uganda Vision 2025 - National Long-term Perspective Studies / Development, UNDP, 1997
Tanzania	08.92 12.97	Integrated Roads Project I & II (US\$600 and US\$700 millions, Ministry of Works Communications and Transport, United Republic of Tanzania, World Bank, 1992-96

CURRICULUM VITAE:**Douglas RASBASH****Position in the programme: Team Leader**

1. **Name:** Douglas Rasbash
2. **Date of Birth:** 1950
3. **Nationality:** British Resident in Portugal
4. **Education**

Institution	University of Bradford UK
Date: from	1968
To	1972 part time.
Degree(s) or Diploma(s) obtained	B. Sc Civil Engineering
Institution	University of Leeds UK
Date: from	1975
To	1976
Degree(s) or Diploma(s) obtained	M. Sc Transport Planning and Economics

5. Years in experience

34 years in transport sector, **21 years** as international consultant

6. Key qualifications: (relevant to the programme)

Consultancy director / manager, engineer/economist, specialising in transport policy, strategy, planning, institution building, regulatory aspects, working mostly for the EU and other agencies within all aspects of transport in reforming and economically developing countries.

Sub- Sector experience road, rail, multi-modal and urban – a little port experience

Specific activities have included technical assistance and training, project preparation, feasibility studies, management consulting and demand forecasting, tariff and costing studies, environmental appraisal, performance monitoring and project programme/evaluation.

Since 1979 has worked on transport sector projects in over 60 countries. Has carried out many projects in Sub-Saharan Africa. Empathises well with client organisations and has good communication skills.

7. Related Experience in Sub Saharan Africa

Country	Date from - to	Position and Project Title
Botswana, Zambia, South Africa	07.01 10.01	Transport economist, Southern African North/South Corridor Study, USAID 2001
Malawi	03.01 07.01	Team Leader, Malawi Road Management Support Programme, Mid Term Evaluation, EU AIDCO, 2001
Zimbabwe	03.94 02.95	Transport Economist, Bus Industry Deregulation Zimbabwe Nordic Fund 1993-1995
Mozambique	06.94 09.94	Transport Economist, Boane- Sabie Road Rehabilitation Study, Mozambique EU 1994
Southern Africa	05.91 11.91	Transport Economist, Corridor Viability Study Southern Africa World Bank 1991
Malawi	10.89 11.89	Team leader, Malawi EU Mid Term Evaluation of Fertiliser Buffer Stock Project 1989
Malawi (UNCTAD)	06 87 10.87	SA Transport Corridors Contingency Planning
Tanzania	05 85 06.85	Economist, 'Tazara' Corridor, project ten year investment plan. African DB 1985
Zimbabwe	10.83 06.85	Transport Economist for SIDA funded National Transport Study in Zimbabwe 1983/5
Mozambique (SATC)	various	Economist, Regional Transport Planning for Southern Africa. USAID 1988
		Transport Economist for Sena Line railway rehabilitation, Mozambique OPEC Fund 1985

CURRICULUM VITAE:**Perviz KASSAMALY****Position in the programme: Workshop Management**

1. **Name:** Perviz Kassamaly
2. **Date of Birth:** 1959
3. **Nationality:** Portuguese
4. **Education**

Institution	Lisbon Classical University
Date: from To	1982 1988
Degree(s) or Diploma(s) obtained	MA German and English Modern Languages and Literature
Institution	Lisbon Classical University
Date: from To	1989 1991
Degree(s) or Diploma(s) obtained	Post Graduation Sciences of Education
Institution	União dos Sindicatos
Date	1995
Degree(s) or Diploma(s) obtained	Trainers Training Course (EC funded)

5. **Years in experience**

34 Consultant (7) Teacher (8) Management - Business, Personnel, Office (10), Other (5)

6. **Key qualifications: (relevant to the programme)**

Specialising in human resource development, training, education and technical assistance; Coordination and management of international conferences and seminars. Training strategy formulation, course design, assessment, monitoring, supervision and support to trainers. Follow-up on-the-job training.

Consulting project management, experienced in the transport sector. computing, business, office and personnel management skills.

7. **Related Experience**

Country	Date from - to	Position and Project Title
Southern Asia (Traceca countries)	01.02 - ongoing	Training Adviser – EU Short Term Expert South Asia, Caucasus, Europe Transport Corridor (Traceca) Transit Fees and Tariff Policy – EU Tacis Programme
Macedonia	10.01 - 03.02	Investment Options for the Transport Sector – EU Phare Programme Manager / co-ordinator for of 3 day conference for determination of transport investments for TEN transport corridors VIII and X;
Malawi	02.01 - 07.01	Manpower Development and Training Supervisor – EU Short Term Expert National Road Management and Support Programme – Ex Post Evaluation
Belarus, Moldova, Russia, Ukraine, Poland	09.97 - 01.01	Manpower Development and Training Supervisor – EU Short Term Expert Improvement of Traffic Flows on pan European Transport Corridors II and IX, EC, Tacis
Albania	06.97 – 08.97	Assistant to consultant. Railway Sector Reconstruction , EC, Phare
Moscow	11.95 – 03.96	Resident Assistant to Project Manager Advice to the Ministry of Transport on Planning, Regulations and Budgeting; EU Tacis Programme.
Zimbabwe	08.94 – 09.94	Assistant to Team Leader Transport Deregulation Programme World Bank, Nordic Fund Administrative and documentation management

Position in the programme: Road Engineer

1. **Name:** Graham Williams
2. **Date of Birth:** 1957
3. **Nationality:** British

Institution	Salford University, UK
Date: from	Sep 1976
To	Jun 1980
Degree(s) or Diploma(s) obtained	BSc (Hons) Civil Engineering
Institution	Reading University
Date: from	Sep 1997
To	Jun 1998
Degree(s) or Diploma(s) obtained	MSc Construction Management

4 Years in experience

23 years experience, more than 12 years in Africa

5. Key qualifications: (relevant to the programme)

Chartered Engineer with wide ranging road sector experience including road appraisal and project design with a background in capacity building, training and contractor development. Experience in development of tools necessary to support reforms in road sector management brought about through adoption of the World Bank sponsored Road Maintenance Initiative principles through work setting up the National Roads Authority in Malawi and technical assistance to the National Roads Board in Zambia.

6. Related Experience in Sub Saharan Africa

Country	Date		Position and Project Title
	from	to	
Ghana	04-02	Ongoing	Road engineer responsible providing advice and guidance in environmental aspects and their bearing on detailed engineering for both full and spot improvements to DFID feeder roads project across Ghana. Client: Department of Feeder Roads.
Zambia	10-98	12-01	Responsible for providing technical support for the development of management systems and procedures within the National Roads Board to help improve and co-ordinate planning as well as the procurement and implementation of works contracts under the under the 10 year Roads Sector Investment Programme (ROADSIP).
Malawi	07-96	07-97	Responsible for assessing training requirements in both the public and private sector for the implementation of the institutional changes required for the formation of a National Road Authority as proposed under the Road Maintenance Initiative.
Uganda	06-95	06-96	Team Leader for feasibility study for periodic and recurrent maintenance of 900km of paved and gravel roads in the Central Region of the country. Preparation of a prioritised 3 year maintenance programme for donor funding. Development of a maintenance management system for network planning of maintenance activities for the national road network.
Madagascar	02-91	03-94	Team leader providing technical assistance to the Ministry of Public Works in Madagascar for the management and implementation of a World Bank funded rural road rehabilitation project with local contractors in the province of Tuléar. Carrying out road studies/designs, contractor training, the preparation of contract documents for the 700km of road in the programme, the evaluation of tenders and the selection of contractors, the supervision of the works and preparation of payment certificates.
Kenya	09-88	03-99	Team Leader for execution of a study to identify productivity norms for labour based road maintenance using small scale contractors. The project involved the organisation of pilot maintenance projects on selected roads in Kisii and Oyugis Districts, the training of supervisory staff, collection and processing of data and the presentation of reports to the Ministry of Transport and Communications.
Sudan	09-84	06-95	Responsible for the provision of technical and managerial assistance to an international relief team establishing emergency water supplies for Ugandan refugees in Western Equatoria Province, Southern Sudan.
Malawi	09-80	08-84	Provision of technical and managerial assistance to a labour based District Road Construction Unit employing 24 Roads Department Supervisors and up to 2,000 labourers.

CURRICULUM VITAE:**Dr Richard ROBINSON****Position in the programme: Institutional Specialist (part-time)**

1. **Name:** Dr Richard Robinson
2. **Date of Birth:** 1946
3. **Nationality:** British
4. **Education**

Institution	University of Exeter UK
Date: From	1964
To	1967
Degree(s) or Diploma(s) obtained	BSc Combined Honours Physics and Pure Mathematics
Institution	University of London UK
Date: From	1968
To	1972 (part time)
Degree(s) or Diploma(s) obtained	PhD Computer Science

5. **Years in experience**
36 years in roads sector, 31 years working internationally

6. **Key qualifications: (relevant to the programme)**

Independent consultant in infrastructure asset management, focusing principally on the road sector, with experience of policy and institutional analysis, management, economics, human resources and maintenance, as well as technical areas of highway engineering. Professional qualifications include: Chartered Engineer, Fellow of the Institution of Civil Engineers, Fellow of the Institution of Highways and Transportation, Member of the Chartered Management Institute, Member of the Institute of Asset Management. Previous experience with the Transport (and Road) Research Laboratory (21 years), consultants Rendel Palmer & Tritton (6 years), and as the Senior Roads Specialist at the European Bank for Reconstruction and Development (2 years). Has worked in over 40 countries, including 10 countries in Sub-Saharan Africa. Has published over 100 papers, written two books, and has produced policy documents for the World Bank, EBRD and DFID. In addition to consultancy assignments, has lectured extensively, and holds an honorary appointment at the University of Birmingham in the United Kingdom.

7. **Related Experience in Sub Saharan Africa**

Country	Date from	- to	Position and Project Title
Zambia	2000	2000	Mid-term review of World Bank road sector investment programme (3 weeks)
Zimbabwe	1999	2000	Assistance to Department of Roads with corporate planning (one month)
Malawi, Zimbabwe, UK	1999	1999	Drafting engineering guidelines for low cost roads (6 weeks)
Zimbabwe	1998	1999	Adviser to the Road Reform and Development Co-ordination Unit (3 months)
Zimbabwe, UK, USA	1998	1999	Drafting World Bank guidelines on the formulation of rural transport policy (6 weeks)
Zimbabwe	1997	1998	Drafting guidelines on feasibility studies of feeder roads and design of secondary roads (one month)
Tanzania	1997	1997	Determination of institutional strengthening requirements prior to major road sector reforms (3 weeks)
Uganda	1996	1996	Appraisal of institutional capacity of MoWTC prior to implementation of major road sector reforms (6 weeks)
Ethiopia	1996	1996	Appraisal of roads component of Sida rural agriculture project (one month)
Zimbabwe	1995	1995	Drafting final project report for \$30 million study of road standards (2 months)
Nigeria	1995	1995	Advice on road network management and organization (2 months)
Kenya	1994	1994	Policy advice to Roads Department on maintenance procurement and technology (4 months)
Botswana	1994	1994	Policy advice on enforcement of vehicle loading regulations (2 months)

Appendix L
Road Maintenance Standards

Paved Road Maintenance Standards
Modelling period (yrs)

50

	Unit	Maintenance (>500vpd)					Maintenance (<500vpd)				
		A	B	C	D + E	A	B	C	D + E		
Good Condition											
Off carriageway routine maintenance	USD/yr	600	600	400	400	500	500	350	350		
Patching	%/yr	0	0	0	0	0	0	0	0		
Reseal interval	yr	0	7	8	9	7	8	9	10		
No reseals	No	0	7	6	6	7	6	6	5		
Overlay interval/shape correction interval	yr	10	25	25	25	0	0	0	0		
No overlay	No	5	2	2	2	0	0	0	0		
Fair Condition											
Off carriageway routine maintenance	USD/yr	400	400	350	350	350	350	350	350		
Patching	m ² /km/yr	0.30%	0.30%	0.30%	0.30%	0.20%	0.20%	0.20%	0.20%		
Spot sealing	%/yr	1.00%	1.00%	1.00%	1.00%	0.80%	0.80%	0.80%	0.80%		
Reseal interval	yr	0	0	0	0	0	0	0	0		
No reseals	No	0	0	0	0	0	0	0	0		
Overlay interval	yr	0	0	0	0	0	0	0	0		
No overlay	No	0	0	0	0	0	0	0	0		
Poor Condition											
Off carriageway routine maintenance	USD/yr	250	250	250	250	200	200	200	200		
Patching (holding maintenance)	%/yr	0.60%	0.60%	0.60%	0.60%	0.40%	0.40%	0.40%	0.40%		
Spot sealing	%/yr	1.5%	1.5%	1.5%	1.5%	1.2%	1.2%	1.2%	1.2%		
Failed Condition											
Emergency maintenance (access)	USD/yr	300	300	300	300	250	250	250	250		
Gravelling failed sections	%/yr	5.00%	5.00%	5.00%	5.00%	3.00%	3.00%	3.00%	3.00%		
Spot sealing	%/yr	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%		

Unpaved Road Maintenance Standards

50

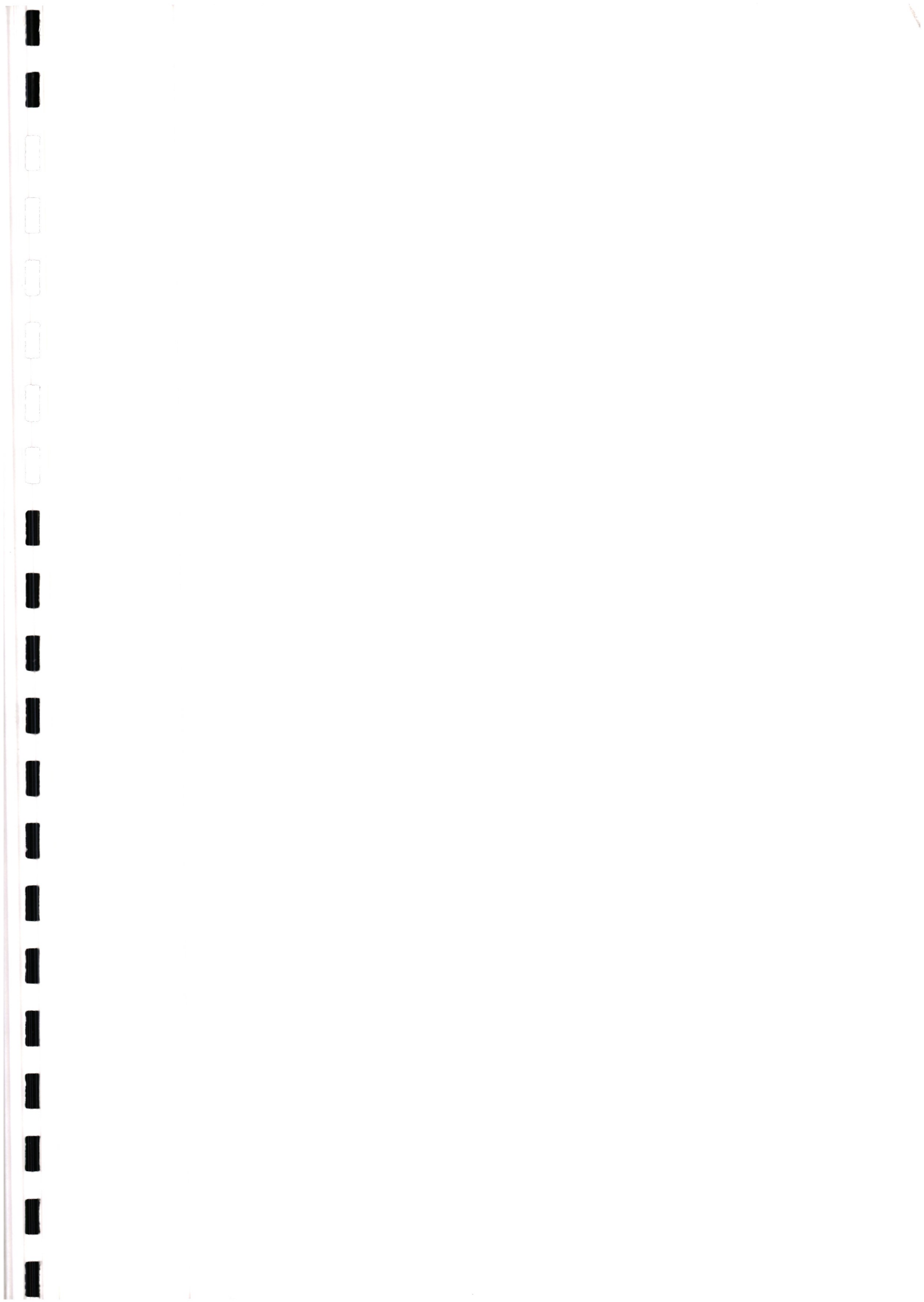
Modelling period (yrs)	Maintenance (>50 vpd)				Mtce (< 50 vpd) E + Special
	A	B	C	D	
Gravel Roads					
Unpaved width	8	6	5	5	4.5
Gravel thickness	0.2	0.2	0.15	0.1	0.1
Full maintenance					
Off carriageway routine maintenance	250	250	250	250	150
Light grading frequency	2	2	2	1	0.5
Heavy grading frequency	0	0	0	0	0
No. of heavy gradings	2%	2%	2%	2%	3%
Spot gravelling %/yr	6	7	7	7	15
Full regravelling frequency	8	7	7	7	3
No. of gravelling operations					
Earth Roads					
Full maintenance					
Off carriageway routine maintenance	250	250	250	250	200
Light grading frequency	2	2	2	1	0.5
Heavy grading interval	3	4	5	6	8
No. heavy gradings	17	13	10	8	6
Spot repairs					100

Note: Roads in poor/failed condition receive half normal access maintenance irrespective of traffic level

Urban Road Maintenance Standards
Modelling period (yrs)

50

		Primary	Secondary
Paved			
Av paved width (m)		10	7
Gravel thickness (m)		0.15	0.15
Good condition			
Routine maintenance	USD/km/yr	2,275	1,500
Patching	%/yr	0	0
Overlay interval	yr	10	0
No of overlays	No	5	0
Reseal interval	yr	0	6
No reseals	No	0	8
Fair condition			
Routine maintenance	USD/km/yr	2,275	1,500
Patching	%/yr	0.30%	0.30%
Spot repairs	%/yr	1.00%	1.00%
Overlay interval	yr	0	0
Reseal interval	yr	0	0
Poor condition			
Routine maintenance	USD/km/yr	1,500	1,000
Patching	%/yr	0.60%	0.60%
Spot repairs	%/yr	1.50%	1.50%
Overlay interval	yr	0	0
Reseal interval	yr	0	0
Unpaved (Gravel)			
Good/Fair condition			
Routine maintenance	USD/km/yr	500	250
Light grading frequency	No/yr	2	1
Spot repairs/regravelling	%/yr	2%	2%
Full regravelling frequency	yr	8	0
No. of gravelling operations	No	6	0
Poor condition			
Routine maintenance/access	USD/km/yr	250	250



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