OFFICE OF THE AUDITOR-GENERAL

Enhancing Accountability

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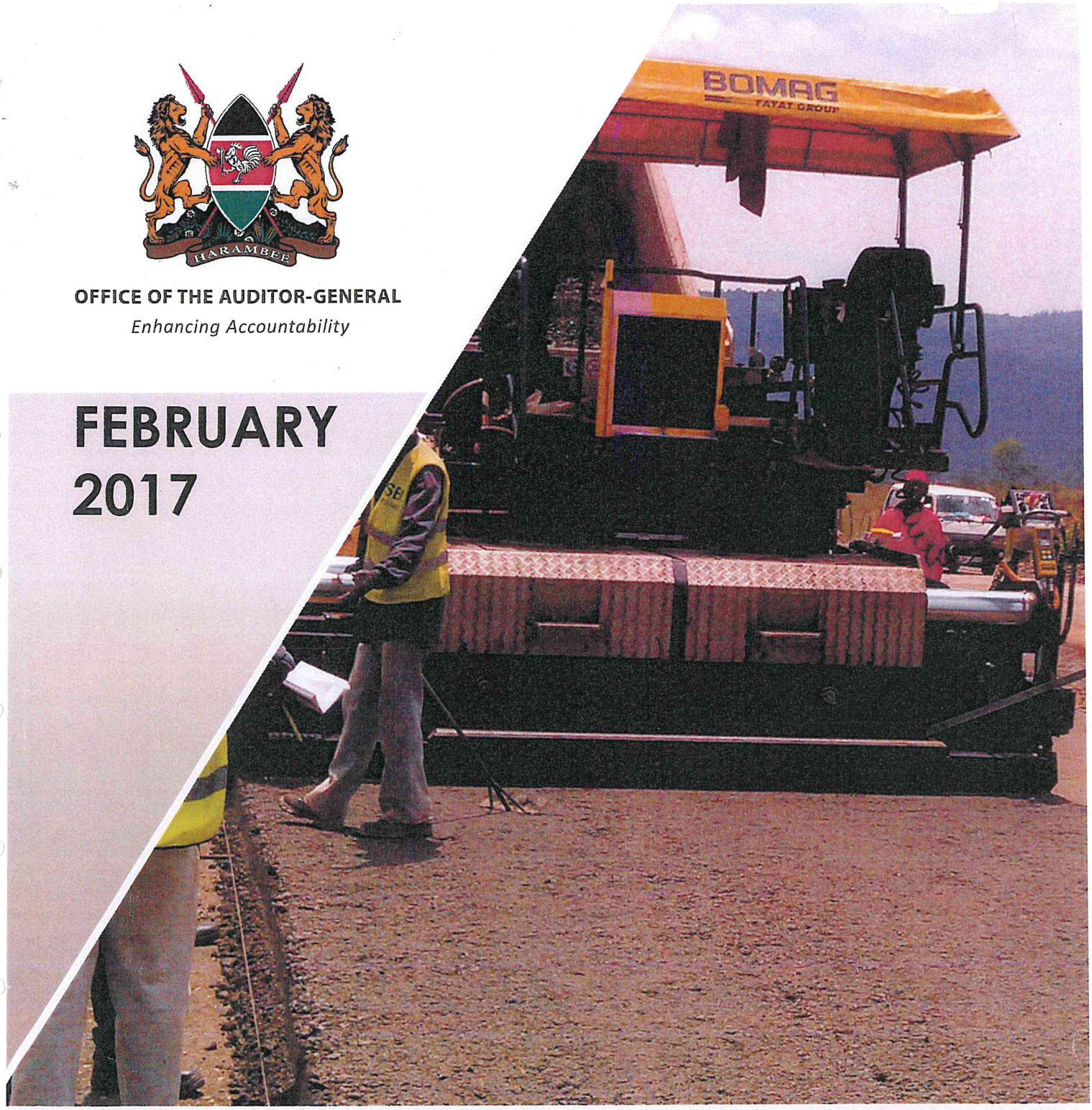

MINISTRY OF TRANSPORT INFRASTRUCTURE, HOUSING AND URBAN DEVELOPMENT

Performance Audit Report on Management of Roads Projects by

Kenya Rural Roads Authority, Kenya National Highways Authority & Kenya Urban Roads Authority

Foreword by the Auditor-General

In my capacity as the Auditor-General of Kenya, I am pleased to publish and publicize this performance audit report that examines the management of road projects by the Kenya Rural Roads Authority, Kenya National Highways Authority and Kenya Urban Roads Authority. My Office carried out the audit under the Public Audit Act, 2003 and prepared the report for presentation to Parliament under Article 229(7) of the Constitution. Performance audit assess the economy, efficiency and effectiveness with which public resources are utilized.

Performance Audits together with Financial and Continuous Audits form the three-pillar audit assurance framework that I have established to give focus to the varied and wide scope of audit work done by my Office. The framework is intended to give assurance to stakeholders that public resources are not only correctly disbursed, recorded and accounted for but that they also have a positive impact on the lives of all Kenyans. The overriding goal of our performance audits is to promote delivery to Kenyans of public services of outstanding quality

I have submitted the original copy of the report, for tabling in Parliament, to the Speaker of the National Assembly in accordance with Article 229 (7) of the Constitution. In addition, I have remitted copies of the report to the Cabinet Secretary for Ministry of Transport, Infrastructure, Housing and Urban Development. I wish to express my appreciation for the co - operation and assistance accorded to the audit team by officials of the Kenya Rural Roads Authority, the Kenya National Highways Authority and the Kenya Urban Roads Authority.

FCPA EDWARD R.O. OUKO, CBS
AUDITOR-GENERAL

20th February, 2017

LIST OF ABBREVIATIONS

AFROSAI-E	-	Africa Organization of Supreme Audit Institutions
AG	-	Auditor General
GOK	-	Government of Kenya
IPC	-	Interim Payment Certificate
INTOSAI	-	International Organization of the Supreme Audit Institutions
ISSAIs	-	International Standard for Supreme Audit Institutions
JICA	-	Japan International Cooperation Agency
KeNHA	-	Kenya National Highways Authority
KeRRA	-	Kenya Rural Roads Authority
KURA	-	Kenya Urban Roads Authority
MDGs	-	Millennium Development Goals
MoTI	-	Ministry of Transport and Infrastructure
NLC	-	National Lands Commission
PMBOK	-	Project Management Body of Knowledge guide
PMG	-	Project Management guide book
R.E.	-	Resident Engineer
RSIP	-	Road Sector Investment Plan
VFM	-	Value for Money

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EXECUTIVE SUMMARY

Background to the Audit

1. The Government has spent over Kshs.918 billion on development vote in the last 5 years (2008/09 – 2012/13).The aim of the government projects is to improve the country's infrastructure that would boost the social and economic status of Kenyans. Further, the implementation of some of the projects is paramount towards attaining the Kenya Vision 2030, Millennium Development Goals (MDGs), and other long term goals of the country. It is therefore important that the projects' objectives are achieved and the government gets value from its huge investment. This can only be realized through successful implementation of the projects. Success in the implementation of the projects depends on how well the projects are managed.

Audit Objective

2. The objective of the audit was to assess whether the systems in place for management of road projects are effective and whether they are in line with the generally accepted practices in project management.

Audit Scope and Limitations

3. Road projects were selected for audit based on the importance of the road sector in social and economic development of the country and the investment by the government in the sector which amounted to Kshs.193 billion or about 21% of the Kshs.918 billion spent on development projects in the last 5 years).[1]

4. The projects audited were those implemented by the three road authorities i.e. Kenya Rural Roads Authority (KeRRA), Kenya National Highways Authority (KeNHA) and Kenya Urban Roads Authority (KURA).The audit covered the period 2008/09 to 2013/14 during which a total of 84 road projects were implemented at a cost of Kshs 202 billion. The audit involved evaluating the systems in place for initiating, planning, executing, monitoring & control, closure and sustainability of the projects once completed. A sample of 34 projects with total contract value of Kshs. 89,170,785,443 was selected for the audit. The selection of the sample was done to include the ongoing projects at various level of completion as well as completed projects and the level of investment.

   However there were limitation on availability of complete data and information for most of the projects e.g. delayed payments, interest claimed on delayed payment, relocation costs among others and therefore the issues highlighted and figures indicated in the report are for the projects where such information was available.

Summary of the Findings

5. The findings of the audit indicates that although the systems in place for management of the road projects are in line with best practice in project management, there are weaknesses in the systems which undermine their effectiveness in delivering the desired results of the projects as discussed below;

Systems in Place for Project Initiation are not followed

6. A review of the 34 sampled projects revealed that 6 were not in the Road Sector Investment Plan (RSIP). In total 37 projects out of 85 projects under implementation were not in the investment plan nor in the Master Plan for Urban Roads (MPUR), as shown in the Table below. The two plans enable the agencies prioritize the road projects within a given period of time. Failure to follow the plan may lead to investing public funds on projects which may not deliver immediate economic benefits at the expense of projects which could have more social and economic benefits to the public.

1 GoK – Appropriations Accounts 2008/09 – 2012/13

Authority	No. of projects implemented	Projects implemented but not in the RSIP or MPUR
KeRRA	44	17
KURA	17	11
KeNHA	23	9
Total	**85**	**37**

Source: OAG analysis of road authorities' data

7. Though it is a requirement that feasibility study for the road projects should be carried out to ascertain the viability of the project, feasibility studies for most of the projects were not availed for audit review. It was therefore not possible to confirm how the viability of the projects was evaluated and determined nor was it possible to confirm whether feasibilities studies for the projects are always carried out as required.

Systems in place for project planning not working as intended.

8. In road construction, projects' planning should ensure that adequate designs for the project are done and the resources needed to undertake the project are identified and budgeted for. However, there were weaknesses in planning for the projects which resulted in increased costs of the projects and also delays in the implementation of the projects as discussed below;

a) Inadequate projects engineering design.

9. Despite the design of the projects having been approved prior to the implementation of the projects, 16 projects out of 34 reviewed had their design changed in the course of implementation. This resulted in contract variation that increased cost of the projects by Kshs.4 billion (11%) from the initial cost of Kshs.45 billion to Kshs.49 billion. Change in design was mainly attributed to inaccuracies in the original design which had to be modified in the course of implementation of the projects. In other cases the design were developed long before the implementation of the project and therefore had to be updated or modified in the course of implementation of the project.

b) Funding for the Road Projects Does not Work as Intended

10. Despite the necessary approval having been granted for the projects, in most cases the funds budgeted for the projects were not adequate to pay for the certificates raised during the year in while in some instances no budget allocation was provided for some of the projects this resulted in delays in payment to the contractor which affects the completion of the projects. As results of inadequate budget allocations the three Road Agencies had pending bills amounting to Kshs 28.4 billion in respects of outstanding claims by the contractor as at June 2014.

c) Lack of Budgetary Provision for Land Compensation

11. Road projects are surveyed to pass through the existing road reserves but in cases where the road may require more land than the already existing road reserve, it becomes necessary to acquire more land. This requires compensating the owners of the affected land to pave way for the road construction. However, prior funding arrangement for acquisition of land was not done at the planning stage of the project. Land compensation therefore was not done at the appropriate time due to lack of budgetary allocation which affected the implementation of the project. The most affected were KURA and KeNHA due to high cost of land in urban cities and municipalities where for instance, the cost of land acquisition for Langata – Bomas and East and Northern by pass was Kshs.1,037,813,089 and Kshs.4,722,805,926 respectively but no such funds were budgeted at the initial stage of the project, thus there were no funds to compensate the land owners at the appropriate time which delayed the completion of the projects.

d) Delays in Land Acquisition Process

12. Delay in land acquisition was another factor that affected the implementation of the projects. This was attributed to failure to start the land acquisition

process at the early stage of the project, delays at the Ministry of lands / National Land Commission and lack of necessary funds to compensate the land owners to pave way for the road construction. For instance, the land compensation process for Langata- Bomas project had not been completed by 8th May 2014 just a month to the revised completion date of 7th June 2014, a delay of about 2 years since the commencement on 9th February 2012 of the project while the process for East and Northern by pass had not started at the Ministry of Lands 2 years after the commencement of the project.

e) Delays in Relocation of Utility Services

13. Setting of utility services within the road reserve has resulted in the need for relocation whenever a road is to be constructed. However, there have been delays in relocation of services which have resulted in extension of time to the contractor thereby prolonging the completion period of the project. An example is Keroka- Nyangusi phase II road where the construction started in December 2007 and communication from KeRRA to Kenya Power and Lighting Company to relocate electric poles had been done several times. However, as late as March 2011 communication was still being done for relocation of the same poles. This was far into project completion period.

14. Further, the relocation of services always has a significant cost implication in addition to occasioning delays in the projects. The road authorities have been incurring heavy expenses in relocating the utilities. The service providers have always indicated that they lack sufficient funds to undertake the relocation and therefore the road authorities have had to pay contrary to the provision of Section 27 (2) of the Roads Act, 2007 which provides that the service provider should bear the cost of such relocation. This further constrains the much needed funds for the construction of the road by the concerned Road Agencies

Systems for Execution of Road Projects are not working as Intended

a) Delay in project implementation

15. The contract agreement defines the contract period within which the project should be completed. The execution of the project should be guided by the work program approved by the Resident Engineer. Out of the 34 projects reviewed, 17 had their period extended severally. 8 of the 17 had been extended by 93- 56 % of the original contract period, 8 by 35- 8% while one of the projects had been extended by over 130% of the original contract period.

16. Despite the extension, some of the projects were still behind schedule. For instance Lanet-Elementaita road was behind schedule by almost 2 years despite having been granted an extension of 24 months (about 133%) from the initial project duration of 18 months.

17. Delays in completion of the projects was attributed to extension of time granted to the contractors due to increase in scope of work which require more time to execute, delays in relocation of utilities, delays in land acquisitions while in other cases the delays were attributed to delays by the contractor in mobilizing the equipment and inability of some of the contractors to deliver on the projects. However, the major factor that contributed to most of the delays was delays in payment to the contractors which resulted in slow progress of work for most of the project.

18. The reasons for delays in payment to the contractors is attributed to inadequate budget allocation for most of the projects where the amount allocated for the projects did not match the certificate issued during the year due to budget ceilings by the National Treasury. The effects of these delays have been far reaching on the project, in form of interest claims on delayed payments by the contractors and additional supervision costs due to extension of supervision contracts, and other time related costs as discussed below;

(i). Increase in cost of the project due to interest on delayed payment.

19. Contract agreements allow for the claim on interest on delayed payment due to failure by the employer to pay within the period stipulated in the contract. Out of 34 projects reviewed 9 had accrued interest on delayed payments amounting to Kshs. 319 million. This contributes to increase in cost of the project.

(ii). Increase in cost of the project due to supervision contracts and variation of prices.

20. Most of the road projects are supervised by hired consultants and therefore whenever a contract period is extended the supervision contract is also extended to cover the duration of the project. This further increases the overall cost of the projects. An example is Homabay-Mbita Road where the consultant period was extended by 411 days which increased the cost of supervision from Kshs.129,545,907 to Kshs.183,482,907, an increase of about 42%.

21. Further, delays in completion of the project may also lead to failure to complete the project as originally intended due to time related costs which may eat into actual works of the project. For instance, only 37km of Kaptama-Kapsokwony-Sirisia Road was done, out of the 67km initially planned as the funds got were exhausted before completion due to the high variation of prices (VOP) than initially planned. Thus, out of the contract price of Kshs.2,699,623,837 for 67km road only 37km was done at a cost of Kshs.2,576,096,277 about 95% of the original contract price due to delay in completing the project.

b) Quality Control Procedures Working as Intended.

22. The quality control systems for road projects are guided by the general condition of the contract (FIDIC), standards and special specification condition. The guidelines provide guidance on acceptable quality standards as well as procedures for testing compliance with the set standards. The quality control measures include, testing of the material, inspections and surveys of works done. Field visits to sampled projects indicate that in most cases the quality standards are adhered to.

c) Monitoring and Control is carried out as planned

23. Monitoring is done on monthly basis through site meetings held to assess the progress of work. Minutes of the meetings are documented and issues raised are followed up in subsequent meetings. Monthly Progress Reports are prepared by the Resident Engineer (RE)'s team as was evidenced in the reviewed project files. The reports show among others, physical status of the project, financial status, contractor's staff and machinery on site and minutes of the meeting held. In addition the Ministry of Transport & Infrastructure carries technical audits on these roads.

Systems in place for Closure and continuity of projects

a) Project Closure

24. Project closure is the last phase in project management which involves handing over the project deliverables to the beneficiaries and terminating project contracts. Handing over of roads projects is done in two phases; substantial handover which is done after partial completion of the project and final handover which is done after defect liability period has elapsed. During the defect liability period, the contractor is liable for any defects that may arise and is also liable to rectify any works that were not satisfactory at the time of substantial handover. Out of the 34 projects reviewed, 5 road projects were complete, 5 were under defects liability period and the remaining 24 were at various stages of completion. The completed projects had been issued with final certificate of completion while those under defects liability period had substantial completion certificate.

b) Continuity or Sustainability of the Projects

25. Continuity relates to the plans put in place for sustainability of the project. Roads maintenance is important because it increases the life span of the road. For the new roads, the Maintenance Department takes over the projects which have been completed and the handing over certificate issued. The department carries out routine and periodic maintenance. Routine maintenance is carried out continuously throughout the year while periodic maintenance is done after every 5 to 6 years.

26. However, the major challenge facing road maintenance in the three Road Agencies is that the demand for road maintenance is very high and the funding does not match the demand. For example KURA is charged with the responsibility of road maintenance in the municipalities with a road network of about 12,000Kms only received funds for maintenance amounting to Kshs.2 billion which can only cover about 3000Kms. Therefore it might take very long before a road is included for maintenance especially new roads. KeNHA, has also been having backlog for most of the roads where some roads have taken more than 10 years without periodic maintenance. e.g Westlands- Limuru road which was constructed in 1991 but no periodic maintenance has been done to date.

27. To address this problem, performance-based maintenance contract are being piloted for some of the new roads e.g under KURA, Eastern and Northern By Pass, Western ring roads, have been put under performance contracts while 5 roads under KeNHA have been put under performance contracts including Thika Road, among others. This will ensure that new roads take longer before they are damaged.

Conclusion

28. The audit concludes that although the systems in place for management of the road projects are in line with the best practice in project management, they have not been working as intended. Therefore, they have not been effective in ensuring that the implementation of the projects is carried out as planned. This has led to cost overruns and delays in implementation of the projects which has led to delayed social and economic benefits to the public.

29. The major factors that undermine the effectiveness of the systems can largely be attributed to lack of adequate planning. This is evident in the changes in design and scope during the implementation of the project and failure to provide adequate budgetary provision for land acquisition at the initial stage of the project to ensure that land compensation is done at the appropriate time.

30. Systems in place for the execution of the projects have not been working as intended resulting to frequent extension of contract period that also contribute to increased costs of the projects. Extension of time is mainly attributed to change in design, delays in land acquisition, delay in relocation of utility services and delays in payment to the contractor. Change in design results to increased scope of work that require more time to execute as well as increased costs. Delay in payments results to increase in projects costs due to interest charged on delayed payment. In other instances, delays in completion of the project can be attributed to inability by the contractor to execute the project as expected.

31. Delays in acquisition of land are attributed to the slow process of land acquisition and lack of adequate budgetary provision to pay land compensation. Delays in relocation of services are attributed to failure to start the process in good time and delays by the service providers to remove utility infrastructure. This has led to prolonged project completion period.

32. Monitoring of the projects is done as planned. However, there are delays in resolving issues that

arise during the defects liability period. The high demand for maintenance and the limited funds allocation poses a great challenge to sustainability of the projects. The roads take long before routine and periodic maintenance is carried out.

Recommendations

33. To address the weakness in the systems in the management of road projects and to ensure efficient implementation of the projects in future, the Auditor-General recommends measures that need to be taken by the Ministry of Transport and Infrastructure, the National Treasury, Kenya Rural Roads Authority, Kenya National Highways Authority and Kenya Urban Roads Authority as follows;

- To address the problems with the designs, Kenya Rural Roads Authority, Kenya National Highways Authority and Kenya Urban Roads Authority (KURA) need to develop a mechanism that guarantee adequate design work and estimate of the projects submitted by the consultants to ensure they are based on the correct data and reflect the reality on the ground in order to avoid unnecessary alterations during the implementation of the project.
- To address the problem of delays in land acquisitions, the road authorities should ensure that the cost of land acquisition is factored into the cost of the project in the early stages, in order to make an informed decision on total funding requirement before the necessary approval is sought from the National Treasury. This will address the issue of delays in land compensations
- To address the issue of delayed payment to the contractors, the National Treasury should ensure that once an approval has been granted for implementation of the project, adequate budget provision is provided throughout the project life. It should also ensure that funds are released to the authorities at the appropriate time as per the approved budget. The National Treasury should also consider getting into Public Private Partnership to ease the financial burden on implementation of road projects.
- To address delays in land acquisition process, the road authorities should start the process of land acquisition long before the implementation of the project while the National Land Commission should ensure that there are no undue delays in the process of land acquisition. There is also need for collaboration and coordination between Road Agencies and the Ministry of Land, Housing and Urban Development in order to address any challenges that may delay the land acquisition process.
- On delays in relocation of utilities services, it is important that the road authorities ensure that relocation of services work is carried out before the start of the project to ensure that there is no interruption on the road construction works.
- Further, to ease the burden of costs incurred in relocating the utility services by the road authorities, the service providers should be compelled to pay for any service relocation cost incurred by the authority in line with the provision of Road Acts, 2007.
- As a long term measure of dealing with relocation of services in future, it is recommended that all new design and installation by service providers should seek approval from the road authorities in order to harmonize the planning for the roads and utilities services in the road reserves.

1.0 BACKGROUND TO THE AUDIT

Introduction

1.1 This report contains the findings and other relevant details of a performance audit conducted by the Office of the Auditor-General on road projects by the designated authorities in Kenya. The Office conducted the audit under Section 29 of the Public Audit Act, 2003 and prepared the report for presentation to Parliament under Article 229(7) of the Constitution.

Motivation for the Audit;

1.2 The Auditor-General authorized the audit after considering the following:

- The Government of Kenya and its development partners continue to allocate huge financial resources to finance infrastructure development to boost economic growth of the country and improve the social welfare and economic status of its citizens. In the last 5 years 2008/09 to 2012/13 a total Kshs.918 billion or an average of about Kshs. 183 billion per year has been spent on implementation of these projects. Out of the total development expenditure of Kshs.918 billion, an amount of Kshs. 193 billion was spent on road projects. The public can only get value for money on these investments if the projects achieve their intended purposes. It was therefore important to establish whether adequate systems are in place to manage these projects.
- Secondly, the aim of the government projects is to improve the country's infrastructure for better delivery of services to the citizen hence expeditious implementation of the projects to realize the desired benefits is of paramount importance. However, some projects stall or are abandoned, others are completed but not put into intended use and therefore it is important to establish what ails implementation of government projects.
- Further, a project adds value when it is delivered on time, on budget and meets the expectation of the citizens or achieves its intended objectives. Hence time and cost overruns in most of the government projects are matters of public concern and therefore it is important to establish what causes or contribute to these delays and cost overruns.
- Implementation of some of the projects is paramount towards attaining the Kenya Long-term goals; the Kenya Vision 2030 objectives and Millennium Development Goals (MDGs). Therefore, it's important to establish whether systems in place for implementation of these projects will help achieve attainment of these goals.
- Most of the projects are funded through loans and grants from both internal and external institutions. Money borrowed has to be paid with interest over a long period of time therefore prudent utilization of the funds to derive maximum benefits without overburdening the future generations is important. There is need therefore, to confirm that there are systems in place for ensuring the success of the projects.
- There have also been concerns by the project sponsors on the utilization of loans and or grants given to the government. Funds meant to finance various project in most cases are diverted to other uses other than the planned projects. Under the circumstances the government has been called upon to refund such funds to the donors or financiers. It is therefore important to confirm whether the systems for implementing the projects ensure that the funds are utilized for the intended purposes.
- Previous financial audits have also revealed cases of delays in the completion of projects, costs overruns as well as poor quality works which raises concern as to how government

projects are executed, monitored and controlled to ensure that they achieve their intended objectives.

2.0 DESIGN OF THE AUDIT

The Objective of the Audit

2.1 The objective of the audit was to assess whether systems in place for management of roads projects are effective and whether they are in line with the generally accepted practice in project management.

Scope – the focus of the Audit

2.2 The audit focused on evaluating the systems in place for implementation of roads infrastructure projects from initiation, planning, execution, monitoring and evaluation to closure. The projects considered in the study are road construction projects implemented by the three road authorities i.e Kenya Rural Roads Authority (KeRRA), Kenya National Highways Authority (KeNHA) and Kenya Urban Roads Authority (KURA). A sample of 34 projects was selected for the audit, based on the value of projects and stage of completion. The selection of the sample included the ongoing projects at various levels of completion and the value of investment on each project. The audit covered the period between 2008/2009 and 2013/2014.

2.3 However, there were limitation on availability of complete data and information for most of the projects e.g. delayed payments, interest claimed on delayed payment, relocation costs among others and therefore the issues highlighted and figures indicated in the report are for the projects where such information was available. Feasibility Study was only provided for 1 out of the 34 projects sampled for review

Audit Criteria

2.4 The audit assessed the management of the roads projects against generally accepted practices in project management. In addition, general conditions for roads construction projects as well as special conditions of contract were used. The sources of the assessment criteria are listed in Appendix 1. The specific criteria are cited in the findings of the audit in Chapter 4 of this report.

Methods used to gather audit evidence

2.5 The audit was conducted in accordance with International Standards of Supreme Audit Institutions (ISSAI's) issued by the International Organizations of Supreme Audit Institutions and audit policies and procedures established by the Office of the Auditor General (OAG).

2.6 Data and information was mainly collected through documentary reviews, interviews and physical observations. Interviews were conducted to understand how roads projects are initiated, planned and implemented. The list of people interviewed is shown in Appendix 2. The audit obtained schedules of roads projects being implemented by the three road authorities (KeRRA, KeNHA and KURA) and from these schedules, samples of projects to be reviewed were developed. The audit reviewed project files for the sampled projects and visited 16 project sites to assess how the projects are being implemented as shown in Appendix 3.

3.0 DESCRIPTION OF THE AUDIT AREA

Background Information

3.1 The chapter begins with a description of what a project entails and the stages in the project life cycle. The role of the Ministry of Transport and Infrastructure (MoTI) and the mandates of the three road authorities in charge of implementation of the road projects i.e KeRRA, KeNHA and KURA are also outlined.

What is a Project?

3.2 A Project is a unique endeavor to produce a set of deliverables within clearly specified time, cost and quality constraints. Thus a project is unique, has defined timescale, has approved budget, has limited resource, has an element of risk and is meant to achieve beneficial change. The outcome of projects are unique deliverables in form of products, service or results

3.3 Project Management is the dynamic process that utilizes the appropriate resources of the organization in a controlled and structured manner, to achieve some clearly defined objectives identified as strategic needs. Projects are managed through a project management system which is a set of tools, techniques, methodologies resources and procedures, process and related control function that aids a project manager in effectively guiding a project to completion

Why Project Management is Important.

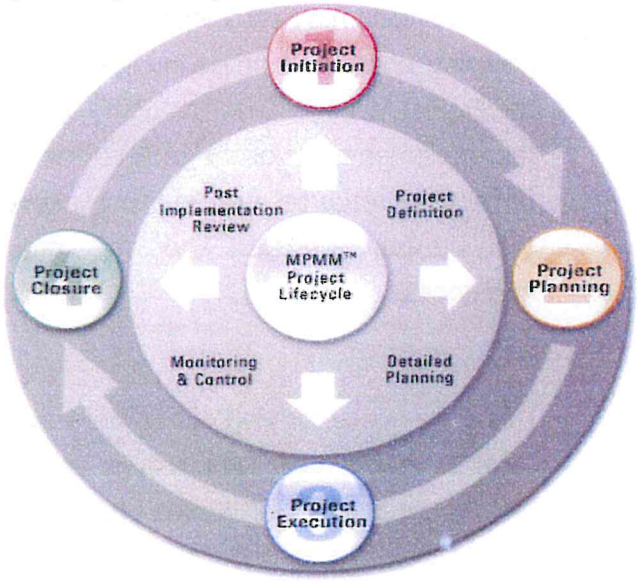
3.4 Citizens are demanding for better quality services through efficient and timely deliveries at low price. It is therefore important, that time, cost, and quality are efficiently managed in the entire project life cycle for effective service or product delivery.

3.5 Effective project management helps to ensure that projects are delivered to the agreed quality, within budget and on time at best whole-life value. It requires a thorough understanding of the key stages in the life cycle of a project that are critical to its success.

Project Life Cycle

3.6 A project life cycle defines the phases that connect the beginning of a project to its end. Each project stage is characterized by a distinct set of activities, proper implementation that leads to overall success of the projects thus, each stage is of equal importance. A project life cycle is as shown in Figure 1 below.

Figure 1: Project Life Cycle



Project Initiation

3.7 The initiation phase begins with the identification of a problem or opportunity. A detailed definition of the problem or opportunity and an analysis of potential solution option available are made. For each option potential benefits, costs, risks and other issues are documented. A feasibility study maybe conducted to assess whether a particular solution option is likely to achieve the benefits identified under the option. It also helps to establish whether the forecasts are reasonable, solutions achievable and risks acceptable. Recommended solution and an implementation plan are prepared which is then approved by the project sponsor. The

required funding is then allocated. A project charter is established which outlines the goals, objectives, scope and the structure of the project

3.8 The success of the project also depends on how well all the relevant stakeholders are involved right from the beginning so that their views, interest and concerns for the projects are taken into consideration in defining the project. The stakeholders can be the beneficiary of the projects, financiers, implementers, suppliers, public and the government.

Project Planning

3.9 Once a project has been initiated it enters the planning phase. This phase involves creating the Project Management Plan (PMP) to guide the implementation of the project. The PMP defines the resources required to implement the project, activities and the project milestones.

Execution

3.10 This is the actual carrying out of the activities detailed in the PMP. Each activity and task listed in the project plan is executed to deliver on the objective of the project. It involves building deliverables, monitoring and control and conducting phase review. A deliverable is a quantifiable outcome of the project which results in partial /full achievement of the project. Phase review is conducted at the end of the execution phase to ensure that the project has achieved its stated objective as planned. However, careful monitoring and control as explained below must be carried out to ensure that the project achieve its purpose.

Monitoring and Control

3.11 Activities, resources and expenditures are monitored and controlled throughout the execution phase to build each deliverable. It is important to keep the project in control by continuously checking and reporting on issues and risks that may hinder the project from achieving its objectives, and take corrective action to rectify the situation. This is done by implementing a series of management processes to check if the deliverables have been achieved.

Quality Control Management

3.12 This is the process by which the quality of deliverables is assured and controlled using Quality Assurance and Quality Control Techniques. Quality reviews are frequently undertaken to ensure conformance of the final deliverables to the specifications.

Project Closure and Continuity

3.13 Project Closure involves releasing the final deliverables to the customer, handing over project documentation, communicating the closure to all stakeholders and also reviewing overall success of the project and any lesson learned. Plans are put in place on how the project is to be sustained.

Ministry of Transport and Infrastructure

3.14 The mandate of the MoTI is drawn from the Executive order of May 2013. It is responsible for all the transport systems in the country which comprises road, rail, air and maritime. The transport sector is crucial in the promotion of socio-economic activities and development since an efficient and effective, transport system is a mainspring for rapid and sustained development in terms of national, regional and international integration and trade facilitation, poverty reduction and improvement of welfare of citizens.

3.15 The Ministry is in charge of policy and strategy relating to the provision of roads, including regulatory areas such as technical standards (including axle loads). Being the lead ministry

in the road subsector it also coordinates issues of policy, strategy and oversight as well as investment plans for the whole sub-sector, including urban, rural and Highway roads. The Ministry has two departments namely; State Department of Transport and State Department of Infrastructure. The KeNHA, KeRRA and KURA are under the Ministry.

Vision and Mission of the Ministry

3.16 The Ministry's vision is to be a global leader in transport infrastructure and logistics. Its mission is to develop, operate and sustain world class transport infrastructure and services.

Strategic Objectives of the Ministry

3.17 The main objectives of the Ministry are:

- To develop and maintain sustainable transport and infrastructure to facilitate efficient movement of goods and people.
- To develop and enforce regulations and standards to ensure safe, secure and efficient transport and infrastructure systems.
- To undertake research and development for an efficient transport and infrastructure systems.
- To mobilize resources and build capacity for technical and professional staff.

3.18 The Ministry has the following responsibilities:

- Policy formulation and coordination
- Setting of standards
- Advisory to roads subsector
- Implementation and reviewing / updating of the road sector plan
- Registration of engineers
- Registration and regulation of construction industry
- Capacity building in the subsector
- Roads transport research and development function
- Provision of maintenance and transport services

Road Authorities

3.19 The Kenya Roads Act, 2007 created KeRRA, KeNHA and KURA as the authorities charged with carrying out road construction. All the ongoing road projects which at that time were being implemented by the defunct Ministry of Roads were vested to the three authorities according to their mandates. The mandate of these road authorities are described below:

KeRRA

3.20 KeRRA's is responsible for the management, development and maintenance of Class D roads and below including special purpose roads. KeRRA's functions and duties include:

- Constructing, upgrading, rehabilitating and maintaining rural roads.
- Controlling reserves for rural roads and access to roadside developments.
- Implementing road policies in relation to rural roads
- Ensuring adherence by motorists to the rules and guidelines on axle load control
- Ensuring that the quality of road works is in accordance with such standards as may be defined by the Cabinet Secretary.
- In collaboration with the Ministry responsible for Transport and the Police Department, overseeing the management of traffic on rural roads and issues related to road safety.
- Collecting and collating all such data related to the use of rural roads as may be necessary for efficient forward planning
- Monitoring and evaluating the use of rural roads
- Planning the development and maintenance of rural roads
- Preparing the road work programme for all rural roads

- Liaising and coordinating with other road authorities in planning and operations in respect of roads, and
- Advising the Cabinet Secretary on all issues relating to rural roads.

KeNHA

3.21 KeNHA is responsible for the management, development, rehabilitation and maintenance of international trunk roads linking centres of international importance and crossing international boundaries or terminating at international ports (Class A roads), national trunk roads linking internationally important centres (Class B roads), and primarily roads linking provincially important centres to each other or two higher-class roads (Class C roads). KeNHA's core functions are:

- Constructing, upgrading, rehabilitating and maintaining Class A, B, and C roads.
- Implementing road policies in relation to national roads.
- Ensuring adherence to the rules and guidelines on axle load control prescribed under the Traffic Act, 2014 and any other regulations.
- Ensuring that the quality of road works is in accordance with such standards as may be defined by the minister.
- Collecting and collating all such data related to the use of national roads as may be necessary for efficient forward planning.

KURA

3.22 KURA's mandate is to manage, develop, rehabilitate and maintain all public roads in the cities and municipalities in Kenya except where those roads are national roads. KURA's core functions include;

- constructing, upgrading, rehabilitating and maintaining roads under its control;
- Controlling urban road reserves and access to roadside developments
- Implementing roads policies in relation to urban roads;
- Ensuring adherence by motorists to the rules and guidelines on axle load control
- Prescribed under the Traffic Act and under any regulations under the Act;
- Ensuring that the quality of road works is in accordance with such standards as may be defined by the Cabinet Secretary
- Monitoring and evaluating the use of urban roads;
- Planning the development and maintenance of urban roads;
- Collecting and collating all such data related to the use of urban roads as may be necessary for efficient forward planning;
- Preparing the road works programs for all urban roads;
- Liaising and coordinating with other road authorities in planning and on operations in respect of roads, and
- Advising the Cabinet Secretary on all issues relating to urban roads.

Road Project Implementation Process

3.23 Each of the three authorities has well documented steps on how to implement the roads projects from initiation to closure. The implementation process is same for the three authorities. The following is the summarized process;

- **Project identification**

  The roads to be implemented within a given period are identified under the Roads Sector Investment Plan (RSIP). RSIP 2010-2024 is the current strategic plan document being used. The RSIP gives a guide in terms of the projects to be implemented within

a given period of time, budget and also regional balancing. Projects listed in RSIP are used as a shopping list for new projects to be implemented.

In Nairobi, the projects being implemented by KURA were identified through "The Study on Master Plan for Urban Transport in the Nairobi Metropolitan Area" conducted by the Japan International Cooperation Agency (JICA), in the year 2006 at the request of the Republic of Kenya. In the other cities and municipalities, project identification has been based on the needs resulting from urban growth.

Feasibility study is carried out on selected projects to establish their viability. The study involves assessment of economic viability, Traffic census (Need Assessment) and connectivity-access to basic amenities (Socio-economic impact; security and health). If a project gives positive returns then the road goes into the next phase where detailed survey is carried out.

- **Design Phase**

After the feasibility study, detailed survey and investigations are carried out after which a detailed engineering design report is produced. The report contains geometric design, horizontal alignment, vertical alignment, pavement design and any other designs which can enable the preparation of tender documents. The detailed design also enables preparation of confidential engineer's cost estimates to warrant commencement of competitive bidding.

- **Sourcing of Funds for the Project**

After the design phase the next step is to source funds. Roads project in Kenya are financed by the Government of Kenya and the multilateral agencies like World Bank, AFDB and EU

- **Procurement phase**

Procurement phase involves carrying out tender advertising, tender opening, tender evaluation (technical and financial evaluation) and lastly awarding of the contract. The whole process is done in accordance with Public Procurement and Disposal Act, 2005, and Regulation 2006.

After the contract is awarded the employer who is the Director General (KeRRA, KURA, KeNHA) appoints the Engineer, Project Engineer and Resident Engineer whose roles are as stated below:

- **Engineer** – The engineer is the overall head of the project and is based at the headquarters. He guides the construction. He signs and authorises payments and also approves variations and extension of time. He is the link between the Authority and the contractor.
- Project Engineer Works in the head office but visits the site at least once a month and attends the site meetings. He oversees or confirms the activities that are on-going. He reports to the Engineer.
- Resident Engineer (R.E) - Represents the Engineer in the field, he gives instructions, approves work, measure the works and undertakes correspondences between the Engineer and the contractor.

- **Project execution**

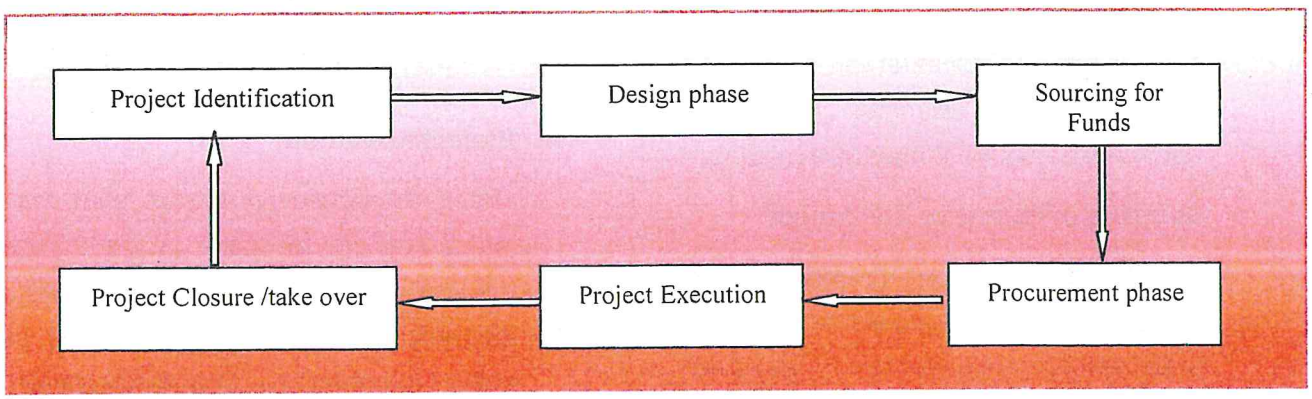
This is the phase where the road works are carried out as stated in the contract between the contractor and the respective authority. The contractor constructs the road as per the scope of works described in the contract document. The road authority concerned has the obligation to supervise

the contractor through the R.E. The R.E ensures that the project is implemented as per the design and that it runs as scheduled. Implementation of the project is guided by work programme which shows the activities, timelines and the expected cash flow for the project throughout the project cycle.

- **Project closure /Take over**

  Once a road is complete, an inspection committee is formed to inspect the work. If they accept the work a certificate of substantial completion is given and the road is put under defect liability period which for most projects is 24 months. During this period the contractor is liable for maintenance of the road as well as any defects that may occur. When the defect liability period is over another committee is constituted to inspect and accept the road works. If there are no defects the road is accepted and a defects liability certificate is given. The road is now handed over to the authority concerned. The maintenance departments of these authorities are charged with the responsibility of maintaining the roads. Routine maintenance (carried out continuously throughout the year) as well as periodic (should be done after every 5 years) is carried out to maintain the roads.

Figure 2 : Road Project Implementation Process



Budgeting process

3.24 The Authorities prepare annual budget proposal and forward to the MoTI. The MoTI consolidates the budgets and forward the same to the National Treasury. The National Treasury after carrying out sector wide budget processes communicates budget ceilings to the MoTI. The authorities then revise the budget in line with the ceilings giving first priority to on-going projects. The revised budgets are then resubmitted to the National Treasury who approves it. The approval is communicated through the MoTI and printed in the estimates. Release of funds is done from National Treasury on request.

Road construction expenditure

3.25 For financial years 2008/9 to 2012/2013 the government's development expenditure amounted to Kshs 918 billion and out of this Ksh. 193 billion (21%) was spent on roads construction as shown in Table 1 below.

Table 1: Expenditure on Roads compared to the Development Expenditure 2008/09 to 2012/13

Year	Total Amounts spent on Roads(Kshs)	Total Development Vote(Kshs)	% of development vote
2008/09	21,232,255,237	125,376,899,380	17%
2009/10	27,280,166,524	153,494,861,894	18%
2010/11	35,731,134,477	165,113,396,308	22%
2011/12	41,612,101,790	211,956,549,840	20%
2012/13	67,150,939,000	262,469,791,401	26%
	193,006,597,028	918,411,498,823	21%

4.0 FINDINGS OF THE AUDIT

4.1 The audit aimed at assessing whether the systems in place for management of road projects are effective and whether they are in line with the generally accepted practices in project management. The management of road projects was selected for the audit based on the importance of the road sector in social and economic development of the country and the investment by the government in the sector.

4.2 KeRRA, KeNHA, and KURA had 84 road projects with a total contract value of Kshs 200 billion during the period 2008/09 to 2013/14. The projects were either completed or at various levels of completion. Out of the 84 projects KeRRA had 44 projects with a total contract value of Kshs 74 billion, KeNHA and KURA had 23 projects with contract value of Kshs 104 billion and 17 projects with a total contract value of Kshs 23 billion respectively.

4.3 Out of the 84 projects only 34 projects with total contract value of Kshs. 89 billion were selected for audit review as shown in Appendix 4 and Table 2. The review included evaluations of systems in place for initiating, planning, executing, monitoring & control, closure and sustainability of the projects once completed.

Table 2:No. of sampled projects

Agency	No of projects	Value in Kshs(billion)	No of projects sampled	Value of sampled projects Kshs(billion)
KeNHA	23	104	9	41
KeRRA	44	74	16	26
KURA	17	23	9	22
Total	**84**	**201**	**34**	**89**

Source: OAG analysis of road authorities' data

4.4 The findings of the audit indicates that although systems in place for management of road projects are in line with good practice in project management, there are weaknesses in the systems which undermine their effectiveness in delivering the desired results of the projects as detailed below;

Systems in Place for Project Initiation are not followed

4.5 The systems in place for initiation of road projects require that the proposed road project must be in the Road Sector Investment Plan (RSIP) or the Master Plan for Urban Roads (MPUR), for KURA projects. Feasibility study for the proposed road should then be carried out to ascertain the viability of the project. However, review of how projects are initiated in the three road authorities revealed the following;

a) Implementation of roads that are not in the RSIP.

4.6 As indicated above, for a project to be considered for implementation it must be in the RSIP or in the MPUR. The RSIP gives a guide in terms of the projects to be implemented within a given period of time and the estimated cost of the project. The two plans enable the authorities prioritize the road projects within a given period of time. However, a review of the 34 sampled projects revealed that six (6) projects were not in the RSIP as shown in Table 3.

Table 3: Sampled Roads not in RSIP

	Authority	Project Name	(Amount ksh)
1	KURA	Kinunga Kamuyu	127,229,322.00
2		South C Roads	124,693,765.00
3	KeRRA	Sigalagala Musoli	1,809,645,663.00
4		Kimilili Misikhu	498,906,667.00
5	KeNHA	chiakariga Meru	593,420,538.00
6		Siaya Ruambwa	192,338,432.00
	Totals		**3,346,234,387.00**

4.7 This means that the plan for prioritizing the projects is not always followed as expected. Constructing roads which have not been prioritized may not only lead to constraining the road budget but may also lead to investing public funds on projects which may not deliver

immediate economic benefits at the expense of projects which could have more social and economic benefits to the public.

b) Projects with no Feasibility Studies

4.8 Feasibility studies entail consideration of several factors to ascertain the viability of the project. The factors considered include economic viability, traffic census (need -assessment) and access to basic amenities (socio-economic impact- security, health). The road which gives the highest economic returns is given priority.

4.9 However, the agencies did not produce the feasibility studies for some of the sampled projects for audit review. Out of the 34 projects reviewed, only Eldoret Kapsoya road had a feasibility study. Without the detailed information in the feasibility study, it is not possible to confirm how the viability of the project was evaluated and determined or whether feasibilities studies for the projects are always carried out as required. For KURA and KeNHA feasibility study is not always necessary because their class of roads are busy with traffic.

Systems in place for project planning not working as intended

4.10 Project planning involves developing a Project Management Plan that outlines the project activities, tasks, time scheduling and the resources requirements to accomplish the project objectives. In addition quality targets and potential risk to the project should be identified at this stage of the projects. Project planning should also involve developing procurement, communication and acceptance plan for efficient implementation of the project.

4.11 In road projects, planning involves the detailed design of the project, funding proposals, tendering process and the contract award. While this is in line with the practice in project management, review of the sampled project revealed weaknesses in project design, funding and failure to plan

for the land acquisition and relocation of services at the planning stage which negatively affects the implementation of the projects as detailed below;

a) Inadequate projects engineering design

4.12 Review of the system for initiating the roads projects indicates that once the viability of a road has been confirmed, detailed planning for the project is carried out. This involves carrying out detailed survey and investigation and coming up with a detailed engineering report. Once the design report is completed it must be reviewed and accepted before it is approved for implementation of the project.

4.13 However, a review of the sampled project indicates that despite the design of the projects having been approved, there are always changes in design in the course of implementation of the project. The changes results in contract variations which increases the cost of the project and delays the completion of the projects as detailed below;

Increase in cost due to change in Design

4.14 Change in design results in contract variation which in most cases increase the cost of the projects. Out of 34 projects reviewed, 15 projects had their design changed during the implementation which increased the cost of the projects by Kshs.4 billion an increase of 11% of as summarised in Table 4.

Table 4: Increase in cost as a result of Variations

	Project	Authorit	Initial cost(Kshs)	Variation cost(Kshs)	Total cost(Kshs)	% variation
1	Loruk-Barpelo (B4)	KeNHA	5,709,912,782.82	330,967,484.78	6,040,880,267.60	5.80%
2	Chiakariga-Mitunguu.Meru		4,667,635,582.00	313,200,200.00	4,980,835,782.00	6.71%
3	Eldoret – Webuye		3,383,387,115.00	140,016,093.00	3,523,403,208.00	4.14%
4	Voi-Mwatate road		2,269,959,247.40	27,141,586.00	2,297,100,833.40	1.20%
5	Homa-Mbita rd		3,388,340,990.50	499,806,967.00	3,888,147,957.50	14.75%
6	Sotik - Cheborge - Roret - Kebenet	KeRRA	3,149,152,168.00	182,631,119.12	3,331,783,287.12	5.80%
7	Bungoma – Kimilili		750,080,299	112,271,972.00	862,352,271.00	14.97%
8	Ndumberi-Kiawaroga-Limuru		1,840,172,193.00	264,194,377.00	2,104,366,570.00	14.36%
9	Mukurweni-Gakonya & Rutune-Mahuaini phase I		1,113,073,375.52	136,501,844.00	1,249,575,219.52	12.26%
10	Bondo-Misori/ Kipasi Owimbi		2,483,543,548.00	351,385,231.51	2,834,928,779.51	14.15%
11	Keroka Nyangusu –phase 2		1,885,694,927.00	281,646,807.00	2,167,341,734.00	14.94%
12	Kibunja- molo. olenguruone		742,290,293.00	102,057,055.00	844,347,348.00	13.75%
13	Lanet-Elementaita		1,026,411,659.50	121,729,724.78	1,148,141,384.28	11.86%
14	Nairobi Eastern and Northern By pass Project	KURA	8,549,813,307.76	727,541,656.30	9,277,354,964.06	8.51%
15	Kapsoya roads in Eldoret		818,445,018.00	113,007,927.00	931,452,945.00	13.81%
	Totals		**41,777,912,506.50**	**3,704,100,044.49**	**45,482,012,551**	**11.28**

OAG analysis of road authorities' data

4.15 The changes in the design were mainly attributed to inaccuracies in the original design which had to be modified in the course of implementation of the projects resulting into contract variation for most of the projects. Most of the variations were as a result of revised quantities which were underestimated during the design stage, increase in the scope of work to cater for works that had been omitted during the design stage of the project among others as shown in Table 5.

Table 5: Reasons for change in design

1	Loruk-Barpelo	KeNHA	5,709,912,782	330,967,484	Revised quantities which were underestimated during design stage
2	Chiakariga-Mitunguu-Meru		4,667,635,582	313,200,200	Pavement layer changed from cement improved to cement improved GCS
3	Eldoret – Webuye		3,383,387,115		Changes in the design of the road
4	Voi-Mwatate road		2,269,959,247	27,141,586	Variation of chippings from class 3 to 1 and change of bill item no. 15.03
5	Bungoma – Kimilili	KeRRA	750,080,299	112,271,972	site clearance, earth works and culvert works had been omitted. Width of the carriage upgraded from 6.0m to 6.5 m
6	Mukurweni-Gakonya & Rutune-Mahuaini PHI		1,113,073,375	136,501,845	Additional drainage structures-3 culverts, Missing bill items & Surface dressing chippings were changed.
7	Kibunja- molo. olenguruone		742,290,293	844,347,348	Major quantities of work increased.
8	Lanet-Elementaita		1,026,411,659	121,729,724	Quantities for earthworks increased. The running surface also changed from surface dressing to asphalt concrete
9	Nairobi Eastern and Northern By pass	KURA	8,549,813,307	727,541,656	Runda estate underpass, Construction of fly over bridge at USIU, Slip roads on Kiambu road flyover, Slip roads on Kangundo road fly over
10	Kapsoya roads in Eldoret		818,445,018	113,007,927	Quantities changed due to underestimation during design in bills no. 4,5,8,12,14,15,16,17,20 and over estimation in bills items 1, 7 and 22

OAG analysis of authority's data

4.16 In other cases, the design were developed years back and had to be updated or modified in the course of implementation of the project. For instance, Mukurweni- Gakonya & Rutune – Mahuaini Phase 1 where initial design of the project was done in 1989 and was never updated, the project supervision team did fresh survey works & design of the alignment after the project commenced in July 2007. After the redesign & appraisal of contract document several missing bill items were discovered which necessitated the variation.

4.17 A similar case was for Eldoret- Webuye road where the design was completed in 2007 but the road was not constructed until September 2011. As a result of the delay, the road got worse which led to change in the design therefore reducing the original scope of the road from 59km to 41km, a reduction of 18km of the original intended scope of the road.

4.18 Change in design does not only increase the cost of the project but may also result in failure to complete the projects as initially intended due to exhaustion of funds. For instance Meru-Mikinduri road, 52km were to be constructed at a contract price of Kshs.1.9 billion but the funds got exhausted after 34km were done. The remaining 18km had to be retendered as phase II at a contract price of Ksh.1.7 billion. This was attributed to structural and pavement design that changed significantly along the way as a result of a trench which was water-logged. A lot of work was done to fill the water-logged area which consumed most of the funds for the project. Thus due to the change in design a 52 km road that was intended to cost Kshs. 1.9 billion ended up costing Kshs.3.6 billion an additional cost of about 90%.

4.19 Further, inaccurate design may result in loss of public funds where for instance the contract for the detailed engineering design and tender documentation for Kaptama- Kapsokwany Sirisia road was awarded to consulting engineers at a price of Kshs.33,303,600. However, following the initial appraisal of the project by the R.E it was established that the overall design was inadequate or sub-standard. New design was undertaken and therefore the amount of Kshs.33,303,600 paid to the consultant for the development of the original design was a nugatory payment as no value for money was obtained for the public funds since the design was never used for the project.

Delay in completion of projects due to change in Design

4.20 Changes in design may also lead to delays in completion of the project where for instance the change in design results in increased scope of work which requires additional time to execute. This results in extension of time which prolong project period as summarized in Table 6.

Table 6: Delay due to change in design

Project	Authority	Delay in days	Cause of delay
Loruk-Barpelo road	KeNHA	188	Change in design of bridges and structures
Voi-Mwatate	KeNHA	72	Incorrect basic survey data
Eldoret-Kapsoya roads	KURA	30	Late change in design

OAG analysis of road authorities' data

b) Funding for the Road Projects Does not Work as Intended

4.21 Once the final projects have been selected for implementation, funding proposal is made and forwarded to Treasury. Treasury gives an approved project list with the budget ceilings. From the approved budget ceilings, priority is given to the on-going projects and any pending bills, the balance is what is left to start

new projects which in most cases are planned to be completed within 2-3 years. It is therefore expected that once a project has been started it should always have a budget allocation in each year during its project duration.

4.22 However, a review of the sampled projects indicates that in most cases the funds budgeted for the projects are not adequate to pay for the certificates raised during a particular year. As results of inadequate budget allocations the three road authorities had pending bills amounting to Kshs 28.4 billion in respects of outstanding claims by the contractors as at June 2014. This included an amount of Kshs 7.4 billion outstanding against KeRRA projects, while KeNHA and KURA had Kshs.20 and Kshs 1.0 billion outstanding respectively.

4.23 The main reason attributed to inadequate budget allocation is that the funds are pegged to the budget ceilings by the National Treasury rather the programme of work approved for the project. This does not match the expected cash flows for the project. In addition out of the budget ceilings, not all funds allocated to the projects are actually released to the projects in each financial year as indicated in Table 7. Inadequate budget allocation results in delayed payment to the contractors which delays the completion of the projects and may result in increased cost of the projects due to interest on delayed payment claimed by the contractor.

Table 7: Budget versus Expenditure

	Project	Authority		Budgets in Kshs	Actual Exp. in Kshs .	Variation in Kshs
1	Kilifi-Kaloleni Rd	KeNHA	2012/13	340,000,000	285,644,665	54,355,335
			2013/14	170,000,000	170,000,000	-
2	Loruk-Barpello rd	KeNHA	2012/13	800,000,000	748,870,230	51,129,770
			2013/14	370,000,000	360,000,000	10,000,000
3	Voi-Mwatate rd	KeNHA	2012/13	701,868,695	700,155,620	1,713,075
			2013/14	460,000,000	460,000,000	-
4	Eldoret-Webuye	KeNHA	2012/13	350,000,000	349,838,601	161,399
			2013/14	1,650,000,000	227,576,437	1,422,423,563
5	Siaya Rwambwa	KeNHA	2012/13	200,000,000	145,849,479	54,150,521
			2013/14	150,000,000	150,000,000	-
6	Merille River-Marsabit	KeNHA	2012/13	52,489,500	50,000,000	2,489,500
			2013/14	701,029,084	701,029,084	-
7	Homabay-Mbita	KeNHA	2012/13	522,068,054	522,068,054	-
			2013/14	300,000,000	300,000,000	-
8	Rumuruti-Maralal	KeNHA	2012/13	200,000,000	71,849,517	128,150,483
			2013/14	235,000,000	235,000,000	-
9	Mukurweni-Gakonya- Ph	KeRRA	2012/13	158,694,857	168,249,671	(9,554,814)
			2013/14	73,185,284	72,185,283	1,000,001
10	Meru-Mikinduri	KeRRA	2012/13	469,665,900	460,626,247	9,039,653
			2013/14	155,498,897	155,498,897	-
11	Sotik-Cherboge	KeRRA	2012/13	337,047,000	300,046,999	37,000,001
			2013/14	252,904,213	143,594,299	109,309,914
12	Lanet-Elementaita	KeRRA	2012/13	181,962,059	172,046,058	9,916,001
			2013/14	110,000,000	50,000,000	60,000,000
13	Bondo-Misori	KeRRA	2012/13	834,340,492	834,340,492	-
			2013/14	300,000,000	300,000,000	-
14	Miiri-Itundu	KeRRA	2012/13	173,006,500	173,006,500	-
			2013/14	50,672,889	50,672,889	-
15	Kibunja-Molo	KeRRA	2012/13	66,000,000	61,358,446	4,641,554
			2013/14	85,000,000	48,515,104	36,484,896
16	Keroka-Nyangusu rd	KeRRA	2012/13	209,245,101	209,245,101	-
			2013/14	311,844,733	311,559,793	284,940
17	Muranga-Gitugi	KeRRA	2012/13	260,000,000	251,363,019	8,636,981
			2013/14	86,912,941	70,000,000	16,912,941
18	Giakanja-Tetu Mission	KeRRA	2012/13	464,889,749	464,407,295	482,454
			2013/14	183,957,233	183,957,233	-
19	Othaya-Konyu	KeRRA	2012/13	195,000,000	168,702,545	26,297,455
			2013/14	151,394,215	151,394,215	-
20	Bungoma-Kimilili	KeRRA	2012/13	47,634,437	47,634,437	-
			2013/14	38,000,000	37,985,624	14,376
21	Kamukuywa-Kaptama	KeRRA	2012/13	172,000,000	163,559,287	8,440,713
			2013/14	240,228,502	240,228,502	-
				12,811,540,335	10,768,059,623	2,043,480,712

OAG analysis of road authorities' data

c) Lack of Budgetary Provision for Land Compensation.

4.24 In designing the road projects, road survey is done to determine where the road will pass. In some cases the road may require more land than the already existing road reserve. It therefore becomes necessary to acquire more land to cater for the space needed for the road. After survey is done the road authorities write to the National Land Commission (NLC) for valuation and identification of the land owners. The

NLC then gazettes the land for compulsory acquisition. The roads authorities then remit the money needed for compensation to the NLC who pays off the land owners, cancels their titles and releases the land to the road authorities.

4.25 However, a review of the sampled projects indicates that prior funding arrangement for acquisition of land was not done at the planning stage of the projects. Land compensation was therefore a major challenge to the three road authorities due to non-availability of funds to compensate the beneficiaries at the appropriate time and especially the urban roads where the cost of land is very high.

4.26 For instance, an amount of Kshs.1 billion was required for land compensation for Langata road but no such funds were budgeted at the initial stage of the project. Due to the budgetary constraints, KURA could not pay the whole amount and therefore recommended priority payment on two parcels of land that were on critical location at the Bomas–Langata interchange. The two parcels of land required a compensation amounting to Kshs.267 million which KURA was able to secure from the Kenya Roads Board (KRB). The money was released to the MoTI on 3rd March 2014. The NLC received the money on 24th March 2014 but declined to pay for the two parcel of land suggesting that the payment either be made on pro-rata basis to all awardees or the money be retained until all compensation money is received.

4.27 As at the time of the audit the money was still with the NLC and therefore the two parcel of land that were critical to the completion of the road could not to be accessed. To avoid contractual claims arising from delays to access the site, KURA had no choice than to take over the completed part of the road while remaining work at the interchange is still pending. See Appendix 5.

4.28 Similar case was the Nairobi Eastern and Northern Bypass- City Cabanas Junction where an amount of Kshs. 4.7 billion was needed for land compensation which was not provided at the initial stage of the projects.

4.29 Due to insufficient budgetary allocation, KURA and KeNHA had bills amounting to Kshs.2.2 billion and Kshs.4 billion respectively in respect of outstanding claims on land compensation as shown in Table 8. Delays in land compensation have resulted in delay in completion of the projects.

Table 8: Pending bills-Land compensation

Authority		Project	Amount in Kshs
KURA			
	1	East and Northan By Pass-City Cabanas	1,496,997,816
	2	Langa'tta Road (KWS Gate - Bomas Section)	770,565,739
		Totals	**2,267,563,555**
KeNHA			
	3	Nairobi - Thika	2,517,017,176.60
	4	KCC(Sotik)Ndanai-Gorgor	122,854,179.50
	5	Homabay - Mbita	8,415,320.00
	6	Turbi - Moyale	42,210,380.00
	7	Londiani - Muhoroni	19,625,535.00
	8	Emali-Oloitoktok	27,197,487.50
	9	Ndori - Ngiya	12,915,605.00
	10	Athi River Namanga	103,174,295.00
	11	Webuye - Malaba	21,134,477.00
	12	Dundori - Olkalau - Njambini	28,283,304.00
	13	Kirigiti - Riuki - Ngewa	23,320,910.00
	14	Ena- Ishiara -Chiakariga	19,872,116.00
	15	Merille River -Marsabit	47,200,000.00
	16	Kisumu - Kisian - Nyamasaria	105,270,340.00
	17	Lanet Njoro	23,668,820.00
	18	Nairobi Southern Bypass Project	516,880,618.00
	19	Thua Bridge & approaches	48,987,629.00
	20	Mwatate - Taveta	220,898,318.00
	21	Kangema-Gacharage	124,741,011.00
		Totals	**4,033,667,521.60**

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d) Delays in Land Acquisition Process

4.30 Land acquisition is a lengthy process that involves the National Land Commission. It is therefore important that planning for land acquisition should be done at the early stage of the project to allow smooth implementation of the project. However, a review of project files showed that in some cases land acquisition process was started after the project had commenced which in turn delays the completion of the project.

4.31 An example is Nairobi Eastern and Northern by pass where the projects started on 6th June 2009 but the land to be acquired was published in gazette notice in March 2010 and December 2010 for other sections of the bypass and City Cabanas junction respectively. As at end of financial 2013/14 compensation process had not been completed.

4.32 Another example is the Langata road project which was to start on 9 February, 2012 and was expected to be complete by 9 May 2013. The land acquisition plans were submitted to the then Ministry of Lands on 27 February, 2012 but as at 8 April 2013, the land acquisition process, had not been completed, a month to the initial scheduled completion date of the project. It was not until 8 August 2013 that the affected parcels of land was advertised in the Kenya gazette and the valuation communicated to KURA on 13 November, 2013.

4.33 However, due to the budgetary constraints KURA could not pay the whole amount needed for land compensation which further delayed the land acquisition process. Thus despite the project completion date having been extended twice to 7th June 2014 due to lack of access to the site, the issue of land compensation had not been resolved as at 8th May 2014 just a month to project revised completion date of 7th June 2014, a delay of more than 2 years since the commencement of the project.

4.34 Lack of budgetary provision for land compensation and delays in land acquisition and how they affect the implementation of the projects are as summarized in the case study below;

NAIROBI EASTERN AND NORTHERN BY PASS ROAD PROJECT

The contract for construction of the road was signed on 30/01/2008 with China Roads and Bridges Co. at a contractor sum of Ksh.8, 549,813,307, later revised to 9,277,354,964.06.The project commenced on 06/06/2009 and was to take 30 months, thus was to be completed by 26/10/2011. Land compensation issues were not addressed at the design stage; it was being dealt with while work was on going. This affected the implementation of the project as detailed below.

The land to be acquired for the project was identified by the project surveyors and the acquisition plan submitted to the Ministry of Land for inspection and valuation as provided by the Land Acquisition Act on 30th April 2009 but the process did not start until December 2010 a delay of about 2 years. Later, the ministry completed the process and came up with a valuation of Kshs.1, 930,549,335 for compensation of land and property owners excluding the Interchange. In December 2010 the government issued gazette notices for intention to acquire land for the proposed Nairobi Urban Toll Road and Bypasses. This notice raised outcry from the affected persons. On 26/01/2011 the government convened a meeting between the relevant government ministries and stakeholders involved or affected by the intended acquisition. The meeting constituted a working group called "Government –Private Sector Working Group on land Acquisition for the Nairobi Toll Road and Bypasses". Its mandate was to formulate recommendations for achieving sufficient space for proposed road infrastructure requirements taking into consideration concerns of stakeholders affected.

The working group completed its work in March 2011 and recommended alterations in layout of City Cabanas Junction to a four way interchange with four slip roads. The design was approved by the government on November 2011. This modified layout required extra land which was valued by the ministry of land at Kshs. 4,722,805,926 and therefore amount needed for land compensation raised to Kshs.6, 653,355,261. Due to the court injunctions and the huge amount of compensation, possession of site could not be given and work had to be suspended. Most of the works on the other sections of the road were substantially completed by 30th march 2012.

The modified design of the City Cabanas Interchange was estimated at Kshs. 2,167,664,288 which was more than the allowable 15% variation of the contract sum. It was therefore retendered and the contract awarded on 18/03/2013 at a contract price of Ksh. 2,514,490,574.43.Thus the total cost of the project; construction and land compensation amounted to Ksh. 18,445,200,799 as shown below.

Component	Bypass	Interchange	Total
Construction	9,277,354,964.06	2,514,490,574.43	**11,791,845,538.49**
Land compensation	1,930,549,335	4,722,805,926.00	**6,653,355,261.00**
Total	11,207,904,299.06	7,237,296,500.43	**18,445,200,799.49**

The project which was to be completed by 26/10/2011 had not been completed by 18/03/2013, almost 2 years later due to delays in land acquisition process, change in design and lack of budgetary provision needed to pay of Kshs. 6,653,355,261. As at 30th June 2014, a balance of Kshs 1.4 billion was still outstanding in respect of land compensation against the project.

Case Study: Nairobi Eastern and Northern by Pass-Land Acquisition

e) Delays in Relocation of Utility Services

4.35 The road corridor is shared space to accommodate, facilities for passage of road traffic as well as the passage of public services and utilities. Poor siting of services within the road corridor has resulted in the need for relocation whenever a road is to be improved. The contract provision indicates that it is the responsibility of the employer to ensure that the contractor has access to the site in good time failure to which the contractor is entitled to claim extension of time due to delay in accessing the project site.

4.36 However, review of the sampled projects indicates delays in relocation of utility services due to failure to remove the structures by the service providers and sometimes delays in payment for the relocation by the authorities. An example is Keroka- Nyangusi phase II road where the construction started in December 2007 and communication from KeRRA to Kenya Power and Lighting Company to relocate electric poles had been done several times. However, as late as March 2011 communication was still being done for relocation of the same poles. This was far into project completion period.

4.37 A similar case was for the rehabilitation and upgrading of First Avenue Eastleigh and General Waruinge Road Phase I, where despite the Kenya Power and Lighting company having been paid an amount of Kshs.8,745,565 on 18 July 2013, for relocation of power lines, various posts and transformers had not been relocated by 29 October 2013, a delay of about 3 months. The delay occasioned slow progress and hindrance to undertaking construction works at various section of the road where the power utilities were situated. Delays in relocation of services deny the contractor access to the site thus slowing down the works which results into delays in completion of the project.

4.38 Further, the relocation of services always has a significant cost implication in addition to occasioning delays in the projects. Section 27 (2) of the Roads Act, 2007 states that "where an infrastructural utility is located within a road serve, the provider of such utility shall upon written request relocate such infrastructure at no cost to the road authority". However, a review of the sampled projects indicates that in most cases, the service providers always indicate that they lack sufficient funds to undertake the relocation and therefore the road authorities have had to incur heavy expenses for relocation to pave way for road construction contrary to the provision of the Roads Act, 2007. Table 9 shows cost incurred in relocation of utility services by some of the projects reviewed amounting to Ksh.136 million.

Table 9: Cost incurred by the authorities for relocations of utility services

	Project Name	Authority	Utility service Relocated	Amount involved in Ksh.
1	Chiakariga-Mitunguu-Meru	KeNHA	electricity	7,787,729
			Water	31,891,970
2	Eldoret - Webuye		RVR crossing	1,036,524
3	Mukurweni-Gakonya & Rutune-Mahuaini phase I	KeRRA	Water	8,998,220
			electricity	2,037,714
4	Ndumberi-Kiawaroga-Limuru		electricity	3,645,095
5	1st Avenue Eastleigh-General Waruinge	KURA	electricity	8,745,565
6	Langata Rd(KWS gate-Bomas Junction)		Water	21,077,580
			electricity	15,160,845
7	Nairobi Eastern and Northern By Pass		electricity	6,998,801
			electricity	640,892
8	Upper Hill Road		Telkom	12,018,791
			electricity	10,693,147
			ATPU-CCTV	342,696.20
9	Western Ring roads		Water	5,752,460
			Total	**136,828,029**

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Systems for Execution of Road Projects are not Working as Intended

4.39 Projects execution entails carrying out the activities of the projects in line with the PMP. In road projects this is the phase where the road works are carried out as stated in the contract. The R.E should ensure that the project is implemented as per the design and that it runs as scheduled. However, during the audit the following was observed:

a) Delay in project implementation

4.40 The contract agreement defines the contract period and the specific date by which the project should be completed. Most sampled projects had contract duration ranging between 24 and 36 months with exception of a few which had project duration of 18 and 12 months. To ensure that the projects are completed within the contract period, the contractors are required to prepare a program of activities that show the tasks, scheduled time for completion of each task and periodic cash flow projections. The program is approved by the Resident Engineer before embarking on the project.

4.41 A review of the sampled projects indicates that though all the projects had work program approved by the R.E most of them were behind schedules or took more than the scheduled time to be completed. Out of the 34 projects examined, 17 had their period extended, in some cases the extension was over 100% of the initial planned completion period. 9 of the 17 project were extended by over 50% of the original contract period, 8 by below 50% of the completion period as shown in Table 10.

Table 10: Project revised period

	Project Name	Authority	Initial compl. date	Revised compl. date	Initial Compl. period in(Months)	Revised contract period(months)	Diff. in Months	% revision
1	Lanet-Elementaita	KeRRA	02-02-12	22-03-14	18	42	24	133%
2	Langata rd- KWS Gate-Bomas Jn	KURA	09-05-13	07-06-14	15	29	14	93%
3	Ndumberi-Kiawaroga-Limuru	KeRRA	01-04-10	20-01-12	24	42	18	75%
4	1st Av Eastleigh & Gen Waruinge rd	KURA	25-08-13	29-07-14	15	26	11	73%
5	Western Ring roads	KURA	15-09-12	13-10-13	16	27	11	71%
6	Keroka -Nyangusu Phase 2	KeRRA	24-03-08	24-03-12	30	48	18	60%
7	Homabay-Mbita road	KeNHA	03-08-12	13-01-14	30	47	17	57%
8	Eldoret - Webuye	KeNHA	31-08-12	31/06/13	18	28	10	56%
9	Loruk-Barpelo (B4) Contract No.	KeNHA	16-02-14	29-12-14	30	41	11	35%
10	Eldoret Kapsoya rds.	KURA	22-05-14	18-11-14	24	30	6	25%
11	Mukurweni-Gakonya & Rutune-	KeRRA	03-07-09	06-12-09	24	30	6	25%
12	Nairobi Estern and Nrthrn By pass	KURA	26-10-11	30-03-12	30	36	6	20%
13	Voi-Mwatate	KeNHA	22-03-13	18-07-14	24	40	16	66%
14	Kinunga –Kamuyu rd	KURA	17-05-14	19-10-14	12	14	2	17%
15	Bondo-Misori/ Kipasi Owimbi -	KeRRA	25-12-12	25-04-13	30	34	4	13%
16	Upper Hill Roads	KURA	31-07-14	27-08-14	24	27	3	13%
17	Meru-Mikinduri-Maua .	KeRRA	06-07-13	19-09-13	24	26	2	8%

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4.42 Despite the extension of time, some of the projects were still behind schedule. Among such projects was Lanet- Elementaita Road which despite delay of 24 months, an increase of 133% from the initial project period of 18 months had not been completed by August 2014. It was therefore behind schedule by about 5 months from the revised completion date of 22nd March 2014 and 2 years behind schedule from the initial expected completion time of 2nd February 2012. Much of these delays were however attributed to default by the contractor who had abandoned the project. Other cases of projects behind schedule are as indicated in Table 11.

Table 11:Projects that were behind schedule even after extension of time

	Project Name	Authority	Initial compl. date	Revised compl. date	Initial Compl. period in(Months)	Revised contract period(months)	Diff. in Months	Status as at Aug. 2014
1	Lanet-Elementaita	KeRRA	02-02-12	22-03-14	18	42	133%	93%
2	Langata rd- KWS Gate-Bomas Jn	KURA	09-05-13	07-06-14	15	29	93%	90%
3	1st Av Eastleigh & Gen Waruinge rd	KURA	25-08-13	29-07-14	15	26	73%	60%
4	Homabay-Mbita road	KeNHA	03-08-12	13-01-14	30	47	57%	77%
5	Eldoret - Webuye	KeNHA	31-08-12	31/06/13	18	28	56%	99%
6	Voi-Mwatate	KeNHA	22-03-13	18-07-14	24	40	66%	72%
7	Upper Hill Roads	KURA	31-07-14	27-08-14	24	27	13%	49%
8	Meru-Mikinduri-Maua .	KeRRA	06-07-13	19-09-13	24	26	8%	55%

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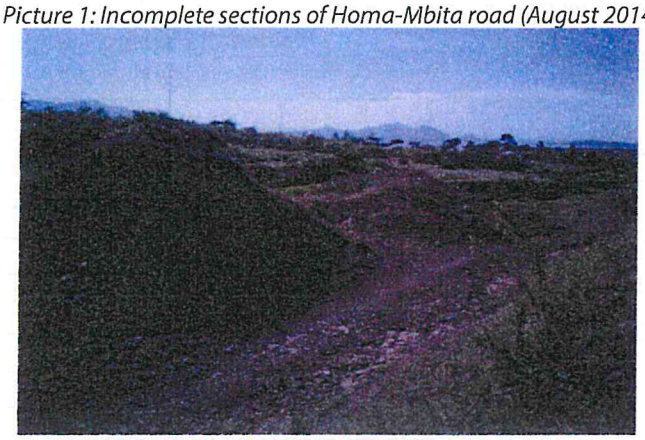
4.43 In the case of Homabay-Mbita road project which was only 77% complete by July 2014 despite extension by 17 months from the initial planned completion period of 30 months. The project was therefore almost 2 years behind schedule from the initial expected completion time of 3rd August 2012.The delays were attributed to slow progress of work as a result of delayed payments, delays in relocation of services as well as adverse weather conditions.

Picture 1: Incomplete sections of Homa-Mbita road (August 2014)



4.44 A similar example is Sigalagala- Musoli – Sabatia- Butere road for construction of 34Km road which commenced on 6th June 2011 and was expected to take 24 months to be completed by 6th June 2013. However, the completion period was extended to 9th July 2013, the project was only 34.4% complete as at June 2014, about 1 year after scheduled revised completion time and about 2 years from the initial expected completion date.

4.45 Although the delays in completion of works were mainly attributed to increase in scope, relocation of utilities, land acquisitions, delay in mobilization of equipment and inability of some of the contractor to deliver on the projects. The major factor that contributed to delays in completion of most of the projects was delays in payment to the contractors which resulted in slow progress of work by most of the contractor. Table 12 shows some of roads that experienced delays in payment of the contractor.

Table 12: Delay in payment of Interim Payment Certificates

	Project Name	Road Authority	Cert. No.	Cert. Amount(Kshs)	Date Signed by RE	Due date	Date paid	Delays in days	Delay in months
1	Meru - Mikinduri	KeRRA	13	2,416,532	26/07/2013	25/10/2013	01/08/2014	293	10
2	Meru - Mikinduri	KeRRA	14	31,593,948	26/07/2013	25/10/2013	01/08/2014	293	10
3	Meru - Mikinduri	KeRRA	15	45,524,966	26/07/2013	25/10/2013	01/08/2014	293	10
4	Meru - Mikinduri	KeRRA	16	42,933,964	17/09/2013	17/12/2013	01/08/2014	293	10
5	Ndumberi - kiawaroga	KeRRA	11B	15,362,584	4/9/2009	4/12/2009	9/9/2010	279	9
6	Ndumberi - kiawaroga	KeRRA	10B	27,966,543	27/07/09	26/10/2009	27/05/10	213	7
7	Homabay mbita	KeNHA	32	14,384,756.	6/12/2012	16/04/2013	14/10/2013	181	6
8	Ndumberi - kiawaroga	KeRRA	15B	10,791,879	5/5/2010	4/8/2010	27/12/10	176	6
9	Ndumberi - kiawaroga	KeRRA	11A	53,073,463	4/9/2009	4/12/2009	27/05/10	174	6
10	Ndumberi - kiawaroga	KeRRA	8B	55,131,600	7/5/2009	6/8/2009	7/1/2010	154	5
11	Ndumberi - kiawaroga	KeRRA	12	20,452,870	14/01/2010	15/04/2010	9/9/2010	147	5
12	Homabay mbita	KeNHA	33	38,002,457	8/1/2013	21/05/2013	14/10/2013	146	5
13	Ndumberi - kiawaroga	KeRRA	13	47,044,004	1/2/2010	3/5/2010	9/9/2010	128	4
14	Homabay mbita	KeNHA	34	104,027,522.	12/2/2013	15/06/2013	14/10/2013	121	4
15	Ndumberi - kiawaroga	KeRRA	9	66,889,256	9/6/2009	8/9/2009	12/1/2010	116	4
16	Ndumberi - kiawaroga	KeRRA	14	75,700,448	17/02/2010	19/05/2010	9/9/2010	113	4
17	Homabay mbita	KeNHA	35	56,829,730.10	1/3/2013	6/7/2013	14/10/2013	100	3
18	Ndumberi - kiawaroga	KeRRA	17	65,408,160	9/7/2010	8/10/2010	27/12/10	80	3

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4.46 The reasons for delays in payment to the contractors is attributed to inadequate budget allocation for most of the projects where the amount allocated for the projects does not match the certificate issued during the year due to limited budget ceilings by the National Treasury. Delays in payment to the contractor results in delays in completion of the projects due to the extension of time granted to the contractor. Under the provision of the contract, the contractor is allowed to reduce progress of work and claim extension of time due to default in payment by the employer. The effects of these delays have been far reaching on the project, in form of interest claims on delayed payments by the contractors and additional costs increase in supervision costs due to extension of supervision contracts to match the extended contract period as well other time related costs as detailed below--

b) Increase in cost of the project due to Interest on delayed Payment.

4.47 Contract agreements provide that an Interim Payment Certificate (IPC) should be paid within a period of 90 days, after it has been signed by the Engineer. If the certificate is not paid within this period the contractor gives notice of delayed payment in 28 days .Thereafter if the IPC is not settled, the outstanding amount starts accruing interest until it is settled.

4.48 Review of the projects' files revealed that several projects had accrued interest due to delay in payments. Out of 34 projects sampled and reviewed 9 had accrued interest on delayed payments. Interest claim increase the project cost and further strains the project cash flow. Table 13 shows accrued interest for the 9 projects amounting to Kshs 319 million.

Table 13: Interest on delayed payments

	Project	Authority	Interest on delayed payment
1	Chikariga-Mitunguu	KeNHA	30,255,133
2	Voi-Mwatate Road		125,009,487
3	Loruk-Barpelo rd		36,185,601
4	Kaloleni-Kilifi		2,594,567
5	Ndumberi-Kiawaroga-Limuru	KeRRA	36,558,545
6	Keroka-Nyangusu phase 2		20,336,875
7	Bondo-Misori, Kipasi-Owimbi		37,236,201
8	Kaptama-Kapsokwony-Sirisia		24,308,395
9	Langata Road	KURA	7,212,514
			319,697,319

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c) Increase in cost of the project due to supervision contracts and variation of prices

4.49 Most of the road projects are supervised by hired consultant and therefore whenever a contract period is extended the supervision contract is also extended to cover the duration of the project. This further increases the overall cost of the projects. Examples are shown below in Table 14.

Table 14: Increase in Consultancy costs

Project	Authority	Addendum	Extension in days	Intial contract amount in Kshs	Variation in Kshs.	Revised Contract amount in Kshs.
Voi-Mwatate	KeNHA	No.1	28	104,531,403	2,806,000	131,363,663
		No.2	78		24,177,260	
			106		26,832,260	
Homabay - Mbita	KeNHA	No. 1	149	129,545,907	17,310,000	183,482,907
		No.2	180		25,636,000	
		No.3	82		10,991,000	
			411		53,937,000	

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4.50 Apart from supervision contracts and interest on delayed payment, delays in completion

of the project may also lead to failure to complete the project as originally intended due to time related costs. A case in point is Kaptama - Kapsokwony-Sirisia which was a 67km, but only 31km was done as the funds got exhausted. This was mainly attributed to the high cost variation of prices (VOP) which consumed most funds of the project than initially planned for. Thus, out of the contract price of kshs.2.6 billion for 67km road only 31km or 46% was done at a cost of Kshs.2,5 billion or 95% of the contract price due to delay in completing the project.

d) Systems in Place for Quality Control Working as Intended.

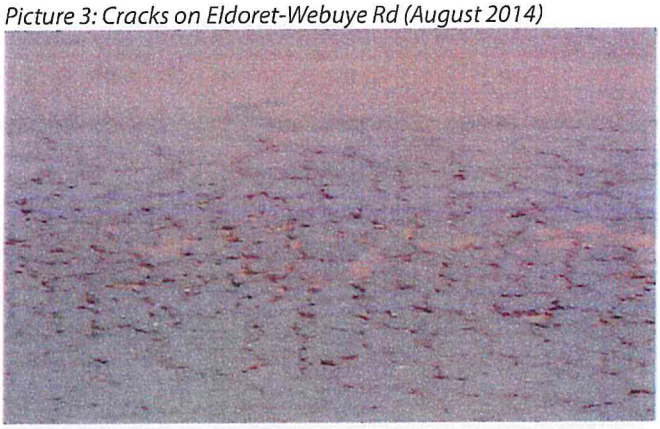
4.51 The quality control systems for road projects are guided by the general condition of the contract (FIDIC), standards and special specification condition. The guidelines provide guidance on acceptable quality standards as well as procedures for testing compliance with the set standards. The quality control measures include, testing of the material, inspections and surveys of works done.

4.52 The R.E has overall responsibility of ensuring that quality standards are met and work is carried out as per the specifications. He has a team of inspectors, surveyors and materials engineers who ensure that quality is adhered to. The inspectors supervise the work on site on day to day basis based on instructions given by the R.E. and gives daily reports. The surveyors carry out measurement of the levels to ascertain whether the specified levels are achieved. They also provided setting out data for the road alignment structure like culverts and bridges. The materials engineer carries out quality control through laboratory testing.

Picture 2: Material testing at Chiakariga- Mitunguu-Meru Rd (August 2014)

4.53 Field visits to sampled projects indicate that in most cases the quality control systems are followed and there were just a few cases where quality issues were noted. This includes Othaya-Konya road project that had developed potholes that needed to be repaired. The road is however under defects liability period and the contractor is responsible for the repairs. Others included Ndumberi Kiawaroga-Nduata –Limuru and Eldoret Webuye Road.

Picture 3: Cracks on Eldoret-Webuye Rd (August 2014)



Monitoring and Control is carried out as planned

4.54 Monitoring is done on monthly basis through site meetings held to assess the progress of work. Minutes of the meeting are documented and issues raised are followed up in subsequent meetings. Monthly progress reports are prepared by the R.E's team. The reports shows among others, physical status of the project, financial status, contractor's staff and machinery on site and minutes of

the meeting held. In addition the MoTI carries technical audits on these roads.

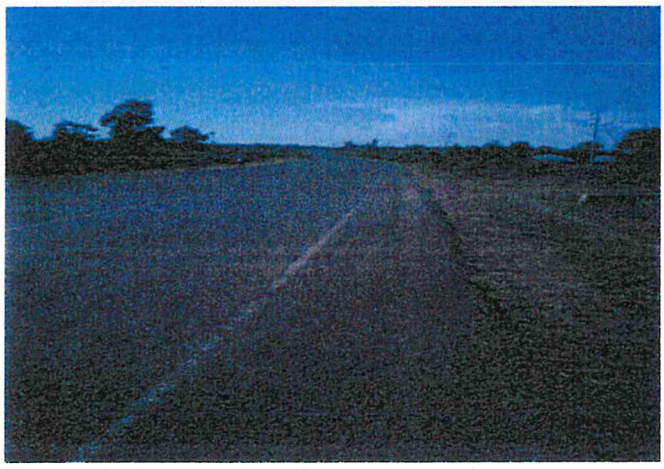
Systems in place for closure and continuity of projects.

a) Project Closure

4.55 Project closure is the last phase in project management and should be done formally. Closure involves handing over the project deliverables to the beneficiaries and terminating project contracts. Handing over of road projects is in two phases; substantial handover which is done after partial completion of the project and final handover which is done after defect liability period has elapsed. During the defect liability period, the contractor is liable for any defects that may arise and is also liable to rectify any works that were not satisfactory at the time of substantial handover.

4.56 Out of the 34 project reviewed, 5 roads were complete, 5 were under defects liability period and the remaining 24 were at various stages of completion. The completed projects had been issued with final certificate of completion while those under defects liability period had substantial completion certificate.

Picture 4: Completed road- Bondo-Misori road (August 2014)



4.57 Some of the roads under defects liability period had defects or some small works which needed to be rectified or completed. An example is Othaya – Konyu which had potholes at Gatheteru junction and near Othaya Boy's Secondary School.

Picture 5: Potholes-Othaya-Konyu Road (August 2014)

b) Continuity or Sustainably of the Projects

4.58 Continuity relates to the plans put in place for sustainability of the project. Road projects, maintenance is important because it increases the life span of the road. For the new roads, the maintenance department takes over the completed projects and the handing over certificate issued.

4.59 Throughout the project life, the maintenance department carries out routine and periodic maintenance. Routine maintenance is carried out continuously throughout the year and includes road markings, signage, bush clearing, guard rails, repairing potholes, and drainage. Periodic maintenance involves major works and is done after 5 to 6 years. It includes surface dressing and putting another layer on top of the existing one. Periodic maintenance should be done at least twice within 10 years. After 15 years the road needs to be reconstructed.

4.60 However, the challenge facing road maintenance in the three agencies is that the demand for road maintenance is very high and the funding does not match the demand. For example KURA is charged with responsibility of road maintenance in the municipalities with a road network of about 12,000Kms. However, money received for maintenance is only Ksh 2 billion which can only cover about 3000Kms (25% of its mandated road network).

Therefore, it might take very long before a road is included for maintenance especially new roads, considering that among the factors considered in prioritizing a road for maintenance is the condition of the road.

4.61 According to KeNHA, although periodic maintenance should be done after 5 years, there has been backlog for most of the roads where some roads have taken more than 10 years without periodic maintenance. e.g Westlands-Limuru road which was constructed in 1991 but no periodic maintenance has been done, more than 24 years later.

4.62 To address this problem performance based maintenance contracts is being piloted for some of the new road projects. This entails engaging a contractor to be in charge of constant maintenance of the particular road during the contract period. The contractor is under regular supervision by the authorities. For example under KURA, Eastern and Northern By Pass, Western ring roads, have been put under performance contracts while five (5) roads under KeNHA are under performance contracts. The five roads are Thika Road, Isiolo-Merille, Garissa- Madogo, Lanet- Njoro turn-off and Kisii- Kilgoris. Performance contracting is aimed at ensuring that any defects on the road are attended to immediately.

5.0 CONCLUSION

5.1 The audit concludes that although the systems in place for management of the road projects are in line with the generally accepted practices in project management, they have not been working as intended. Therefore they have not been effective in ensuring that the implementation of the projects is carried out as planned. This has led to costs overruns and delays in implementation of the projects which may lead to delayed social and economic benefits to the public.

5.2 The major factors that undermine the effectiveness of the systems can largely be attributed to lack of adequate planning. This is evident in the changes in design and scope during the implementation of the project and failure to provide adequate budgetary provision for land acquisition at the initial stage of the project to ensure that land compensation is done at the appropriate time.

5.3 Systems in place for the execution of the projects have not been working as intended resulting to frequent extension of contract period that also contribute to increased costs of the projects. Extension of time is mainly attributed to change in design, delays in land acquisition, delay in relocation of utility services and delays in payment to the contractor. Change in design results to increased scope of work that require more time to execute as well as increased costs. Delay in payments to contractor results to increase in projects costs due to interest charged on delayed payment and supervision costs. In other instances, delays in completion of the project can be attributed to inability by the contractor to execute the project as expected.

5.4 Delays in acquisition of land are attributed to the slow process of land acquisition and lack of adequate budgetary provision to pay land compensation. Delays in relocation of services are attributed to failure to start the process in good time and delays by the service providers to remove utility infrastructure. This has led to prolonged project completion period.

5.5 Monitoring of the projects is done as planned however there are delays in resolving issues that arise during the defects liability period. The high demand for maintenance and the limited funds allocation poses a great challenge to sustainability of the projects. The roads take long before routine and periodic maintenance is carried out.

6.0 RECOMMENDATIONS

6.1 To address the weakness in the systems in the management of road projects and to ensure efficient implementation of the projects in future, the Auditor- General recommends measures that need to be taken by the Ministry of Transport and Infrastructure, the National Treasury and the roads authorities as follows;

- To address the problems with the designs, the Kenya Rural Roads Authority, Kenya National Highways Authority and Kenya Urban Roads Authority (KURA need to develop a mechanism that guarantee adequate design work and estimate of the projects submitted by the consultants to ensure they are based on the correct data and reflect the reality on the ground in order to avoid unnecessary alterations during the implementation of the project.

- To address the problem of delays in land acquisitions, the road authorities should ensure that the cost of land acquisition is factored into the cost of the project in the early stages, in order to make an informed decision on total funding requirement before the necessary approval is sought from the National Treasury. This will address the issue of delays in land compensations

- To address the issue of delayed payment to the contractors, the National Treasury should ensure that once an approval has been granted for implementation of the project, adequate budget provision is provided throughout the project life. It should also ensure that funds are released to the authorities at the appropriate time as per the approved budget. The National Treasury should also consider getting into Public-Private Sector partnership to ease the financial burden on implementation of road projects.

- To address delays in land acquisition process, the road authorities should start the process of land acquisition long before the implementation of the project while the National Land Commission should ensure that there are no undue delays in the process of land acquisition. There is also need for good collaboration and coordination between the roads authorities and the ministry of land in order to address any challenges that may delay the land acquisition process.

- On delays in relocation of utilities services, it is important that the road authorities ensure that relocation of services work is carried out before the start of the project or at the initial stage of the project to ensure that there is no interruption on the road construction works.

- Further, to ease the burden of costs incurred in relocating the utility services by the road authorities, the service providers should be compelled to pay for any service relocation cost incurred by the authority in line with the provision of Road Acts, 2007.

- As a long term measure of dealing with relocation of services in future, it is recommended that all new design and installation by service providers should seek approval from the road authorities in order to harmonize the planning for the roads and utilities services in the road reserves.

APPENDICES

Appendix 1: Sources of Assessment Criteria

- Project Management guide book
- Project management Body of knowledge(PMBK)
- 21 ways to excel in project management
- Contract documents
- General conditions of contract-FIDIC
- Kenya Roads Act 2007
- Roads Sector Investment Plan
- Master Plan for Urban Transport in Nairobi and Metropolitan Area

Appendix 2: List of People Interviewed

Designation	Agency	Purpose of the Interview
Engineer in charge of Design and Construction	KeNHA	To obtain understanding of the budgetary process for the projects and the flow of funds for the implementation of the projects
Ag GM maintenance	KeNHA	To get an understanding of how new roads are taken over for maintenance once completed and the maintenance process
Manager(C-W) Design and construction	KeRRA	To obtain understanding of the budgetary process for the road projects and systems in place for maintenance of the completed road projects.
Engineer; Design and Construction	KeRRA	To have a clear understanding on how projects are initiated planned, executed, monitored and supervised until handing over and maintenance.
Planning Department	KeRRA	To get an understanding of how road projects are initiated.
Engineer; Design & construction Manager maintenance General Manager Finance	KURA	To obtain understanding on the budgetary process and maintenance of the roads.
Resident Engineers- for the various projects Inspected	All the 3 authorities	To understand the execution process and verify if the process has been implemented as planned.

Appendix 3: List of Roads Projects Visited by the Team

	Project	Contract	Nature	Contract sum-Ksh.	Status as at August 2014	Observation
KeRRA						
1	Othaya Konyu gachami-Thuti	Elite Movers	Construction to Bitumen	**967,801,280**	**Defect liability**	The road is in use.However it was observed that Section of Othaya-Konyu-Kairuthi • Pot holes at Gatheteru junction • and near Othaya Boys Gacami-Thuti • No markings • In Some sections concrete was used and had cracks • No road signs • Grass grown on the road • No traffic Othaya-Konyu-Karuthi • No road markings • No road signs
2	Giakanja -Tetu Mission Road(D4340	Construction to Bitumen Standards	Intex Construction Ltd	2,453,093,783	On going	The road was to be completed by January 2014.But still some sections are yet to be done. Other outstanding issues • Delay in payment of the contractor-IPCs 19-27 only paid on 16th July 2014 • Land to be acquired is not yet gazetted and not paid to date
3	Miiri – Itundu (D452 / E604 / E599 / E600) Roads	Construction to Bitumen Standards	Lee Construction Ltd	1,100,784,384	Defect liability	All sections of road had done up to bitumen level, however we observed the following. • Road signs not erected in some sections and others vandalized • Road marking not done in some sections • Steep slopes at Gatundu km 15+300- erosion • Km 18+840-19+120 access culverts done • Some sections of the road not used i.e. no traffic
4	Meru – Mikinduri – Maua (D482) Road (Phase II)	Construction to Bitumen Standards	Murji Devraj & Brothers	1,721,871,230	On going	65%, 7.5km of the 18km is done .The complete part there is traffic flow. •Falling of slopes that delayed work-75 days extension was given •Delay in payments –contractor stopped work September 2013 •The contractor is 9 months behind schedule. -The quality of the work is good.
5	Bondo Misori/ Kipasi Owimbi Road)	Construction to Bitumen Standards	CHINA WU YI	2,834,929,215	Defect liability	The project was completed on time. However, the implementation was affected by: • Delayed payment • Delay in relocation of electricity

	Project	Contract	Nature	Contract sum-Ksh.	Status as at August 2014	Observation
6	Kimilili-Misiku	construction to bitumen	Bridgestone	498,906,677	On going	The project is 89.9% complete as on June 2014 but moving at a very slow pace. Work carried out as per scope. Other observations include; -Very slow progress of work by the contractor. -The contractor has no qualified Site Agent
7	Construction of Lanet-Elementaita	Construction to Bitumen Standards	Westbuild General Contractors Ltd	1,026,411,659	In progress	The road is 93% complete as on December 2013. The only work remaining is surface dressing. The contractor was not at site
8	Sigalagala -Musoli-Sabatia-Butere Road	Construction to Bitumen Standards	Associated Construction Ltd	1,809,645,663	In progress	The road was to be completed by June 2013. It's behind schedule. The challenges observed included •The contractor is facing serious financial challenges •Land acquisition challenges. •Delays in relocation of utility services (water and electricity) •Delayed payments by the government both to the contractor and to the consultant •Poor weather- the area is experiencing high amount rainfall and this is harboring project implementation •The contractor is experiencing high staff turnover due to financial challenges.
KeNHA						
	Homa Bay-Mbita (C19)	Construction	Put sarajevo	3,888,340,990.	In progress	The project is 77% complete as of July 2014 It is behind schedule by almost 2 years as it was meant to end in 2012. Some sections are being used and there are diversions. The challenges include; Delayed payment, extension of time and advance conditions i.e rain
	Eldoret – Webuye (A104)	Reconstruction	M/s ICG maltauro/H young Jv	3,254,300,133	In progress	The road 99% complete Material testing is done. Some sections of the road developed cracks and depressions. The contractor was not at site.
	Voi-Mwatate (A23)	Construction	Kundan Singh	2,269,959,247	In progress	**Voi Mwatate Road** It is 92% complete and is in usable state; however the following works have not been done: ◦ Surface dressing ◦ Signage ◦ Road marking ◦ Road Furniture **Mwatate- Wundayi Road** The road had just been started when funds run out in September 2013. It is about 15% complete. **Taita Taveta University College- 2 km** The road has not been done.

	Project	Contract	Nature	Contract sum-Ksh.	Status as at August 2014	Observation
	Loruk – Barpelo (B4)	Hayer Bishani	Construction	6,040,880,207	In progress	The project is 47% complete as at August 2014. The expected date of completion Dec 2014. The road is behind schedule. No quality issue were observed. However, there are challenges regarding water, insecurity, delay payment and some cost not factored in at design stage.
	Meru Mitunguri	Iintex construction Ltd	construction	4,677,635,582	In progress	The contractor was on site. No quality issue was seen however from the interview and observation. - project had cash flow problems -Lengthy procedures for land acquisition -Delayed relocation of services and obstruction
	Siaya Rwambwa	Covec	construction	1,908,494,786	On going	-Delay in payment -slow progress of work.
KURA						
	Kinunga-Kiamuyu Road - Nyeri	Elite Earthmovers Ltd	Construction	127,229,320	In progress	Contractor delayed in mobilizing •Contractor on reduced work due to delay in payment •Adverse weather •Electricity poles and water pipes not relocated •Traffic diversion a problem because the road reserve is in populated
	Kapsoya Roads -Eldoret		Upgrade to bitumen	887,104,562	In progress	The project is 80% complete and it is behind schedule. The challenges include - Delayed payments, IPC 15, 16, 17,18,19,20 and 21 (219,601,005.95) has not being paid to date. - Rains - Relocation of water, sewer and electrical services to a long time.

Appendix 4: Schedule of Sampled Projects

No	Project Name	Brief description (Scope of Works)	Total Cost Contract Sum	Total Amount Spent	% of Progress
KeRRA					
	Bondo Misori/Kipasi Owimbi Road	Construction to Bitumen Standards	2,834,929,215	2,274,380,050.81	100%
	Keroka – Nyangusu(Phase II)	Construction to Bitumen Standards	2,167,341,735	2,081,530,660.87	100%
	Bungoma – Bokoli – Kimilili Road	Upgrading to Bitumen Standards	812,228,860	1,024,501,770.79	100%
	Mukurueini – Gakonya-Mahuani	Construction to Bitumen Standards	1,280,034,381	1,635,276,875.22	100%
	Miiri – Itundu Roads	Construction to Bitumen Standards	1,100,784,384	1,146,414,819.35	100%
	Othaya – Konyu	Construction to Bitumen Standards	967,801,280	1,115,604,257.80	100%
	Ndumberi – Kiawaroga – Limuru	Construction to Bitumen Standards	2,104,366,571	2,032,402,564.25	100%
	Kamukunywa - Kaptama – Kapsokwony – Sirisia	Construction to Bitumen Standards	2,699,623,837	2,391,528,617.45	95%
	Construction of Lanet-Elementaita	Construction to Bitumen Standards	1,026,411,659	864,072,384.	93%
	Kibunja-Molo-Olengurueni	Reconstrucction	742,290,293	416,209,749	67%
	Giakanja -Tetu Mission Road	Construction to Bitumen Standards	2,453,093,783	1,073,359,405.82	55%
	Sotik - Cheborge - Roret - Kebenet - Sigowet Road	Construction to Bitumen Standards	3,149,152,169	698,108,303.07	42%
	Sigalagala -Musoli-Sabatia-Butere Road	Construction to Bitumen Standards	1,809,645,663	557,373,627.98	38%
	Kimilili - Misikhu Road	Construction to Bitumen Standards	498,906,677	113,448,127.10	25%
	Meru – Mikinduri – Maua Road (Phase II)	Construction to Bitumen Standards	1,721,871,230	-	20%
	Mukurueini – Gakonya Mahuaini (P II)	Construction to Bitumen Standards	974,903,875	-	4%
KeNHA					
	Voi-Mwatate (A23)	Construction	2,269,959,247.20	1,391,693,082	On-going (75% Complete)
	Loruk – Barpelo (B4)	Construction	6,040,880,207.13	1,595,275,278	On-going (40% Complete)

No	Project Name	Brief description (Scope of Works)	Total Cost Contract Sum	Total Amount Spent	% of Progress
	Merille River –Marsabit (A2)	Construction	13,718,688,331.75	3,429,388,560	On-going (15% Complete)
	Eldoret – Webuye (A104)	Reconstruction	3,254,300,133.75	3,197,689,885	On-going (99% Complete)
	Homa Bay-Mbita (C19)	Construction	3,888,340,990.50	2,146,625,171	On-going (90% Complete)
	Kaloleni – Kilifi (C107)	Construction	2,299,779,605.00	397,500,633	On-going (50% Complete)
	Chiakariga – Meru	Construction	4,667,635,582.82	593,420,538	On-going (20% Complete)
	Rumuruti – Maralal Road	Construction	2,740,821,690.00	273,544,688	On-going (8% Complete)
	Siaya - Ruambwa Road (C29) Road	Construction	1,908,494,786.75	192,338,432	On-going (8% Complete)
	KURA				
	Northern & Eastern bypasses	Construction of bypass	9,277,354,964	9,277,354,964	Complete
	Langata road (KWS gate to Bomas section)	Dualling of carriageway to bitumen standards	2,671,230,188	1,744,211,041	Ongoing
	City Cabanas Interchange	Construction of bypass	2,514,490,574	1,032,906,477	ongoing
	Rehabilitation of South C roads	Upgrading to bitumen standards	124,693,765	142,690,387	Completed
	first avenue Eastleigh and general Waruinge roads	Upgrading to bitumen standards	2,523,503,281	1,255,036,979	Ongoing
	Rehabilitation and upgrading of upper hill roads, phase 1	Dualling of carriageway to bitumen standards	2,002,892,599	738,317,207	Ongoing
	Construction of Kapsoya roads in Eldoret	Upgrading to bitumen standards	887,104,563	310,071,980	Ongoing
	construction of Nairobi western ring roads	Upgrading to bitumen standards	1,900,000,000	JPY 2,074,931,000	Completed
	Kinunga Kamuyu road in Nyeri county	Upgrading to bitumen standards	127,229,322	12,722,932	Ongoing
		Total	**89,170,785,442.0**		

Appendix 5: Case Study-Langata Road Projects (KWS-Bomas Junction)

LAND ACQUISITION FOR LANGATA ROAD PROJECT (KWS Gate-Bomas Section)

The contract for the above road was awarded on 01/11/2011 and the commencement date was 09/02/2012.The initial contract period was 15 months and initial completion date was 9th May 2013 Acquisition plan for Langata road was submitted to the Commissioner of Lands on 27/02/2012 in anticipation that the valuation of land would be completed before commencement of construction work. However, by 10th December 2012, about 9 months since the commencement of the project, the process had not commenced. The ministry of Land delayed in undertaking the valuation and with the enactment of National Land Commission (NLC) act 2012, land valuation mandate was transferred to the NLC. It took long for NLC to be gazetted and operational which caused a transitional gap. KURA had to hold consultative meetings with land owners in order to persuade them to grant access to the land as they wait compensation. KURA was granted access to part of the lands; however it was not possible to secure land around Forest edge and properties LR. 10485 and 10488 for construction to completion of Bomas interchange.

The National Land Commission meanwhile gazetted the land parcels and did valuation which amounted to Ksh. 1,037,813,089. This award was communicated to KURA on 13/11/2013 but Kura did not have budgetary provision to cater for the amount. An amount of Ksh. 267,245,350 was released for LR.No. 10485 and 10488 on 03/03/2014. Due to the budgetary constraints KURA had recommended priority payment for these parcels of land because of their critical location on the interchange and also because the owners denied access to the land before payment is made to them. In addition the project was being delayed and would consequently increase cost due to the contractual obligations.

The NLC received the payment on 24th March 2014 but did not release the money to the owners of the two parcel of land LR.No. 10485 and 10488 that had been considered critical for the interchange but in a letter dated 07/04/2014 suggested the payment either be made on pro rata basis to all awardees or the money be retained until all compensation is received. On 8th May 2014 the Cabinet Secretary, MoTI wrote to the CS Ministry of Lands, Housing and Urban Development to intervene. Thus despite the project completion date having been extended twice to 7th June 2014 due to lack of access to the site, the issue of land compensation had not been resolved as at 8th may 2014 just a month to project revised completion date of 7th June 2014, a delay of more than 2 years since the commencement of the project.
Due to uncertainties on when the site will be accessed, KURA decided to take over the road from the contractor to mitigate further losses to the employer while an amount of Kshs.770,567,739 on land compensation remains outstanding against the project.

Appendix 6: Ministry of Transport, Infrastructure, Housing and Urban Development - Management Comments on Audit Findings and Conclusions.

Audit Findings	Responses from Management	Auditor's Comments.
System in place for Project Initiation are not followed Systems in place for initiating the roads projects requires that the proposed roads must be in the Roads Sector Investment Plan(RSIP) or the Master Plan for Urban Roads (MPUR) for KURA	The Ministry agrees with this statement. However, audit findings indicate that 6 out of 34 roads were not in RSIP or MPUR as could have been expected. The Ministry indicates that RSIP is not the only document of reference for Annual Work plan	The Ministry does not indicate which are the other documents of reference and whether the roads in question were included in the said documents and therefore it is still not possible to confirm whether it follows its own systems of prioritizing the road projects.
Projects with no feasibility Studies Feasibility study should be carried out to ascertain the viability of the projects. However, during the audit feasibility studies for some of the projects were not availed.	The Ministry agrees that feasibility studies should be done to ascertain viability of the projects and indicates that relevant studies related to the projects feasibility were undertaken for all the projects under review.	Though the Ministry indicates that relevant project feasibility studies were undertaken, the issues was that these reports were not availed during the audit and the Ministry still does not indicate whether the same are available.
Systems in place for project planning not working as intended Project Planning involves identifying projects activities, tasks, timings, risks to the projects and the resources needed to achieve the project's objectives. In road projects, planning involves detailed design of the projects, funding proposal and tendering process. However, the sampled projects revealed weaknesses in the design, funding and failure to plan for land acquisition and relocation of services.	The Ministry agrees on the criteria but indicates that land acquisition plans form part of the design process and as such are always included in the design report. It has proved difficult in the past to determine the extent of relocation of services during the design stage as most service providers do not have the extent or location of their services as such most of these are determined during implementation stage.	Though Ministry`s response indicate that land acquisition is part of design, the process usually start late and also lack budgetary provision which affect the implementation of the project.

Audit Findings	Responses from Management	Auditor's Comments.
Inadequate project engineering design Review of the Ministry's system for initiating the roads projects indicates that once the viability of the road has been confirmed, detailed planning, for the project is carried out. This involves carrying out detailed survey and investigations and coming up with a detailed engineering report. Once the design report is complete, it must be reviewed and accepted before it is approved for implementation. However, review of sampled projects indicates that despite the design of the projects having been approved, there are always changes in the design in the course of implementation of the project which results in contract variations that increases the cost of the projects and delay the completion of the projects.	The Ministry agrees with the criteria but indicates that it is not always that the designs are changed. However, to accommodate the realities during project implementation the same are reviewed. Reviews in the design are guided by the conditions of the contract and other contract management tools that are adhered to during implementation. All variations arising from this are also guided by the procurement laws and regulations.	The audit had no issues on the procedures followed in the reviews of the design or on how variations are done. The issue was why in the course of implementation the design keep changing, is it because of the things that could not have been foreseen or is it because of things which could have been taken care of in the initial design.
Increase in Cost due to change in design Further details indicates that in some cases the designs were developed years back and had to be updated or modified in course of implementation e.g Mahuaini Gakonya & Rutune – Mahuaini Phase Which was done in 1989 but modified in July 2007 when the project commenced. Similar case was for Eldoret- Webuye Road where the design was completed in 2007 but the road was not constructed until September 2011. As a result of delay, the road got worse which led to change in design which reduced the original scope of the road from 59km to 41km, a reduction of 18 km of the original intended scope of the road. Change in design does not only increase the cost of the project but may also result in failure to complete the projects as initially intended due to exhaustion of funds. E.g Meru- Mikinduri road where 52 Km road was to be constructed at a contract price of Kshs 1.9 billion but funds got exhausted after only 34 km were done. Inaccurate design may also result in loss of public funds as was the case for Kaptama Kapsokwany road where an amount of kshs.33,303,600 was paid to a consulting engineer, but later the design was found to be inadequate or sub- standard.	The Ministry agrees with the findings and indicates that in some cases the new design were done, and addendum done all in accordance with the relevant procurement laws.	The audit had no issue on the procedures followed in coming up with the new designs, the audit concern was on change in design due to passage of time and inaccurate data which in some cases resulted in increased cost of the projects, failure to complete the project as initially intended due to exhaustion of funds or reduced scope of work and in some cases loss of public funds.

Audit Findings	Responses from Management	Auditor's Comments.
Delay in completion of the project due to change in design Changes in design may also lead to delay in completion of the projects where for instance the change in design result in increased scope of work which require additional time to execute. This results in extension of time that prolong the period for the projects	The Ministry agrees with the findings but note that for Voi- Mwatate road project the basic data was not incorrect, but was reviewed during implementation to ensure optimization	The audit concern was that change in design contributes to delays in completion of the project to which the Ministry agrees.
Funding for the road Projects does not work as intended With regards to the funding of the projects, Treasury gives an approved projects list with their budget ceilings, with priority going to the on- going projects and any pending bills and the balance start the new projects which in most cases are planned to be completed within 2-3 years. It is therefore expected that once a project starts it should always have a budget allocation each year. However, the audit revealed that in most cases the funds budgeted for the projects are not adequate to pay for the certificate raised during a particular year resulting into pending bills where the three road authorities had pending bills amounting to kshs.28.4 billion as at June 2014 in respect of outstanding claims by the contractors. This included an amount of Kshs 7.4 billion outstanding against KeRRA projects, while KeNHA and KURA had Kshs 20 billion and Kshs 1.0 billion outstanding respectively.	The Ministry agrees with the audit findings	No further comments.

Audit Findings	Responses from Management	Auditor's Comments.
Lack of Budgetary Provision for Land Compensation Where acquisition of road becomes necessary a survey should be done after which the relevant Roads Authority requests the National Land Commission for valuation and identification of the land owners to facilitate acquisition of the land. The Road Authority is then expected to remit the necessary fund needed for the acquisition of the land once it has been gazetted. However, review of the sampled projects indicate that prior funding arrangement for the acquisition of land was not done at the planning stage of the project therefore land compensation was a major challenge to the three Road Authorities due to non- availability of funds for compensation at the appropriate time. E.g Kshs. 1 billion was required for land compensation for Langata Road but only kshs. 267 million was available while for Nairobi Eastern By Pass—City Cabanas Junction Kshs. 4.7 billion was needed but was not available at the initial stage of the project.	Ministry agrees with the findings but indicates that though acquisition budgetary allocation are made for projects, it's never adequate since final figures for compensations are available once the valuation is done by the National Land Commission.	The Ministry agrees that there are usually inadequate funds for land compensation which results in delays in completion of the projects.
Delay in land acquisition process Land acquisition is a lengthy process that involves the National Land Commission and thus it is important that planning for the same should be done in the early stage of the project to allow for smooth implementation of the project. However, a review of the projects showed that in some cases land acquisition process start after the project has commenced which delays the completion of the project. e.g , Nairobi Eastern and Northern by pass which began in June 2009 but the land was gazetted in March 2010,Langata Road project which started in February 2012 and was expected to be completed by May 2013 but the land acquisition process had not been completed by April 2013.	The Ministry agrees with the findings and indicates that land compensation can only be confirmed during project implementation since designs are also subject to review for optimization during implementation but also the process of acquisition is faced with immense challenges during acquisition including court injunction which delay the finalization of the process.	From the Ministry's response, it is clear that land acquisition is a long and challenging process and therefore need to start early to help deal with the challenges within reasonable time.

Audit Findings	Responses from Management	Auditor's Comments.
Delays in Relocation of Utility Services The road corridor is the shared space to accommodate facilities for passage of road traffic as well as the passage of public services utilities. Poor sitting of services within the road corridor has resulted in the need for relocation whenever a road is to be improved. It is the responsibility of the employer to ensure that the contractor has access to the site to avoid claim on extension of time due to delay in relocation of services. However, reviews of sampled projects indicate delays in relocation of utility services due to failure to remove the structures by the service providers and sometimes delays in payment for the relocation by the Authorities. Further, according to Road Act, 2007, the service providers are expected to relocate the utilities at no cost to the authorities but services providers always indicate that they lack sufficient funds for the relocation which forces the road authorities to bear the cost.	The Ministry agrees with the findings but indicates that the employer is only liable in terms of cost but the contractor is expected to do due diligence during the tendering process as to the extent of the services likely to be encountered during implementation of the projects that are fully funded by GOK. The Ministry also agrees that the Kenya Power delays in relocating the power lines, thereby affecting project implementation.	In light of the finding and the Ministry response it is clear that relocation of utility services is a challenge to the implementation of the projects which need to be addressed.
System for Execution of Roads Projects are not working as intended Project execution entails carrying out the activities of the projects in line with PMP. In road projects this is the phase where the road works are carried out as stated in the Contract. The R.E should ensure that the project is implemented as per the design and that it runs as scheduled. However, a review of the projects indicate some of the projects were behind schedule or took more than the scheduled time to complete .out of 34 projects, 17 had their contracts extended in some cases by more than 100% of the initial completion period. Despite the extension, some of the projects were still behind schedule.e.g Lanet- Elementaita which despite a delay of 24 months from the initial project period of 18 months, the project was still behind schedule by 5 months. Much of the delays was attributed to default by the contractor who had abandoned the project.	The Ministry agrees to the findings and indicates that delay in completion of the projects can be attributed to many extraneous factors including; change in scope, relocation of utilities, land acquisition, delays in mobilization of equipment and inability of some of the contractors to deliver the projects. All the projects have since been completed except Voi- Mwatate which was terminated and re- tendered because the contractor went into receivership.	The reasons given for the delays in completion of the projects reflect what was indicated in the report.

Audit Findings	Responses from Management	Auditor's Comments.
Increase in cost of the project due to interest on delayed payments Contract agreement provide that an interim payment Certificate should be paid within a period of 90 days after it has been signed by the Engineer failure to which the contractor is only required to give a 28-day notice after which the outstanding amount start to accrue interest. Out of 34 projects reviewed, 9 had accumulated a total of 319m in respect of interest on delayed payment.	The Ministry agrees to the findings but indicates that the interest has since been paid and note that interest are not claims but penalties and as such do not form part of the contract sum.	It is true that the interest does not form part of the contract sum but is an additional cost to the project which could otherwise have been avoided had the payments been done on time.
Increase in cost of the project due to supervision contracts and variation of prices. Most of the projects are supervised by hired consultant and therefore whenever a contract period is extended the supervision contract is also extended to cover the duration of the project which increases the overall cost of the project. Further, apart from the supervision contracts and interest on delayed payments, delays in completion may also lead to failure to complete the project as originally intended due to time related cost.E.g Kaptama- Kapsokwony which was initially 67km but only 31km was done as funds for the projected got exhausted mainly due to the high cost of variations.	The Ministry agrees to the finding but indicates that the cost escalation in this project was not only due to a high cost variation (VOP) but also a design review.	Though we don't dispute the Ministry's claim on other causes of cost escalation the concern here is whether such costs can be avoided.
Systems in place for quality Control- The quality control systems for road projects are guided by the general condition of the contract (FIDIC), standards and special specification condition. The quality control measures include testing of the materials, inspections and surveys of work done. A field visit to a few sampled projects indicates the quality control systems are followed but there were cases where quality issues were noted. E.g Othaya- Konya road which had developed potholes	The Ministry agrees with the findings and indicates that the defects were rectified by the contractor before the final handing over of the road.	No further comments.

Audit Findings	Responses from Management	Auditor's Comments.
Systems in place for closure and continuity of projects Project closure involves handing over project deliverables to the beneficiaries and terminating project contracts. Continuity relates to the plans in place for sustainability of the project. Road maintenance is important because it increases the life span of the road. Routine maintenance should be carried out continuously throughout the year while periodic maintenance should be done at least twice within 10 years but after 15 years the road need to be reconstructed. However, the challenge facing road maintenance in the three agencies is that the demand for the road maintenance is very high and funding does not match the demand. E.g KURA has responsibility of maintaining a road network of about 12000KM but receives Kshs. 2 million which can only cater of about 3000km. In KeNHA there has been backlog for most roads where some roads have taken more than 10 years without periodic maintenance e.g Westlands- Limuru which was constructed in 1991 but no maintenance has been done for 24 years later. However, to address the problem, performance-based maintenance contract is being piloted for some of the new roads.	The Ministry agrees with the findings	No further comments.

Audit Conclusions	Responses from Management	Auditor's Comments.
Conclusion The audit concludes that although the systems in place for management of road projects are in line with generally accepted practices in project management, they have not been effective in ensuring the implementation of the projects is carried out as planned mainly due to inadequate planning as evident in changes of design and scope during implementation, and inadequate budgetary provision for land acquisition. The systems in place for execution have not been working as intended resulting to extension of contract period which increase the cost of the project. Delays in acquisition of land is mainly attributed to slow process of land acquisition and also the high demand for maintenance and limited funds poses a great challenge to sustainability of the projects.	The Ministry in its comments indicates that planning has been adequate except that budgeting at this stage are based on estimates only. The Ministry concurs with the remarks on land acquisition but note that the issue requires multi – sectoral involvement. The Ministry also concurs with the remarks on maintenance but clarify that they have a time frame for making good the defects/snag list captured during the substantial completion inspection meeting	There is adequate evidence that indicate that planning is not adequate especially frequent change in design and scope due to inaccurate data among others.

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