

AFRICAN DEVELOPMENT FUND



APPRAISAL REPORT

NAIROBI – THIKA HIGHWAY IMPROVEMENT PROJECT

REPUBLIC OF KENYA

INFRASTRUCTURE DEPARTMENT

SEPTEMBER 2007

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AFRICAN DEVELOPMENT FUND

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PROJECT INFORMATION SHEET

The information given below is intended to provide some guidance to prospective suppliers, contractors and consultants and to all persons interested in the procurement of works, goods and services for projects approved by the Board of Directors of the Bank Group. More detailed guidance should be obtained from the Executing Agency of the Recipient Country.

- 1. COUNTRY** : Kenya
- 2. PROJECT TITLE** : Nairobi – Thika Highway Improvement Project
- 3. LOCATION** : Nairobi Metropolitan Area
- 4. BORROWER** : Government of Republic of Kenya
- 5. EXECUTING AGENCY:**

Ministry of Roads & Public Works

P.O. Box 30260 Nairobi, Kenya

Tel: (254) 20 272 3101 Fax: (254) 20 272 0044

Email: Roadsnet@Roadsnet.go.ke**Ministry of Transport**

P.O. Box 52692 Nairobi, Kenya

Tel: (254) 20 2729200 Fax: (254) 20 2726362

Email: mot@Sahannet.com**6. PROJECT DESCRIPTION:**

- ✓ Civil Works Nairobi – Thika Highway Improvement
- ✓ Civil Works for Nairobi City Arterial Connectors
- ✓ Consulting Services for Construction Supervision of the Civil Works
- ✓ Consulting Services for Nairobi Metropolitan Transit System (Nairobi Metro) Study
- ✓ Consulting Services for Private Sector Participation in Nairobi-Thika Highway
- ✓ Consulting Services for Project Technical and Financial Audits
- ✓ Compensation and Resettlement of Project Affected People

7. TOTAL COST : **UA 175.10 million**

- i) Foreign Exchange : UA 101.62 million
- ii) Local Cost : UA 73.48 million

8. BANK GROUP LOAN/GRANT

ADF LOAN : UA 117.85 million

ADF GRANT : UA 3.15 million

9. OTHER SOURCE OF FINANCE

GOK : UA 54.10 million

10. DATE OF APPROVAL : November 2007

11. **ESTIMATED STARTING DATE OF PROJECT AND DURATION** : January 2008 – 36 months
12. **PROCUREMENT OF GOODS AND WORKS** :
- The civil works contract will be packaged in three lots to be procured under International Competitive Bidding (ICB) procedures, with pre-qualification of contractors.
13. **CONSULTANCY SERVICES REQUIRED AND STAGE OF SELECTION** :
- Consulting services for Nairobi Metro studies and PSP in infrastructure and transaction advisory services will be acquired on the basis of a shortlist of qualified consulting firms following a pre-qualification.
- Consulting services for project supervision is financed by GOK. The design consultant has been retained for the subsequent supervision services.
- Project audit services will be procured on the basis of a Short list of auditing firms.

1 UA = 1 SDR

1 UA = US\$ 1.5326 (September, 2007)

1 UA = KES 103.371 (September, 2007)

CURRENCY AND MEASURES
 Currency Equivalents
 (September 2007 Exchange Rates)

Currency Unit		
1 UA	=	1 SDR
1 UA	=	103.371 KES
1 UA	=	1.5326 USD

Weights and Measures

1 metric tonne (t)	=	2,205 lbs.
1 kilogram (kg)	=	2.205 lbs.
1 metre (m)	=	3.281 ft
1 foot (ft)	=	0.305 m
1 kilometre (km)	=	0.621 mile
1 square kilometre/ sq. km (km ²)	=	0.386 square mile
1 hectare (ha) = 0.01 km ²	=	2.471 acres

FISCAL YEAR

July 1- June 30

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LIST OF ABBREVIATIONS

AADT	=	Annual Average Daily Traffic
APA	=	Advance Procurement Action
ARP	=	Abbreviated Resettlement Plan
CBD	=	Central Business District
CBO	=	Community Based Organization
DfID	=	Department for International Development (U.K.)
DRC	=	Democratic Republic of Congo
EIRR	=	Economic Internal Rate of Return
ERSWEC	=	Economic Recovery Strategy for Wealth and Employment Creation
ESAL	=	Equivalent Standard Axle Load
ESIA	=	Environmental and Social Impact Assessment
ESMP	=	Environnemental & Social Management Plan
EU	=	European Union
FE	=	Foreign Exchange
FYRR	=	First Year Rate of Return
GDP	=	Gross Domestic Product
GOK	=	Government of Kenya
GPN	=	General Procurement Notice
GRDP	=	Gross Regional Domestic Product
HDI	=	Human Development Index
HDR	=	Human Development Report
HIV/AIDS	=	Human Immuno Virus/Acquired Immune Deficiency Syndrome
ICB	=	International Competitive Bidding
IRI	=	International Roughness Index
JKIA	=	Jomo Kenyatta International Airport
CAA	=	Kenya Airports Authority
KCCA	=	Kenya Civil Aviation Authority
KDHS	=	Kenya Demographic and Health Survey
KEFO	=	Kenya Field Office
KEPSA	=	Kenya Private Sector Alliance
KeNHA	=	Kenya National Highways Authority
KeRRA	=	Kenya Rural Roads Authority
KMA	=	Kenya Maritime Authority
KPA	=	Kenya Ports Authority
KPL	=	Kenya Pipeline Company Limited
KRB	=	Kenya Roads Board
KRC	=	Kenya Railway Corporation
KRF	=	Kenya Road Fund
KES	=	Kenya Shilling
KURA	=	Kenya Urban Roads Authority
KWS	=	Kenya Wildlife Services
LATF	=	Local Authority Transfer Fund
MDG	=	Millennium Development Goals
MIA	=	Moi International Airport
MoLG	=	Ministry of Local Government
MoRPW	=	Ministry of Roads and Public Works
MoT	=	Ministry of Transport
MOT	+	Maintain Operate Transfer
MTR	=	Mid-term Review
NACC	=	National Aids Control Council
NEMA	=	National Environmental Management Authority
NGO	=	Non-Governmental Organization
NMA	=	Nairobi Metropolitan Area
NPV	=	Net Present Value
NRSC	=	National Road Safety Council

PAP	=	Project Affected Persons
PIC	=	Project Information Center
PPP	=	Private Public Partnership
PRSP	=	Poverty Reduction Strategy Paper
PSP	=	Private Sector Participation
RD	=	Roads Department
RMFL	=	Road Maintenance Fuel Levy
ROW	=	Right-of-Way
RVR	=	Rift Valley Railways
SAGA	=	Semi Autonomous Government Agency
SPN	=	Specific Procurement Notice
STI	=	Sexually Transmitted Infections
TEU	=	Twenty-foot Equivalent Unit
TOR	=	Terms of Reference
UA	=	Unit of Account
USD	=	United States Dollar
Veh –km	=	Vehicle Kilometre
VOC	=	Vehicle Operating Costs

Kenya: Nairobi – Thika Highway Improvement Project
PROJECT MATRIX

HIERARCHY OF OBJECTIVES	EXPECTED RESULTS	REACH	PERFORMANCE INDICATORS	INDICATIVE TARGETS	ASSUMPTIONS/RISKS																
<p>Goal Sector/Theme:</p> <p>Contribute to improve the accessibility, affordability, and reliability of the transport infrastructure system to promote economic growth and socio—economic development</p> <p>Contribute to Regional Integration</p>	<p>Impacts</p> <p>Increased and sustained economic growth</p> <p>Increased intra-regional trade</p>	<p>Beneficiaries:</p> <p>Public at large, Population of Nairobi Metropolitan Area,</p> <p>Population of East and Horn of Africa</p>	<p>Increase of regional gross domestic product of Nairobi Metro Area</p> <p>Increased trade between Eastern & Horn of Africa regions</p> <p>Data Sources: National Economic Surveys Annual Statistical Abstracts</p>	<p>GRDP for Nairobi Area expected to grow from KES 450 billion in 2010 to 1,030 billion in 2025</p> <p>Regional trade between Eastern & Horn of Africa regions estimated to grow from US\$ 40 M to US\$ 175 M by 2011</p>	<p>Government sustains its commitment to the Economic Recovery Strategy and Kenya vision 2030</p> <p>Rapid Economic growth continues in Kenya</p> <p>Planned development in tourism, industry agriculture takes place</p>																
<p>Objectives:</p> <p>Improve road transport services along the Nairobi-Thika corridor and enhance urban mobility within the metropolitan area by reducing traffic congestion;</p> <p>Contribute to the development of a sustainable urban public transit system for the Nairobi Metropolitan Area; and</p> <p>Promote private sector participation in the management, operation, and financing of road infrastructure in Kenya</p>	<p>Outcomes</p> <p>Improved traffic level of service with reduced travel time reduced delays, and fewer accidents</p> <p>Policy measures, plans and investment programs to implement Nairobi Metro System prepared</p> <p>MOT contract concluded between the GOK and Private entity</p>	<p>Beneficiaries:</p> <p>Population of Nairobi Metropolitan Area, business community, public transport users, commuters, transport operators</p>	<p>Traffic flow volumes, vehicle delays, speed, number of accidents, transit/para-transit fare</p> <p>Data Sources: Speed and travel time surveys by MoRPW, Accident data statistics MoT Statistics</p>	<p>Average travel time during peak hour from Nairobi to Thika reduced by 60% from 2.5 hrs to 1 hr</p> <p>Average annual accident rate on the Nairobi-Thika section reduced by 70% from 230 to less than 70</p> <p>Average public transport fare from Nairobi to Thika reduced by 30%.</p>	<p>Government continued commitment to implement the Nairobi Urban Transport Master Plan and develop efficient and sustainable public transportation system in Nairobi</p> <p>Effective Public Private Partnership for Private Sector Participation in the project</p>																
<p>Activities/Inputs:</p> <p>Procurement of Contractors Procurement of Consultant Compensation & Resettlement</p> <table border="0"> <tr> <td>Component</td> <td>UA Million</td> </tr> <tr> <td>Civil Works</td> <td>166.83</td> </tr> <tr> <td>Supervision Services</td> <td>1.02</td> </tr> <tr> <td>Nairobi Metro Study</td> <td>3.05</td> </tr> <tr> <td>PSP Study</td> <td>0.68</td> </tr> <tr> <td>Project Audits</td> <td>0.14</td> </tr> <tr> <td>Comp./ Resettlement</td> <td>3.39</td> </tr> <tr> <td>Total</td> <td>175.10</td> </tr> </table>	Component	UA Million	Civil Works	166.83	Supervision Services	1.02	Nairobi Metro Study	3.05	PSP Study	0.68	Project Audits	0.14	Comp./ Resettlement	3.39	Total	175.10	<p>Outputs</p> <p>Six to eight-lane divided highway with full access control between Nairobi and Thika Town built</p> <p>Services Roads along the Highway built</p> <p>Nine (9) traffic interchanges built</p> <p>Feasibility & detail engineering reports for Nairobi Transit System</p> <p>Reports, procurement & advisory services for PSP in the project</p> <p>Resettlement & compensation plan implemented</p>	<p>Beneficiaries:</p> <p>Contractors Consultants Project affected people</p>	<p>Completion of Procurement Completion of Civil Works Completion of Consultancies Compensation/Resettlement</p> <p>Data Source: Progress reports, Bank Supervision missions, Mid-term review reports, Project Completion Reports Consultants' reports</p>	<p>All procurement completed by June 2008</p> <p>Civil works completed by December 2010</p> <p>All consulting services completed by December 2009</p> <p>All compensations and resettlement completed by June 2008</p>	<p>Recruitment of capable consultants and Contractors</p> <p>Government continued commitment to institutional reforms and adequate funding</p> <p>Timely disbursement of counterpart funds</p> <p>Good monitoring and supervision of the project by the GOK and the Bank to ensure quality and timing of civil works and consultancies</p> <p>Project affected people are compensated and resettled</p>
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EXECUTIVE SUMMARY

Project Background

The Government of Kenya (GOK) has solicited the financial assistance of the Bank Group for the rehabilitation and upgrading of the Nairobi-Thika highway. The Nairobi-Thika highway is a dual-carriageway road of about 45 km. The road is part of the classified international trunk road A2 which originates in downtown Nairobi and extends to Moyale at the Ethiopian border. The road is also an important link on the Great North Trans-African Highway (Cape Town to Cairo), one of the highest priorities in the NEPAD short-term action plan. The section of highway under consideration was constructed to bitumen standard in the early 1970's. This section currently operates beyond capacity, carrying more than 60,000 vehicles per day. In addition, its condition has deteriorated requiring rehabilitation. Therefore to accommodate the existing and future traffic, the highway needs substantial improvements to increase its capacity which will entail the construction of additional lanes and the removal of at-grade intersections at several locations to be replaced by interchanges.

The Nairobi Metropolitan Area is the most dynamic engine of growth and employment creation in Kenya accounting for more than 30% of the National GDP. However, as a result of rapid urbanization coupled with the explosive growth in motorization, the transportation system including the urban arterials and the major corridors linking the Central Business District (CBD) to the suburbs and satellite towns, as well as the public transportation system have become inadequate and are constraining economic growth and limiting access to job opportunities, education, and recreation. The Nairobi-Thika Highway is one of three major corridors linking downtown Nairobi to the suburbs and satellite towns. Traffic demand on this road is almost twice the existing capacity. The poor level of service has resulted in long traffic delays and travel times, excessive mobile emissions, and high level of accident rates. Accident data shows that over the past five years more than 700 accidents occurred on the Nairobi Thika road of which 227 were fatal. The upgrading of the highway will provide adequate capacity and considerably decrease the accident rate by minimizing vehicle conflicts with traffic interchanges and by providing separate service roads for local and non-motorized traffic.

Purpose of the Loan/Grant

The ADF loan of UA 117.85 million will be used to finance the entire foreign exchange cost of UA 98.84 million and UA 19.01 million of local cost for the civil works. The ADF grant of UA 3.15 million would be used to finance the entire foreign exchange cost and 0.37 million of local cost for feasibility and engineering design studies for the Nairobi Metropolitan Public Transit System and the study for the Private Sector Participation (PSP) in the operation and maintenance (O&M) of Nairobi-Thika Highway.

Sector Goals and Project Objectives

The sector goals of the project are to: i) contribute to improve the accessibility, affordability, and reliability of the transport infrastructure system to promote economic growth and socio—economic development in Kenya; and ii) contribute to regional integration in the eastern and horn of Africa regions. The objectives of the project are: (i) Improve road transport services along the Nairobi-Thika corridor and enhance urban mobility within the metropolitan area by reducing traffic congestion; (ii) Contribute to the development of a sustainable urban public transit system for the Nairobi Metropolitan Area; and (iii) Promote private sector participation in the management, operation, and financing of road infrastructure in Kenya.

Brief Description of Project Outputs:

The project comprises the following components:

A. Nairobi – Thika Highway Improvement Works – Civil Works to provide additional capacity by constructing additional lanes (from four-lane to a six/eight-lane highway), construction of services roads to segregate through traffic from local traffic, and construction of traffic interchanges at six (6) locations.

B. Nairobi City Arterial Connectors – Civil Works to improve three (3) major arterial connectors linking Pangani to Uhuru Highway in Nairobi CBD, and construction of three (3) interchanges.

C. Construction Supervision of the Civil Works

D. Nairobi Metropolitan Transit System (Nairobi Metro) Study - Consulting Services to provide comprehensive public transportation study for various options including Light Rail Transit System, Bus Rapid Transit System, and Enhanced Commuter Rail.

E. Private Sector Participation (PSP) in the Nairobi-Thika Highway - Consulting Services to provide financial and institutional analyses for management, operation and maintenance of the Nairobi-Thika Highway and transaction advisory services.

F. Project Technical and Financial Audits: External financial auditor and Independent Engineering/Construction Auditor to provide project audit services.

G. Compensation and Resettlement of Project Affected People – Provision for compensation and resettlement of Project Affected People.

Project Cost

The estimated cost of the project is UA 175.10 million (net of taxes) of which UA 101.62 million (58%) will be in foreign exchange and UA 73.48 million (42%) will be in local currency. The estimated cost is based on September 2007 prices with 7.5% physical contingency and a provision for price escalation based on current and projected inflation in the construction sector in Kenya.

Source of Finance

The proposed project will be jointly financed by an ADF loan and grant, and the Government of Kenya. The ADF loan will finance 70% of the civil works and related supervision and audit services with the GOK covering the remaining 30% for that category. The ADF grant will finance 85% of the Nairobi Metro and PSP studies while the GOK will finance the remaining 15%.

Project Implementation

The project will be implemented by the Roads Department of Ministry of Roads and Public Works (MORPW) except for the Nairobi Metro Study which will be implemented by the Ministry of Transport. The project will be implemented over a period of 36 months including the time for concluding procurement, starting from January 2008.

Conclusions and Recommendations

The project is expected to contribute to enhance transport services and urban mobility in the Nairobi Metropolitan Area by reducing general transport costs, improving accessibility to public transportation, employment opportunities, housing, and recreation activities. In addition the project is expected to promote private sector participation in the management and operation of road infrastructure in Kenya. The project will therefore have significant impacts on poverty reduction in Nairobi Metropolitan Area. The Economic Internal Rate of Return has been estimated at 30.4%, which is far greater than the 12% opportunity cost of capital in Kenya.

The proposed Nairobi-Thika Highway Improvement Project is consistent with Kenya's development priorities and is listed in the Kenya Joint Assistance Strategy (KJAS) as one of the

key priorities for donor support. The project is also consistent with the Bank Assistance Strategy to Kenya (CSP 2005-2007) and other relevant Bank policies and guidelines.

It is recommended that: i) A loan not exceeding UA 117.85 million from ADF resources be extended to the Government of Kenya for the purpose of implementing the civil works component of the project described in this report subject to the conditions specified in this Appraisal Report; and ii) A grant not exceeding UA 3.15 million from ADF resources be extended to the Government of Kenya for the purpose of undertaking the feasibility and engineering studies for the Nairobi Metropolitan Transit System and Private Sector Participation in the Maintenance and Operation of Nairobi-Thika highway.

1. ORIGIN AND HISTORY OF THE PROJECT

1.1 The Government of Kenya (GOK) has solicited the financial assistance of the Bank Group for the rehabilitation and upgrading of the Nairobi-Thika highway. The Nairobi-Thika highway is a dual-carriageway road of about 45 km. The road is part of the classified international trunk road A2 which originates in downtown Nairobi and extends to Moyale at the Ethiopian border. The road is also an important link on the Great North Trans-African Highway (Cape Town to Cairo), one of the highest priorities in the NEPAD short-term action plan. The section of highway under consideration was constructed to bitumen standard in the early 1970's. This section currently operates beyond capacity, carrying more than 60,000 vehicles per day. In addition, its condition has deteriorated requiring rehabilitation. Therefore to accommodate the existing and future traffic, the highway needs substantial improvements to increase its capacity which will entail the construction of additional lanes and the removal of at-grade intersections at several locations to be replaced by interchanges.

1.2 The initial planning and diagnostic studies of the inadequacy of Nairobi-Thika highway were done within the context of the Nairobi Metropolitan Area Urban Transport Master Plan. The study, commissioned in 2004 by the GOK with funding from JICA was completed in 2006. The findings among others highlighted the generally inadequate urban transportation infrastructure and urban public transportation system. The study particularly mentioned the extremely poor level of service and shortage of capacity along the Nairobi-Thika corridor with low operating speeds, long delays, accidents and high operating costs. To address these problems, the GOK commissioned a consulting firm in 2006 to prepare the economic feasibility, environmental and social impact assessment and detailed engineering design to upgrade the Nairobi-Thika highway from a two-lane dual carriageway to a four-lane dual carriageway with full access control, and the construction of interchanges at all major traffic conflict points.

1.3 In August 2006, the GOK approached the Bank to request the financing of the project. An ADB identification mission visited Kenya in October 2006, and agreed with the GOK on the scope and components of the project. The project preparation was carried out in June 2007 followed by an appraisal mission in September 2007. In consultation with the GOK and other stakeholders, the project concept was formulated using a comprehensive approach to improve transport services along the Nairobi Thika corridor and in the Nairobi central business district. The project is to be jointly co-financed by the ADF, and the GOK. The appraisal report is based on the project feasibility and detailed engineering design studies, information collected by the Bank appraisal mission, and discussions held with government agencies, development partners, Non-Governmental Organizations (NGOs), and Community Based Organizations in the project zone of influence.

2. THE TRANSPORT SECTOR

2.1 Sector Overview

2.1.1 The Kenyan transport system is made up of five transportation modes: roads, rail, air, maritime transport and pipeline. During the last five years, the sector's ¹ contribution to GDP at constant factor cost has been, on the average, 11% per year. During the same period, the sector has registered an average annual growth of 14.7%.

2.2 Transport System

2.2.1 **Road Transport** - The Kenyan road network consists of 63,300 km of classified roads and 114,500 km of unclassified roads. About 14% of the classified road network (i.e. 9,100 km) is paved, the rest being of gravel or earth surface. Road transport is the predominant mode of

¹ Includes storage

transport in Kenya, accounting for about 85% of the total domestic transportation. Further details on road sub-sector are presented in Chapter 3.

2.2.2 Rail Transport: The Kenyan rail network extends over 2,597 km comprising 1083 km of main lines, 346 km of principal lines, 309 km of branch lines, and 859 km of private lines/sidings. The main line connects the port of Mombasa to Malaba on the border with Uganda through Nairobi. In 2006, the rail transport carried 1.89 million tonnes of cargo which is a decline of about 15% compared to the 2.2 million tonnes carried in 2002. Passenger traffic has also decreased from 4.8 million in 2005 to 4.3 million passengers in 2006, representing 10% decline.

2.2.3 The railway system was owned and operated until recently by Kenya Railway Corporation (KRC), a public sector entity. As part of the transport sector reforms and the Government privatization program, the Kenya Railways Corporation (KRC) and Uganda Railways Corporation (URC) have been jointly concessioned from 1st November 2006 for a period of 25 years. With this concessioning, it is expected that the Kenya/Uganda railway system will enter a new era characterized by operational efficiency and commercial profitability.

2.2.4 Air Transport: Kenya has a network of three international airports (Jomo Kenyatta International Airport (JKIA) in Nairobi, the Moi International Airport (MIA) in Mombasa and the Eldoret International Airport), 17 commercial airports and 150 airstrips. The Kenya Airports Authority (KAA) manages the airports while the Kenya Civil Aviation Authority (KCAA) is responsible for traffic control, aeronautical and regulatory functions of the sub-sector. The air transport sector has registered significant positive performance trends during the last five years. The number of passengers handled at the main Kenyan airports has increased from 4.5 million in 2002 to 6.3 million in 2006, indicating an average annual growth of 9%. During the same period, the cargo traffic has risen from 222,303 tonnes in 2002 to 278,456 tonnes in 2006, averaging 6% annual growth.

2.2.5 Maritime Transport: Kenya has 536 km of coastline on the Indian Ocean dotted with one main sea port at Mombasa and four minor ports at Kilifi, Lamu, Malindi and Shimoni. Kenya has also a rail-ferry service that operates cargo transport on Lake Victoria. The port of Mombasa is strategically situated to serve the hinterland of Kenya as well as the East and Central African land-locked countries of Uganda, Rwanda, Burundi, Eastern DRC, Southern Sudan, and Southern Ethiopia. The maritime sub-sector is managed by two public sector agencies namely Kenya Ports Authority (KPA) and Kenya Maritime Authority (KMA). While KPA is responsible for operation and management of ports, KMA regulates all aspects of maritime affairs including maritime safety and security.

2.2.6 Growth of traffic handled at the port of Mombasa has been impressive. Containerized cargo increased from 305,427 TEU in 2002 to 477,919 TEU in 2006; an average annual growth of 12.2%. During the same period, the total cargo throughput grew from 10.56 million tonnes to 14.40 million tonnes; indicating an average growth of 8.4% per year. About 25% of the traffic handled at Mombasa port is transit traffic. The improved performance at Mombasa port is mainly due to the enhanced efficiency traceable to recent modernization, high equipment availability and expansion.

2.2.7 Pipeline Transport: The Kenya Pipeline Company Ltd (KPL) is a public sector agency under the Ministry of Energy with 100% government shareholding. KPL operates a multi-product system of three pipelines: Mombasa –Nairobi (450 km), Nairobi–Eldoret (325 km) and Sinedet–Kisumu (121 km). Through a PPP arrangement, the governments of Kenya and Uganda have set up a Commission to oversee the extension of the pipeline from Kenya to Uganda. The pipeline transport system for petroleum products has eased pressure on the parallel roads (Mombasa – Nairobi, for example) and indirectly contributed to reduction in road accidents and road damage by heavy oil tankers. During the last five years (2002-2006), the pipeline throughput has gone up from 2.76 million m³ in 2002 to 3.83 million m³, an average growth rate of 8.5% per annum. The current pipeline system will be extended up to Kampala. Further, the viability of extending the pipeline to

Rwanda and Northern Tanzania is being considered. The planned extension of the pipeline would reduce long haul tanker traffic by road and by rail.

2.3 Transport Policy, Planning and Coordination

2.3.1 The Ministry of Transport (MoT) is the apex body for formulation of national transport policy within the broad framework of Kenya's Economic Recovery Strategy for Wealth and Employment Creation (ERSWEC) for the period 2003-2007 which has recognized the need for a functional transport sector as the third pillar of economic recovery. In addition, the MoT oversees preparation of the sub-sector policies, coordination of sub-sector strategies and investment plans, project/program implementation, monitoring and evaluation for all modes except pipeline transport, which falls under the Ministry of Energy. For road transport policy formulation, the responsibility is split between MoT for regulation of road transport services and Ministry of Roads and public Works (MoRPW) for road infrastructure planning and programming. The MoT is in the process of revising the national transport policy prepared in 2004. The objective for the Transport Sector is to provide quality infrastructure as an essential element for poverty reduction and economic growth.

2.4 Impact of Bank Group Assistance in the Transport Sector

2.4.1 The Bank Group has since 1967 participated in the financing of 16 operations in the transport sector in Kenya amounting to UA 257.41 million and covering 16 projects in the road sub-sector, one railway project, and one road study (see Annex 6). Fifteen of the operations have been completed. The completed projects have, in addition to improving 2,900 km of rural roads through maintenance and rehabilitation, added more than 1000 km of paved roads; thus making a significant contribution towards strengthening the infrastructure base of the Kenyan economy particularly in the most productive provinces of the country, including Nyanza, Western, Central and Rift Valley Provinces. The Bank Group has currently three ongoing road projects in Kenya. The Bank is one of the leading donors in the road sector, together with the World Bank and the European Union.

3. THE ROAD SUB-SECTOR

3.1 Road Network, Vehicle Fleet and Network Traffic

3.1.1 The total road network of Kenya consists of approximately 177,800 km comprising 63,300 km of classified roads and 114,500 km of unclassified roads. About 9,100 km of classified roads (14.4%) and 2,500 km of unclassified roads (2.2%) are paved which aggregates to 11,600 km of total paved road network (i.e.6.5% of the total network). The rest of the road network is of gravel or earth surface. It is estimated that about 18% of the classified network is in excellent/good condition, 49% in fair condition, 27% in poor condition and 6% in very poor condition.

3.1.2 In 2007 the total number of registered vehicle in Kenya is estimated at 840,000; a motorization rate of 23 vehicles per 1000 people. This rate is relatively high when compared to neighbouring countries such as Tanzania (14 vehicles/1000 people) and Ethiopia (2.2 vehicles/1000 people). The high level of traffic and the poor condition of the road network lead to high incidence of traffic accidents. In recognition of the seriousness of the problem, the Ministry of Transport introduced in 2003 new regulations covering reduction of bus passenger loading capacity, mandatory seat-belts, and reduced speed limits. Further, the MoT has, in consultation with a wide spectrum of stakeholders, formulated a "National Road Safety Action Plan (2006-2010)" with the main objective of reducing road accident fatalities by at least 50% by 2010; and to re-establish the National Road Safety Council (NRSC) for overseeing the effective implementation of the action plan. As a result of these actions, some noticeable improvements were registered. The number of road accidents, for instance, has decreased from 13,378 in 2003 to 11,777 in 2006; about 21% decline. During the same period, the number of fatalities due to road accidents reduced from 3004 (in 2003) to 2,493 (in 2006); about 27% decline.

3.2 The Road Transport Industry

3.2.1 The road transport operations in Kenya are governed by the Road Traffic Act of 1975 and the Transport Licensing Act of 1979. The transport market is generally liberalized and the controls and regulations mainly relate to the issuance of various operator licenses and the safety of passengers and freight. The public sector is responsible for the provision of the infrastructure and regulatory functions, while the private sector provides freight and passenger transport services. The market operates in a competitive environment where operators are free to charge for their services according to market conditions. The trucking business has been growing steadily with the decline of rail transport service and there has been significant shift of long distance freight traffic from rail to truck transport.

3.2.2 Overloading of Goods vehicles is a major concern in the road sector. Recent axle-load surveys from a study funded by the EU suggest that overloading remains a problem on the major transport corridors. The GOK has initiated a number of measures to address the problem, including the upgrading of the existing weighbridge facilities and establishment of additional ones, the checking of sealed containers at port of entry, and the banning of vehicles with illegal axle configuration. In addition, the GOK has gazetted new axle loading configurations, a reduced gross vehicle weight, and increased fines all in line with COMESA scales. There are ongoing government/donor discussions about the appropriate institutional arrangement for the operation of weighbridges and enforcement of axle-loads including the possibility to sub-contract overloading control to the private sector.

3.3 Road Administration and Training

3.3.1 The management of the road network in Kenya is the shared responsibility of several agencies. Currently, the Roads Department (RD) of the MoRPW is in charge of road classes A, B and C; the District Roads Committees administer classes D, E and all special purpose roads; and the Kenya Wildlife Services (KWS) administers roads going through the national parks. The Local and Urban Authorities are responsible for unclassified roads in urban areas, and the Forestry Department of the Ministry of Environment and Natural Resource for the unclassified roads within the industrial and natural forests. The Kenya Roads Board (KRB) was established in 2001 with the responsibility to manage the Road Maintenance Fuel Levy (RMFL) fund and overseeing the development of the overall road network.

3.3.2 The Government is now finalizing the implementation of major institutional reforms in the road sector that began in 1999 with the objective of improving the road sub-sector delivery capacity. To this end, a comprehensive road sub-sector policy was prepared and ratified by Parliament in 2006. Further legislation for establishing three autonomous road sector agencies has been passed by parliament and signed into law by the President in September 2007. The legislation – referred to as the Kenya Roads Act of 2007- established three autonomous statutory road authorities namely the Kenya National Highways Authority, the Kenya Rural Roads Authority and the Kenya Urban Roads Authority. The Kenya National Highways Authority (KeNHA) is responsible for the development and management of main roads (Class A, B and C); the Kenya Rural Roads Authority (KeRRA) is responsible for the development and management of rural roads (Class D, E and others); and the Kenya Urban Roads Authority (KURA) is responsible for the development and management of roads in cities and municipalities. These three agencies are expected to be fully operational by September 2008. A step-by-stem programme for the establishment and operation of the three agencies has been prepared and a Road Sector Reform Interim Management Committee has been set up to oversee the change management process.

3.3.3 The MoRPW is according considerable importance to training and human resource development in order to enhance its capacity for road administration. As part of institutional reforms, the Kenya Institute of Highways and Building Technology (KIHBT) which is a service department of the MoRPW is to be restructured as Semi Autonomous Government Agency (SAGA) for effective execution of its mandate for training public and private sector staff for road

development, rehabilitation and maintenance. The Training Unit of the MoRPW handles short and long term training and staff development both locally and abroad.

3.4 Road Planning and Financing

3.4.1 The road sub-sector planning and programming is undertaken by the RD of the MoRPW for the classified road network. The KRB is charged with financing road maintenance, while new developments and rehabilitation/reconstruction are generally financed by donors and budgetary allocations from the Ministry of Finance. A Road Sub-sector Policy and Strategy including an investment program for 2007–2020 has been prepared with EU funding. The investment program was developed after extensive consultations with stakeholders and development partners and provides a comprehensive statement of the country's strategies, policies and plans for road transport. It forms the basis for mobilizing funds from government sources as well as donors.

3.4.2 Several development partners are active in the sector and provide their assistance for the rehabilitation or reconstruction of some key road links that are vital to the Kenyan Economy, and to support the Roads-2000 Strategy. Table 3.1 below gives a summary of the current level of donor commitment in the sector.

Table 3.1 - Donor Intervention in the Road Sector in Kenya

No.	Development Partner	Current Commitment (Million US\$)
1	European Union	171.50
2	World Bank	160.00
3	African Development Bank Group	159.20
4	BADEA/OPEC	65.85
5	Agence Francaise Developpement	56.06
6	KfW (Germany)	52.78
7	China	26.11
8	Korea	25.00
9	JICA (Japan)	25.00
10	SIDA	20.00
	TOTAL	761.50

3.5 Road Engineering and Construction

3.5.1 Kenya has a reasonably well-developed construction industry and some of the major local construction companies have the capability to compete with international firms in USD 10-20 million contracts and most of the plant and construction equipment can be sourced from the open market. The Design Branch of the Roads Department is responsible for survey, design and tender documentation for road projects. It is also responsible for standard and design manual and matters relating to road reserves and control of access. Basic engineering designs are standardized following long-standing research and field-testing. Domestically financed design studies are normally executed by the Branch or by local consultants who are capable of handling most road engineering projects. Foreign consultants are hired for some of the large projects financed by donors.

3.6 Road Maintenance

3.6.1 The maintenance of the road network in Kenya is currently carried out by the Roads Department of MORPW for the classified main network, the District Road Committees for rural roads and the city councils for urban streets. These responsibilities will be transferred to the newly established Roads Authorities by September 2008. Periodic Maintenance is entirely contracted out to private contractors, while routine maintenance is undertaken by a combination of force account

using temporary labor, and single activity contracts paid on measured quantities of work. The Government is discussing new initiatives to further reduce and ultimately eliminate the use of force account for routine maintenance by introducing long-term performance-based routine maintenance of sub-networks.

3.6.2 The Government of Kenya established the Road Maintenance Levy Fund (RMLF) in 1993 in an effort to create a steady and reliable source of funds for road maintenance. The RMLF - the biggest road fund in sub-Saharan Africa - generates a substantial amount of money, which is adequate to cover all periodic and routine maintenance needs of the network but not including the backlog maintenance. The RMLF is managed by the Kenya Roads Board and is allocated based on the following breakdown: 57% for main roads (class A, B, C), 31% for district roads (class D & E), and 8% for urban roads. About 65% of the funds are allocated to paved roads, and 35% to the unpaved network. Table 3.2 below shows the maintenance funding sources.

Table 3.2 - Road Maintenance Fuel Levy Collections 2002-2006 (US\$ million)

Description	2002-03	2003-04	2004-05	2005-06	2006-07
1. Fuel Levy	111.52	130.34	136.41	148.54	237.46
2. Transit Tolls	-	-	-	-	4.70
3. Surplus Brought Forward	3.05	4.31	13.60	13.93	14.53
Total	114.57	134.65	150.01	162.47	256.69

Source: Kenya Roads Board

3.6.3 Based on a recent World Bank study, overall annual maintenance funding needs for the classified and urban road networks is in the range of US\$ 120-130 million. The findings of the study come to the same broad conclusion as earlier studies: US\$ 110 million (BKS study, 2001) US\$ 113 million (Road Sector Strategy, 1997), US\$ 125 million (E. Rausch, 1992). It appears therefore, that maintenance funding is not a constraint, which all development partners acknowledged, is a major achievement matched by very few developing countries. Table 3.3 below shows the maintenance funding needs.

Table 3.3 – Kenya Annual Road Maintenance Needs (US\$ million)

Description	Classified Network	Unclassified Network	Urban Network	Total
Routine Maintenance	36.0	4.0	5.0	45.0
Periodic Maintenance	67.0	6.0	8.7	81.7
Total	103.0	10.0	13.7	126.7

Source: World Bank Transport Sector Review

3.6.4 Despite the fact that the funds generated by the fuel levy are adequate to cover regular normal maintenance needs, there is a large maintenance backlog. Therefore the challenge facing the GOK is how to mobilize KES 112 billion required clearing the backlog and bringing the network to maintainable condition. Under the Road Sector Investment Program (2007-2020), the Government is planning to clear the maintenance backlog in 7 years. The resources needed for the clearance of backlog will come from the additional fuel levy which now generates KES 7 billion per year in excess of the regular maintenance needs, and donor funding. The Government is also looking into other public financing instruments including pension funds, and floating road bonds on the local financial market.

3.7 Urban Transport

3.7.1 **Urbanization and Motorization** - Urban centers in Kenya have experienced rapid population growth with statistics indicating that the urban population had increased from 8.166

million in 1995 to 14.263 million in 2005 resulting in about 42% of the population living in urban centers. The rapid urbanization trend coupled with explosive growth in motorization and a disorganized public transport system has resulted in chronic traffic congestion particularly in Nairobi and Mombasa due to heavy flows during peak hours and competition and conflict for limited road space by road users.

3.7.2 Road Traffic Congestion in NMA - The Nairobi Metropolitan Area had a population of 2.14 million in 1989, 3.23 million in 1999, and 6.76 million in 2005. It is projected to reach 20.6 million by 2030. Daily traffic volumes along most of major arterial roads in and out of the city have exceeded their design capacity necessitating major improvements. The Nairobi Metropolitan Area Urban Transport Master Plan Study financed by JICA in 2006, highlighted the urgent need to increase the urban transport supply through construction of missing links, improvement of major urban corridors, and a gradual shift to mass transit systems such as Bus Rapid Transit and Light Rail Transit in order to address the current crisis and cope with future developments.

3.7.3 Public Transportation system - Public transportation in Nairobi Metropolitan Area is dominated by conventional bus service and minibus services (called Matatus) with commuter rail playing a very limited role. Modal split analysis shows that 49% of the residents use non-motorized transport, 42% use public transportation, and only 9% of the residents use private cars. The conventional bus service in the city of Nairobi is operated by Kenya Bus Service (KBS) with 300 conventional buses and metro shuttles and carrying 17% of the total public transport passengers. KBS has regular schedules and published fares. Matatus are minibuses of 14 and 25 seats privately owned with designated routes but no designated stops and no timetable. Loading and unloading points, fares, and routes are not fixed but depend on passengers' requests. The fleet is estimated at 12,000 in Nairobi and carries 82% of the daily public transport passengers. There are four commuter rail lines operating in the Nairobi Metro Area; two lines from Thika and Kahawa (Northeast), one line from Limuru (Northwest) and one line from Embaski (South). Daily frequency is one round trip from the suburban stations to Nairobi central. Commuter Rail accounts for 16,000 passengers per day, or 1.5% of total.

3.7.4 More than 80% of public transport consists of small matatus, which is not an efficient use of limited urban infrastructure and causes traffic congestion and traffic accidents. There is an urgent need to improve the public transportation system in Nairobi by introducing other modes of public transport with high carrying capacity such as LRT, and BRT. This action should be complemented by strengthening mode interchange, and introducing shuttle buses in the CBD. In addition strong consideration should be given for improving the institutional and regulatory framework for management and operation of public transport system².

4. THE PROJECT

4.1 Project Concept and Rationale

4.1.1 The proposed project is designed to remove transport bottlenecks along the Nairobi-Thika highway, one of three major transport corridors within the Nairobi Metropolitan area. The project will also address the recurrent traffic congestion in some sections of the central business district and the limited access to public transportation, and promote private sector participation in road infrastructure.

4.1.2 The Nairobi Metropolitan Area (NMA) is the most dynamic engine of growth and employment creation in Kenya accounting for more than 30% of the National GDP. However, as a result of rapid urbanization coupled with the explosive growth in motorization, the transportation system including the urban arterials and the major corridors linking the CBD to the suburbs and satellite towns, as well as the public transportation system have become

² Nairobi Metropolitan Area Urban Transport Master Plan

inadequate and are constraining economic growth and limiting access to job opportunities, education, and recreation. The Nairobi-Thika Highway is one of three major corridors linking downtown Nairobi to the suburbs and satellite towns. This highway carries currently more than 60,000 vehicles per days on some of its sections, with demand almost twice the existing capacity. The poor level of service has resulted in long traffic delays and travel times, excessive mobile emissions, and high level of accident rates. Accident data shows that over the past five years more than 700 accidents occurred on the Nairobi Thika road of which 227 were fatal. The upgrading of the highway will provide adequate capacity and considerably decrease the accident rate by minimizing vehicle conflicts through interchanges and by providing separate service roads for local and non-motorized traffic.

4.1.3 Several alternative geometric design and traffic control and management strategies were evaluated by the Design consulting firm. The selected option – A limited access dual carriageway highway with four lanes on each side, traffic interchanges at existing roundabouts, and intermittent frontage service roads for local traffic - was found to be technically and economically the most adequate solution. The detailed engineering design for the project was reviewed and found to be appropriate.

4.1.4 Public Transport system in the Nairobi Metropolitan Area operates in a totally deregulated environment and is largely dominated by small 14-seater buses called matatu accounting for more than 80% of the market followed by the Kenya Bus Service (17% of the market) and the commuter rail accounting only for 1.5% of the market. Public transport demand will increase from the current 1.8 million daily trips to 2.9 million trips by 2025. The infrastructure development such as widening and additional lanes, construction of new roads or bypasses will not provide enough capacity to cope with future demand. Therefore, there is an urgent need to formulate and design a comprehensive public transportation system for the NMA to develop an environment with increased capacity and modal choices including possibly light rail transit, bus rapid transit, enhanced commuter rail and a restructured bus/matatu service.

4.1.5 Given the extent of classified road network in Kenya, funding for the maintenance upgrading and development is posing a formidable challenge to the limited public resources. The GOK has been exploring the potential for private sector participation (PSP) in the management operation and financing of road infrastructure including tolls or shadow tolls in the form of BOT (build operate transfer) or MOT (maintain operate transfer). Given the importance of the Nairobi-Thika Highway and its geometric characteristics (limited access highway) and the high level of traffic, there is considerable scope for post construction private sector participation such as MOT. The project will finance the consultancy services to investigate the PSP option and the follow-up transaction advisory services.

4.1.6 The project design took into account the lessons learned from previous interventions of the Bank and other donors in the transport sector. In past interventions of the Bank implementation of transport projects have been characterized by long start-up delays, poor project management, lack of local counterpart funding, and poor reporting and auditing. The GOK and its Development Partners have acknowledged these weaknesses and engaged in several institutional reforms in order to improve on these areas of poor performance. Three highway Authorities have been established to address the poor management of the road infrastructure and improve on project management. In addition, the increases in fuel levy and budgetary allocation have remarkably improved the mobilization of local resources for road financing. The proposed project design acknowledged and reflected these improvements. However, to minimize the risk for poor budgeting of local counterpart funds, the GOK is required to open a project account and deposit therein the counterpart funds to finance expenditures under the project. In addition the commitment of the GOK to pursue the reforms leading to the operationalization of the Road Authorities will be made a condition of the ADF loan.

4.1.7 The design and formulation of the project also benefited from the wide consultations carried out by the Bank project appraisal team and the consulting firm commissioned by the Government, including project beneficiaries, government agencies, the donor community,

transport operators, shippers' associations, manufacturers associations, Community-based organizations, and NGOs. The proposed Nairobi-Thika Highway Improvement Project is consistent with Kenya's development priorities and is listed in the Kenya Joint Assistance Strategy (KJAS) as one of the key priorities for donor support. The project is also consistent with the Bank Assistance Strategy to Kenya (CSP 2005-2007) and other relevant Bank policies and guidelines.

4.2 Project Area and Beneficiaries

The Project Area

4.2.1 The project area lies in the Nairobi Metropolitan and Central Province covering parts of the City and Thika district. The road traverses Kasarani, Githurai, Ruiru, Juja and ends at Thika River Bridge in Thika district. The total population living along the road is approximately 843,526 comprising 446,930 male and 397,019 female giving approximately 252,330 households (Population Census, 1999). The main features and economic activities along the route are human settlements with urban characteristics, various businesses, light manufacturing, educational institutions, and some farming activities. There is a thriving informal sector (Jua kali) specializing in metal work, carpentry, vehicle repairs, dressmaking and construction. Other noticeable land uses include cut-flower growing, tea and coffee farming as well as livestock for meat and dairy.

4.2.2 Although Kenya has recently experienced high economic growth of 4 to 6% (KJAS, 2007-2012), 46% of Kenyans live below the poverty line. The situation is worse in Thika where 48% of the population are poor. The project area has high unemployment rates where Thika for instance had an unemployment rate of 34-37%. The estimated labour force in the area (Kasarani, Kiambu, Thika) is 710,251 and wage employment accounts for 43% of households income. The high poverty incidence in the area could be explained by rising unemployment, the collapse of agricultural sector, collapse of industries, poor infrastructure and rise in HIV/AIDS prevalence.

Project Beneficiaries

4.2.3 The potential project beneficiaries will be predominantly the people living along the route engaged in various economic activities. More importantly will be commuters to work in secondary and tertiary sectors in the Central Business District (CBD). Over 89,500 people residing in Kasarani, Kiambu and Thika are on wage employment and another 125,000 are in the informal sector majority of who have to commute to Nairobi. Other distinct groups of commuters are students, health patients, shoppers and traders (formal and informal). With a secondary school enrolment rate of over 60% at least 12,000 students would potentially benefit from the road. In addition, 2 public universities are established along the road, Kenyatta University and Jomo Kenyatta University of Agricultural Technology (JKUAT). Between these two universities are approximately 11,990 students who attend part-time programs (49% women) and who will greatly benefit from an efficient transportation system.

4.2.4 Transport operators especially passenger vehicles, light and heavy goods trucks (domestic and regional to Ethiopia and Somalia), and non-motorised road users will also be among the beneficiaries of the project. This will include horticultural and dairy farms which require efficient and reliable transportation system. A large proportion of beneficiaries of the road project will be women most of whom sell horticultural products in the NMA transported from Thika area and beyond. In addition the operators in the roadside markets including the Maasai market at Globe cinema are women. Other users include local administrations, and social service providers (NGO/CBOs) working in districts of Murang'a, Maragwa, Kirinyaga, Embu, Meru and Nyeri.

4.3 Strategic Context

4.3.1 The development of the Nairobi-Thika highway into a major transport corridor was conceived within the overall Nairobi Metropolitan Growth Strategy, and the Nairobi Urban Transport Master Plan carried out by the Government in 2006 with funding from JICA. The development of this corridor and other major arteries will guide the urbanization process and

contribute to the redistribution of urban functions and workplaces and the emergence of urban core self-supportive towns, new towns, and sub centers such as Thika, Limuru, Kikuyu, and Athi River. The road is also an important link on the Great North Trans-African Highway (Cape Town to Cairo), one of the highest priorities in the NEPAD short-term action plan. The proposed operation will complement other recent interventions of the Bank on this Trans-African Corridor including Isiolo-Merille-Moyale in Kenya, Ageremariam-Moyale in Ethiopia, Athi River-Arusha in Kenya and Tanzania, Singida-Babati in Tanzania and SADC North-South Corridor in Zambia and Botswana.

4.3.2 The proposed Project would greatly contribute to addressing the following transportation issues in the Nairobi Metropolitan Area (NMA): (i) Constrained economic development of the NMA due to poor mobility and inefficient transport network; (ii) Insufficient and poor public transport services affecting its accessibility and safety; (iii) Inadequate private sector participation in the management operation and financing of transport infrastructure; (iv) and absence of coordination and regulatory authority for management and operation of public transport. By addressing these key urban transport sector issues the project will contribute in significantly reducing transportation and transaction costs; improving urban mobility and promoting private sector participation in transport infrastructure.

4.4 Sector Goal

4.4.1 The sector goals of the project are: i) Contribute to improve the accessibility, affordability, and reliability of the transport infrastructure system to promote economic growth and socio—economic development in Kenya; and ii) Contribute to regional integration in the eastern and horn of Africa regions.

4.5 Project Objectives

4.5.1 The objectives of the project are: (i) Improve road transport services along the Nairobi-Thika corridor and enhance urban mobility within the metropolitan area by reducing traffic congestion; (ii) Contribute to the development of a sustainable urban public transit system for the Nairobi Metropolitan Area; and (iii) Promote private sector participation in the management, operation, and financing of road infrastructure in Kenya.

4.5.2 The achievement of the objectives after project completion will be monitored by the following indicators: i) Average travel time during peak hour from Nairobi to Thika reduced by 60%; ii) Average annual accident rate on the Nairobi-Thika section reduced by 70% from 230 to less than 70; iii) Average public transport cost from Nairobi to Thika reduced by 30%.

4.6 Project Description

4.6.1 The expected outputs of the project are: i) 45-km bitumen-paved dual carriage highway with 4 lanes on each side between Nairobi CBD and Thika Town.; ii) Construction of nine (9) traffic interchanges at all the major crossing points of the Highway; iii) Economic feasibility and engineering design reports for the Nairobi Metropolitan Transit System; and iv) Economic/institutional feasibility and transaction advisory services for Private Sector Participation in the management and operation of Nairobi-Thika Highway. The project comprises the following components:

A Nairobi – Thika Highway Improvement Works - This component involves: (i) The provision of additional capacity through construction of additional lanes (from four-lane to a six/eight-lane highway), and reconstruction of the existing carriageway pavement; (ii) the construction of services roads to segregate through traffic from local traffic; (iii) the construction of traffic interchanges at six (6) locations to replace the existing roundabouts at Pangani, Muthaiga, GSU, Kasarani, Githurai, and Eastern Bypass; and (iv) The rehabilitation of some existing bridges, execution of drainage structures, road safety devices, and environmental and social mitigation measures.

B. Nairobi City Arterial Connectors – This component involves the improvement of major arterial connectors linking Pangani to Uhuru Highway in Nairobi CBD including (i) Pangani-Museum Roundabout with interchanges at Limuru Road and Museum; (ii) Pangani-University Way with a fly-over at the Globe Cinema roundabout; (iii) Widening/dualling of Ring Road Ngara from Pangani to Haile Selassie Avenue; (iv) Traffic Management.

C. Construction Supervision of the Civil Works - An experienced engineering consulting firm on behalf of MORPW will carry out the construction supervision. The consulting firm will administer the construction contract, inspect the works, supervise the necessary quality control testing performed by the contractor, track progress and costs, and maintain close liaison with MORPW and relevant ministries responsible for the project.

D. Nairobi Metropolitan Transit System (Nairobi Metro Study) – This component is a follow-up to the Nairobi Urban Transport Master Plan study funded by JICA. This component will focus on public transportation system. A comprehensive public transportation study will be undertaken. The study will include an economic feasibility, environmental and social impact assessment (ESIA), financial and institutional arrangements for various options including Light Rail Transit System, Bus Rapid Transit System, Enhanced Commuter Rail, etc. Detailed engineering design and tender documents will be prepared for the most viable options to address the immediate and medium term Public Transit needs.

E. Private Sector Participation in the Nairobi-Thika Highway Project – Under this consultancy component, the consultant will conduct alternative financial and institutional analyses for the proper management, operation and maintenance of the Nairobi-Thika Highway. The consultant will be responsible for preparing the necessary bidding and contractual documents and advising the government in the transaction process.

F. Project Technical and Financial Audits - An independent external financial auditor and an Independent Engineering/Construction Auditor shall be selected to provide project audit services. The purpose of the financial audit will be to ensure that the proceeds of the loan are used economically, efficiently and solely for the purpose for which they are intended. The purpose of the technical audit is to ensure that the contractor and consultant are performing according to specifications.

G. Compensation and Resettlement of Project Affected People – This component makes provision for the adequate compensation and resettlement of Project Affected People identified in the Project Environmental and Social Impact Assessment.

4.7 Environmental and Social Impact

4.7.1 The project is designated as a Category 1 according to Bank's environmental and social risk management system due to the scope and magnitude of the civil works and the potentially significant displacement of micro and small business activities notably hawkers, open air markets, and tree and flower nurseries along the road. The key issues requiring management during the project life are: a) the implementation of the resettlement and compensation, and b) effective management of the environmental and social impacts during construction and operation, including control of environmental pollution and degradation, HIV/AIDS and road safety components. An Environmental and Social Impact Assessment (ESIA) and an Abbreviated Resettlement Plan (ARP) have been prepared for the project. A full resettlement Action Plan (RAP) was not warranted because the number of households to be displaced is less than the policy threshold of 50. The road improvements do not involve any major realignment; hence the direct impact on adjacent properties will be negligible.

4.7.2 Environmental and Social Management Plan (ESMP): As part of the project, an ESMP has been prepared which is annexed to the ESIA Report. The Plan describes the mitigation measures and institutional responsibilities for implementation. The cost for implementing the ESMP has been included in the project cost. It is estimated at US\$5.00 million of which US\$3.10 is earmarked for compensation and ROW acquisition. Key elements for monitoring and auditing in the road project include: i) measures to mitigate degradation of water sources, land and vegetation; ii) measures to safeguard the health and safety of the workforce, local communities and road users; iii) assurances to rehabilitate all materials sites and sites disturbed by construction activities, including contractor's camps; iv) monitoring of air quality over the life of the project; v) implementation of the ARP; vi) conducting of STI/HIV/AIDS awareness and prevention activities; and vii) launching of a road safety campaign along the road. A commitment that compensation, relocation and resettlement of the affected persons are finalized in accordance with the Abbreviated Resettlement Plan prior to commencement of civil works has been made a condition of the loan.

4.7.3 Implementation of the ESMP is the prime responsibility of the contractor. The contractor would be required to appoint an in-house Environment/Social Officer whose responsibility will be to ensure that the ESMP is effectively implemented, in accordance with the contractor's schedule. The Resident Engineer will also appoint an Environmental/Social Expert to oversee implementation of the ESMP, the ARP, the Road Safety Campaign and the STI/HIV/AIDS Prevention and Awareness Campaign. This Expert will liaise with the MoRPW's Environmental Unit and NEMA's District Environment Officers for Thika and Kasarani in order to ensure legal compliance.

4.7.4 Participation and Information Disclosure: Public consultations were carried out in two phases in the project area between 17th and 25th May, 2007 designed to capture concerns of the immediate neighborhoods of the project road as well as other stakeholders. The project received overwhelming acceptance but for a few issues such as: a) need for fair and prompt compensation for assets, b) a curb on the spread of STI/HIV/AIDS, c) local participation (by women and youth) in construction, d) control of noise and dust emissions, e) disruption of infrastructure and utility services, and f) traffic diversions affecting businesses and livelihoods along the existing route. The preparation of the ESIA and ESMP has incorporated all the concerns raised by the stakeholders. The Summary ESIA has been distributed to the ADB Board on 13 July 2007 (Ref. ADF/BD/IF/2007/144) and disclosed on the PIC website of the Bank.

4.8 Project Costs

4.8.1 The estimated project cost (net of all taxes and duties) is UA 175.10 million (KES 18.10 billion) of which the foreign exchange cost is UA 101.62 million (KES 10.50 billion) or 58% of the total, and the local cost is UA 73.48 million (KES 7.60 billion) or 42% of the total.

4.8.2 The project cost estimates for the civil works are based on the construction bill of quantities of detail design plans completed in August 2007 by an Engineering Firm commissioned by the Government of Kenya. The cost estimates have been taken into account recent bid prices for similar construction works. The cost estimates for the consulting services are based on average unit prices for similar services. Allowances have been made for physical and price contingencies. Physical contingencies are estimated at 7.5% of base cost. Average price escalation of 3% per annum on foreign exchange and 7% per annum on local currency has been adopted. These rates are based on the recent trend and forecasted price inflation in the construction industry in Kenya. A lump sum amount of UA 140,000 has been included for both financial and technical audits of the project during the implementation stage. The project cost estimates by project components is presented in Table 4.1 below. The project cost by category of expenditure is shown in Annex 7.

Table 4.1
Summary of Project Cost Estimates by Component (Net of Taxes)

Component	Kenya Shillings (Million)			Unit of Account (Million)		
	Foreign Exchange	Local Cost	Total	Foreign Exchange	Local Cost	Total
A. Civil works Nairobi-Thika	7,849.49	5,232.99	13,082.48	75.94	50.62	126.56
B. Civil Works Urban Sect.	1,234.54	823.03	2,057.57	11.94	7.96	19.90
C. Supervision	0.00	105.00	105.00	0.00	1.02	1.02
D. Nairobi Metro Study	252.00	63.00	315.00	2.44	0.61	3.05
E. PSP Study Nairobi-Thika	35.00	35.00	70.00	0.34	0.34	0.68
F. Project Audits	14.00	0.00	14.00	0.14	0.00	0.14
G. Compensation & Resettlement	0.00	350.00	350.00	0.00	3.39	3.39
Base Cost	9,385.03	6,609.02	15,994.06	90.79	63.93	154.72
Physical Contingencies	681.30	454.20	1,135.50	6.59	4.39	10.98
Price Escalation	438.06	532.03	970.09	4.24	5.15	9.38
Total	10,504.39	7,595.26	18,099.65	101.62	73.48	175.09

4.9 Sources of Financing and Expenditure Schedule

4.9.1 The proposed project will be jointly financed by an ADF loan and grant, and the Government of Kenya. The ADF loan will finance 70% of the civil works and related supervision and audit services, with the GOK covering the remaining 30% for that category. The ADF grant will finance 85% of the Nairobi Metro and PSP studies while the GOK will finance the remaining 15%. The GOK will in addition, be responsible for the project resettlement and compensation costs as well as taxes, duties, royalties, and levies which are not eligible for financing by the ADF. The financing plan by source of finance is presented in Table 4.2 below. The financing plans by component and expenditure schedules are shown in Annex 7.

Table 4.2
Sources of Project Finance (in UA million)

Source	Foreign Exchange	Local Cost	Total Costs	Percent of Total
ADF Loan	98.84	19.01	117.85	67%
ADF Grant	2.78	0.37	3.15	2%
GOK	-	54.10	54.10	31%
Total	101.62	73.48	175.10	100%

5. PROJECT IMPLEMENTATION

5.1 Executing Agency

5.1.1 The project will be implemented by the Roads Department of Ministry of Roads and Public Works (MORPW) except for the Nairobi Metro Study which will be implemented by the Ministry of Transport. Both organizations have implemented similar road projects and studies funded by donors. Overall coordination and monitoring will be carried out by a Project Steering Committee chaired by the Permanent Secretary of MORPW.

5.2 Institutional Arrangements

5.2.1 The Executing Agency for the civil works, the construction supervision and audit services, and the Private Sector Participation study will be the Roads Department (MORPW) through a Project Implementation Team (PIT). The PIT will be headed by a Team Leader

reporting to the PS MORPW, through the Roads Secretary. Project implementation responsibilities will be transferred to the Kenya National Highway Authority when the Authority becomes operational in accordance with the provision of the Kenya Roads Act 2007 and the procedures and timetable established by the Interim Management Committee. The Ministry of Transport will be the Executing Agency for component D (Nairobi Metro Study) through a Study Implementation Team (SIT). The SIT will be headed by a Team Leader reporting to the PS MOT.

5.2.2 The members of the PIT will include the project Team Leader, one procurement specialist, one financial specialist, one engineer (design), one engineer (contracts), one environmental officer, and a fulltime support staff. The SIT will include the study Team Leader (MOT) and representatives of the Nairobi City Council, the Ministry of Local Government, the Ministry of Finance, The Attorney General Chambers, KEPSA, Kenya Railways Corporation, and The Ministry of Roads and Public Works. The PIT and SIT administrative and management costs (communications costs, performance premiums, per diems, office supplies, and basic equipment) will be covered under provisional sums in the consultancies contracts. The designated Team Leaders for the PIT and SIT shall have a minimum of ten years of experience; the other officers shall have a minimum of five years of experience and qualifications that are acceptable to the Bank. This will be made a condition of the loan and protocol of grant. Annex 2 shows the Roads Department within the MORPW Organizational chart.

5.2.3 The overall coordination of the project will be provided by a Project Steering committee chaired by the PS (MORPW) and including representatives of the Ministry of Finance, the MOT, the Ministry of Local Government, Ministry of Lands and Housing, Nairobi City Council, . The committee will raise any issues that may hamper or negatively affect the execution of the project and advise on the necessary corrective measures. The committee will be involved in the review of project progress reports, and interim reports for the studies. The Committee will hold quarterly review and coordination meetings.

5.3 Supervision and Implementation Schedule

5.3.1 The execution of the civil works for the Nairobi-Thika Highway and Urban Arterial Collectors will be carried out by international contractors. The construction supervision, and the feasibility and engineering design studies will be conducted by well qualified engineering consulting firms. The project will be implemented over a period of 36 months including the time for procurement, starting from January 2008. A detailed project implementation schedule is provided in Annex 3.

5.4 Procurement Arrangements

5.4.1 Procurement arrangements are summarized in Annex 9. All procurement of goods, works and acquisition of consulting services financed by the Bank will be in accordance with the Bank's *Rules of Procedure for Procurement of Goods and Works*, or as appropriate *Rules of Procedure for the Use of Consultants*, using the relevant Bank Standard Bidding Documents.

5.5 Disbursement Arrangements

5.5.1 The loan and grant will be disbursed for two categories of expenditure including Civil Works, and consulting services. The Direct Payment Disbursement Method will be used for all disbursement applications following the procedures and standard supporting documents outlined in the Bank's Disbursement Hand Book. The Government of Kenya will open a Project Account for the purposes of depositing counterpart funds to finance expenditures for the civil works under the project. The initial deposit in the Project Account shall be KES. 1.00 billion; this will be a condition of loan effectiveness. Thereafter the GOK will deposit at the beginning of each financial quarter adequate amounts to cover the expected expenditures during the respective quarter.

5.6 Monitoring and Evaluation

5.6.1 Basic indicators for monitoring and evaluating project performance are included in the Project framework. A set of additional indicators for evaluating project outcomes, and impacts was discussed with the Executing Agency. The indicators will be reviewed at the start of project implementation and may include (i) economic development and socioeconomic indicators for Nairobi metropolitan Area, (ii) transport costs and time for specific types of vehicles and trips, (iii) transport services and transport charges, (iv) accident rates, (v) income levels, and (vi) jobs created in construction and maintenance. At the beginning of project implementation, the Supervision consultant will establish baseline and target values for the indicators. The indicators will be measured at project inception, completion, and 3 years later, and results compared with the baseline. Where relevant, indicators will be disaggregated by gender. The MORPW and the MOT shall regularly provide the Bank with quarterly progress reports for the project including the implementation of the social and environmental management plan (ESMP), in the established format covering all project activities. In addition, monitoring of the project will be done through the Bank's semi-annual supervision missions, in accordance with the Bank Group's Operations manual. A mid-term review will be undertaken during the second year of implementation in 2009 to identify any major constraints facing the project and provide the required corrective measures.

5.6.2 Within six months of project completion, the executing agencies will prepare the Borrower's Project Completion Report to be submitted to the Bank. Subsequently, the Bank will carry out its own PCR, which will form the basis for the post-evaluation of the project.

5.7 Financial Reporting and Auditing

5.7.1 The Finance and Administration Division of MRPW will be responsible for financial management and reporting procedures for the project. A finance officer from the Division will be assigned to be member of the Project Implementation Team reporting to the Permanent Secretary MORPW. A well-documented Financial Management Manual, which outlines internal control procedures as well as financial reporting arrangement to Government and Donors, has been developed. The manual describes the accounting system, the accounting records, supporting documents, computer files, authorizations procedures for transactions, financial reporting and disclosures, and contract administration and monitoring procedures. The Accounting System is fully computerized and operational. The Finance and Administration Division would be able to monitor the expenditures of the project and meet the financial reporting and auditing requirement under Donor funded projects. The financial reporting under on-going road projects supported by IDA and ADF was reviewed and found acceptable.

5.7.2 The Financial Divisions of the two executing agencies will open and maintain separate accounts for the project, and maintain all the necessary documentation and records supporting project related disbursement and financial transactions. The financial statements and project accounts will be audited annually during project implementation following the Bank's Guidelines for Project Audit. Qualified independent audit firms procured based on terms of reference acceptable to the Bank shall undertake the auditing services. The Audit reports shall be submitted to the Bank regularly once every year and no later than six months after project completion.

5.8 Aid Co-ordination

5.8.1 Aid co-ordination in Kenya is carried out at both sector and national levels. The Ministry of Finance (MOF) is responsible for mobilization and management of the financial resources that are required by the technical ministries for their development programs and projects. The Kenya Coordination Group meetings, chaired by the Minister of Finance, provide regular opportunities for the government and the resident donor community to discuss matters of mutual concern. The Ministry of Finance has established sector co-ordination units, with the responsibility of overseeing on-going projects in the various sectors and coordinating sector policy dialogue. Development

partners meet among themselves each month in the Development Coordination Group (DCG), chaired by the World Bank. The DCG meetings offer an effective forum for aid co-ordination among development partners, to better align assistance with government programs, and to coordinate assistance more effectively among themselves. The Harmonization, Alignment, and Coordination Group, which includes the Ministry of Finance, actively promotes the Paris Declaration on aid effectiveness. All 17 of its members, covering some 90% of total official development assistance (ODA) to Kenya, have joined together to formulate the Kenya Joint Assistance Strategy (KJAS). In the transport sector, donors meet regularly at informal sessions coordinated by the World Bank to harmonize their response and positions with respect to institutional, policy and projects' implementation performance.

5.8.2 The Bank appraisal mission held consultative discussions with all major donors active in the transport sector in Kenya. The project was generally well received and confirmed as one of the key priorities listed in the Joint Strategy for KJAS partners' assistance because of the potential it holds for improving transport services and reducing traffic congestion in the Nairobi Metropolitan Area.

6. PROJECT SUSTAINABILITY AND RISKS

6.1 Recurrent Costs

6.1.1 The recurrent costs of the project include the routine maintenance costs incurred annually and the periodic maintenance costs outlays every six to seven years. Routine maintenance costs cover the maintenance of shoulders, cleaning of drains, ancillary works including pothole patching while periodic maintenance involves the resealing/asphalt overlay works to protect the investment. The incremental recurrent cost implications considering the improvement versus the base case has been estimated at KES 2,184.50 million (USD 31.50 million) over the design life of the project which averaged at a cost of KES 109.225 million (USD 1.60 million) per annum at August 2007 prices.

6.2 Project Sustainability

6.2.1 The sustainability of the investment in the project will be enhanced with the operationalization of the Kenya Roads Act of 2007 which provided a clear mandate and legal identity for each organization involved in the road sector. The Act has now limited the role of MoRPW to policy formulation and regulatory functions, while the KeNHA will handle executive function of planning, programming, development, and maintenance of the Classes A, B, C roads under its jurisdiction on commercial basis with a management contract signed with the Minister. The streamlined management of the sector coupled with current secured and stable flow of funds for maintenance from the Kenya Roads would lead to the application of sound asset management techniques for the network and further strengthen the domestic construction industry and project sustainability.

6.2.2 The restructuring of some service departments of the MoRPW into Semi Autonomous Government Agencies (SAGA) for improved delivery of services would also contribute to project sustainability. In addition, axle load enforcement and rules relating to the configuration of heavy vehicles are being improved and implemented to control vehicle overloading and prevent premature failure of road pavements.

6.2.3 The Kenya Road Board revenue from fuel levy funds is estimated at USD 237.46 million for 2006/07 fiscal year and is projected to grow at about 4.0% per annum in line with the most likely scenario for traffic growth. Based on the statutory formula for allocation of the fuel levy fund among road agencies, 57% of the fund amounting to USD 135.35 million would be allocated to the KeNHA for the maintenance of Classes A, B, and C roads. It is estimated that about USD 110.00 million is required every year to keep the main trunk roads network under the jurisdiction of KeNHA in good to fair condition once the maintenance backlog is cleared.

Therefore, there are adequate resources to meet the recurrent costs of the project road. In addition a component of the project includes a study on Private Sector Participation for the proper management, operation and maintenance of the project road either through concessioning or long term maintenance contracts to ensure efficient service delivery.

6.3 Critical Risks and Mitigation Measures

6.3.1 Institutional Restructuring Risk: The responsibility for the development and management of the core and strategic network of Classes A, B and C roads shall be transferred from the Roads Department of the Ministry of Roads and Public Works (MoRPW) to the Kenya National Highways Authority (KeNHA) as per the Kenya Roads Act, 2007. The speed of the transition arrangements under the Act and adequate staffing of the Authority constitutes a potential risk for the project. An Interim Management Committee provided under the Act has been set up to oversee the change management process and the smooth transfer of functions, rights, powers, and project portfolios. The committee is assisted by independent consultants financed by IDA to facilitate the process of operationalizing the Authority. Therefore, disruption to project implementation will be minimized. In addition as part of other conditions of the loan, the Government is to provide evidence satisfactory to the Fund that the autonomous Road Agencies created under the Act are operational by December 2008.

6.3.2 Fiduciary Risk: The fiduciary risk of the project is low as transparency and accountability in public financial management has improved considerably. Donors' support including the IDA-funded Public Sector Management Technical Assistance Project and the ADF Institutional Support for Good Governance (ADF/BD/WP/2006/67) have improved financial accountability framework and strengthened regulatory institutions. An Integrated Financial Management System has been put in place by the Ministry of Finance and rolled out at the level of sector Ministries to capture all payments by linking accounting systems to budgets and expenditure management. The Public Procurement Act No.3 of 2005 has created bodies for the regulation of Public Procurement including a Public Procurement Oversight Authority, Public Procurement Oversight Advisory Board, and Public Procurement Administrative Review Board. The Act has resulted in greater transparency in procurement matters, improved procurement planning with an effective linkage between procurement and budgeting functions. Project specific risk mitigation measures include the appointment of independent Financial and Technical Audit firms to ensure that funds are used efficiently and for the intended purposes. In addition all project procurement activities will be subject to Bank prior review and approval.

6.3.3 Counterpart Funds Risk: The counterpart funds to be borne by the Government under the project is substantial and delay in meeting counterpart fund obligations had been a major issue in past operational experience in the sector. However, over the last few years the Government has improved the fiscal policy environment to broaden the tax base and raise additional revenue. As a result, budget allocation to the road sector was substantially increased over the last two years to average KES 27 billions per annum. The incremental requirements of this project is about KES 1.80 billion per year representing less than 7% of the current expenditure on roads. It would therefore not constitute a major fiscal burden. Nevertheless, to further mitigate the risk one of the conditions precedent to first disbursement of the loan is for the Government to open a project account into which an initial sum of KES 1.00 billion of counterpart funds should be deposited to finance project expenditures.

7. PROJECT BENEFITS

7.1 Economic Analysis

7.1.1 **Methodology** – A cost benefit analysis was carried out for the economic appraisal of the project using the HDM-4 computer model. HDM-4 allows for modelling over the analysis period, the interaction between traffic volume, composition, road condition, geometry and characteristics and the vehicle operating costs for the “with” and “without” project scenarios. A conversion factor

of 0.78 was used to convert financial costs into economic costs. The measures of project worth used are the EIRR, NPV and the FYRR at 12.0% discount rate. The base year taken for economic evaluation is 2008; the year in which construction is expected to commence with a construction period of 32 months. The first year the project road would be open to traffic was estimated at 2011.

7.1.2 Costs - The costs taken into account are the Road Agency costs in the “with” and “without” project scenarios which include both the cost of maintenance and the investment costs of upgrading the project road to a higher standard facility. These costs include the base cost for civil works plus the physical contingencies, consulting services for supervision and project audit. The financial contingencies are not taken into account, as they do not constitute consumption of economic resources. The economic investment cost has been estimated at KES 11.028 billion and would be disbursed over three years from 2008 to 2010. Residual value at the end of project life has been assumed at about 10% of original economic investment cost.

7.1.3 Benefits - The main project benefits in the economic evaluation include vehicle operating cost savings, travel time savings for passenger and cargo, and road maintenance savings. Accident costs savings have not been quantified due to lack of valuation parameters for accidents. Nevertheless, accident cost savings would be substantial given current high accident and fatality rates. Savings in motorized vehicle operating cost over the project’s operating life of 2011 to 2030 at 2007 prices have been estimated at KES 27.055 billion while the savings in passenger and cargo travel time costs have been estimated at KES 57.571 billion. About 84 percent of the project benefit is due to time savings for passengers and cargo while only 16 percent of the benefits are due to savings in vehicle operating costs.

7.1.4 Results of Cost-Benefit Analysis - The results of the economic evaluation using the HDM-IV has resulted in an Economic Internal Rate of Return of 30.4% which is higher than the current opportunity cost of capital in Kenya of 12.0%, agreed between Government and Kenyan Development Partners for admission of projects in the Road Sector Investment Program currently under finalization. Project investment worth in the base case scenario of NPV at KES 18.670 billion also confirms the viability of the intervention in the project (see Annex 4).

7.2 Social Benefits analysis

7.2.1 The project road will have significant positive impacts on the communities living in and around the project area – mostly through external benefits which cannot easily be quantified. These will emanate from increased efficiency in transportation systems and improved road safety.

7.2.2 *Enhanced travel efficiency for commuters:* The project road will facilitate travel for commuters especially wage employees and students. At least 64% and 43% of households in Kiambu and Thika districts, respectively, rely on wage employment mainly sourced in the Nairobi CBD. An estimated 80,829 were on wage employment in Thika and 179,565 in Kasarani mostly commuting to work. Students from Nairobi and other places will be able to travel with ease to the many post secondary education institutions in the two districts which have 3 universities, 8 colleges, 24 polytechnics, and 9 commercial institutions.

7.2.3 *Enhanced returns to commerce and agriculture:* Agricultural activities will be enhanced by the road. There are over 26,871 trade and commercial operators in the two districts among which 13,263 are informal operators. Farm-gate prices mainly for dairy products and horticulture will potentially increase due to the improved access to markets for inputs and produce, and enhanced extension services. The road will also attract the establishment of new manufacturing, food processing, and small and medium enterprises.

7.2.4 *Employment and gender equity and health delivery:* The road project will bring employment opportunities to the people along the road corridor. A total of approximately 1200 people will be directly employed with many more especially women getting jobs in providing food

and catering services to construction workers. Improved transportation will also strengthen the fight against the spread of HIV/AIDS, facilitate testing, treatment and care for infected persons.

7.3 Sensitivity Analysis & Switching Values

7.3.1 Sensitivity Analysis was undertaken on the base case result of the economic evaluation to determine the effect of changes in some important parameters of analysis, using a threshold of 12.0% discount rate as basis for viability. All scenarios tested indicated that the project viability is satisfactorily robust. Even in a worst case scenario of simultaneous 15.0% increase in capital investment costs and 15.0% decrease in traffic, the project still remained viable with an EIRR of 23.3%, and NPV of KES 12.13 billion.

7.3.2 Switching values for capital investment cost and project benefits on the base Economic Internal Rate of Return (EIRR) of 30.4% were undertaken to determine project resilience. The result indicated that the capital investment cost would have to increase by over 80% before project EIRR could drop below 12.0%; similarly, benefits would have to drop by over 67% before project viability is threatened. These situations are unlikely given current projected growth rate of the economy and traffic levels which would continue to put pressure on demand side for the facility.

8. CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

8.1.1 The project is expected to contribute to enhance transport services and urban mobility in the Nairobi Metropolitan Area by reducing general transport costs, improving accessibility to public transportation, employment opportunities, housing, and recreation activities. In addition the project is expected to promote private sector participation in the management and operation of road infrastructure in Kenya. The project will therefore have significant impacts on poverty reduction in Nairobi Metropolitan Area. The Economic Internal Rate of Return has been estimated at 30.4%, which is far greater than the 12% opportunity cost of capital in Kenya.

8.1.2 The proposed Nairobi-Thika Highway Improvement Project is consistent with Kenya's development priorities and is listed in the Kenya Joint Assistance Strategy (KJAS) as one of the key priorities for donor support. The project is also consistent with the Bank Assistance Strategy to Kenya (CSP 2005-2007) and other relevant Bank policies and guidelines.

8.2 Recommendations

8.2.1 It is recommended that: i) A loan not exceeding UA 117.85 million from ADF resources be extended to the Government of Kenya for the purpose of implementing the civil works component of the project described in this report subject to the conditions specified below; and ii) A grant not exceeding UA 3.15 million from ADF resources for be extended to the Governments of Kenya for the purpose of undertaking the feasibility and engineering studies for the Nairobi Metropolitan Transit System and Private Sector Participation in the Maintenance and Operation of Nairobi-Thika highway.

A. Conditions Precedent to the Entry into Force of the Loan Agreement

The entry into force of the Loan Agreement shall be subject to the fulfillment by the Borrower of the provisions of Section 5.01 of the General Conditions Applicable to Loan Agreements and Guarantee Agreements of the Fund.

B. Conditions Precedent to First Disbursement of the Loan

The obligation of the Fund to make the first disbursement of the Loan shall be conditional upon the entry into force of the Loan Agreement and the fulfillment by the Government of Kenya of the following conditions. The Government shall have:

- i) Appointed the following members of the Project Implementation Team, with qualifications and experience acceptable to the Fund: (a) a project Team Leader; (b) one procurement specialist; (c) one financial specialist; (d) one engineer (contracts); (e) one environmental officer; (f) one engineer (design) (para 5.2.3);
- ii) Opened a local currency account and deposited therein the initial sum of One Billion Kenyan Shillings (KES 1,000,000,000) as counterpart funds to finance expenditure for the civil works under the Project (para 4.1.6);
- iii) Submitted a relocation, resettlement and compensation plan acceptable to the Fund together with a payment schedule for the compensation and relocation/resettlement of all project affected persons (para 4.7.2); and
- iv) Submitted evidence to the Fund that persons affected in the first Lot/Section of the civil works to start have been compensated and/or relocated/resettled in accordance with the relocation, resettlement and compensation plan (para 4.7.2).

C. Other Conditions of the Loan

In addition the Borrower shall:

- v) Provide evidence to the Fund that the Roads Authorities established by the Kenya Roads Act 2007 are operational by December 31, 2008 (para 4.1.6);
- vi) At quarterly intervals, replenish the Project Account by the amounts required to finance its contribution and ensure that funds deposited into the Project Account shall be used exclusively to finance expenditures under the Project (para 4.1.6);
- vii) Prior to disbursement of funds for commencement of civil works for any subsequent Lot or Section of the Project, submit evidence of its having fully compensated and/or relocated or resettled all persons affected by the works on such Lot/Section of the Project. (para 4.7.2)

D. Conditions Precedent to Entry into Force of the Protocol of Grant Agreement

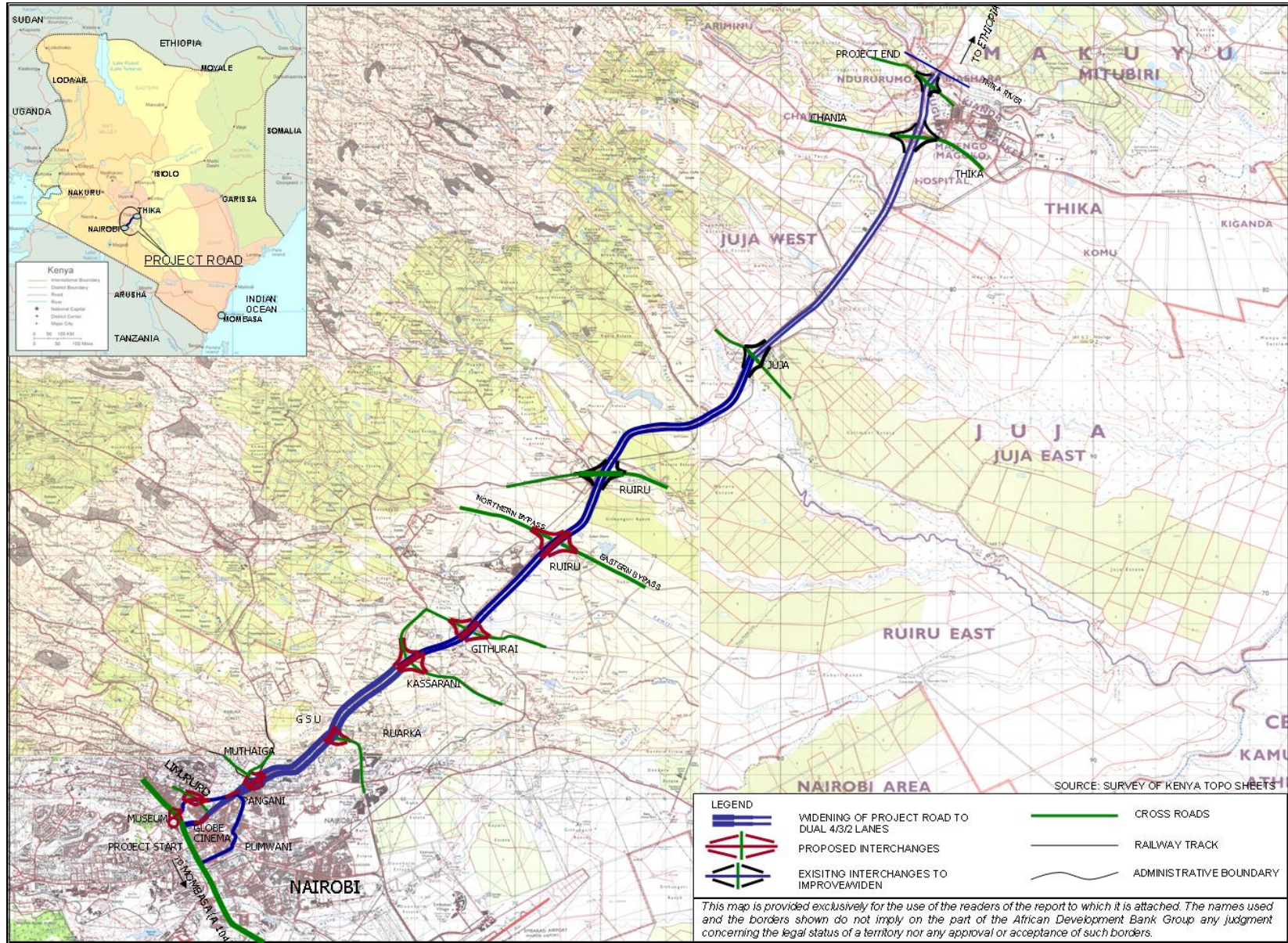
The entry into Force of the Protocol of Grant Agreements shall be subject to the fulfillment by the recipients of the provisions of Section 4.01 of the General conditions Applicable to Protocol of Agreements.

E. Conditions Precedent to First Disbursement of the Grant

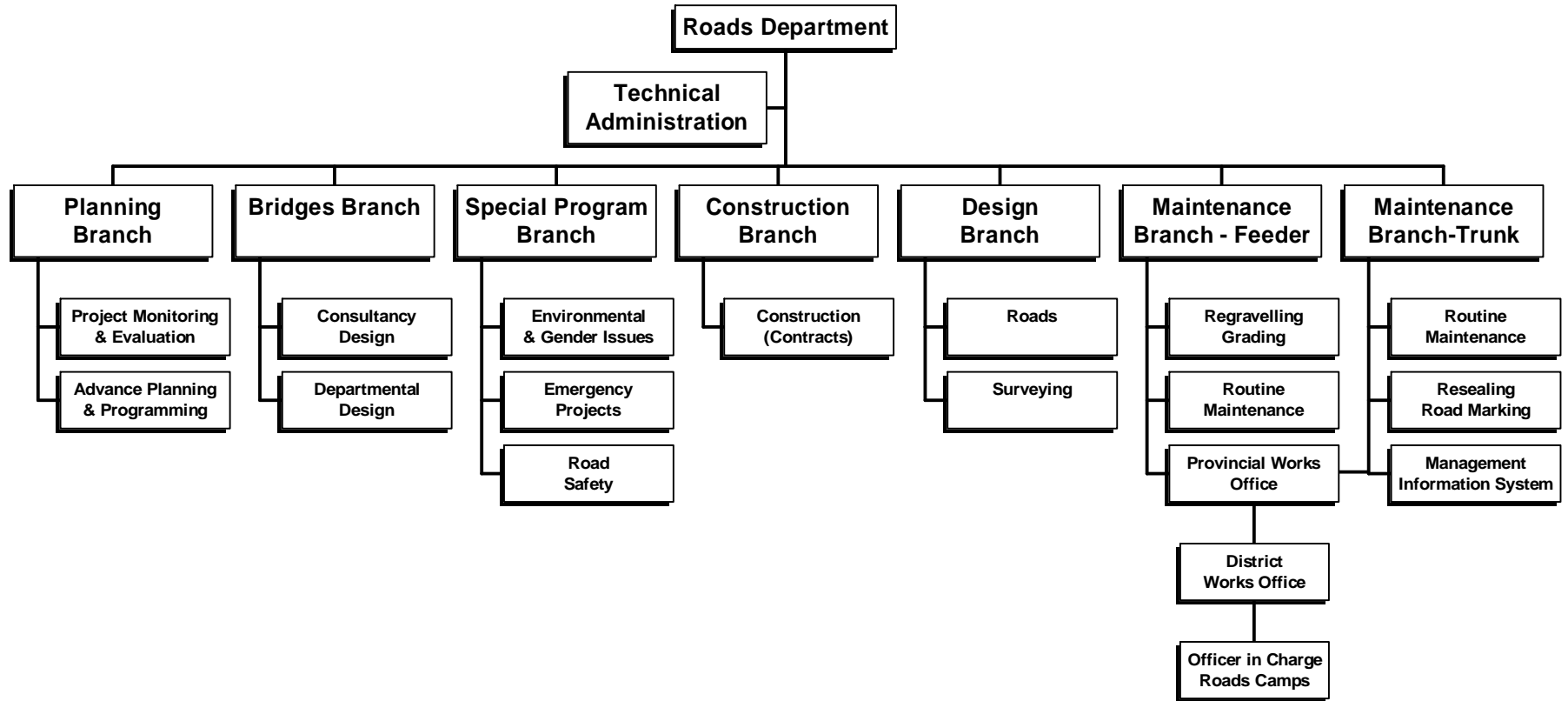
The obligation of the Fund to make the first disbursement of the Grant shall be conditional upon the entry into force of the Protocol of Grant Agreement and the fulfillment by the Government of Kenya of the following conditions:

- i) The Government of Kenya shall have appointed a Study Implementation Team reporting to the PS, MOT responsible for overall monitoring, reporting and coordination of the Nairobi Metro Study (para 5.2.3).

Kenya: Nairobi-Thika Highway Improvement Project Project Location Map



**ORGANIZATION CHART - ROADS DEPARTMENT
KENYA MINISTRY OF ROADS & PUBLIC WORKS**



**Kenya: Nairobi-Thika Highway Improvement Project
Project Implementation Schedule**

ANNEX 3

ID	Task Name	Start	Finish	Duration	2007				2008				2009				2010				2011			
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	Consultancy Procurement Schedule	7/31/2007	12/26/2009	880d																				
2	General Procurement Notice (APA)	7/31/2007	7/31/2007	1d																				
3	Preparation of Prequalification Documents	8/31/2007	9/19/2007	20d																				
4	Publication Invitation for Prequalification	10/16/2007	10/16/2007	1d																				
5	Expression of Interest Period	10/17/2007	12/1/2007	46d																				
6	Prequalification Report and RFP sent to ADB	12/2/2007	1/1/2008	31d																				
7	No Objection of ADB to Shortlist & RFP	1/23/2008	1/23/2008	1d																				
8	Issue of RFP & Preparation of Proposals	1/28/2008	3/27/2008	60d																				
9	Opening of Proposals	3/28/2008	3/28/2008	1d																				
10	Evaluation Report of Proposals	3/29/2008	4/27/2008	30d																				
11	No Objection of the Bank	4/28/2008	5/18/2008	21d																				
12	Negotiation and Award of Contract	6/3/2008	6/3/2008	1d																				
13	Consultancy Contracts Period (18 Months)	7/5/2008	12/26/2009	540d																				
14	Works Procurement Schedule	7/26/2007	4/16/2008	266d																				
15	General Procurement Notice (APA)	7/31/2007	7/31/2007	1d																				
16	Preparation of Prequalification Documents	7/26/2007	8/15/2007	21d																				
17	Publication Invitation for Prequalification	9/2/2007	9/2/2007	1d																				
18	Expression of Interest Period	9/3/2007	10/17/2007	45d																				
19	Prequalification Report & Bidding Docs to ADB	10/18/2007	11/7/2007	21d																				
20	No Objection of ADB to Shortlist & RFP	11/8/2007	11/28/2007	21d																				
21	Issue of Bidding Docs & Prep of Bids	12/4/2007	2/1/2008	60d																				
22	Opening of Proposals	2/2/2008	2/2/2008	1d																				
23	Evaluation Report of Proposals	2/3/2008	3/3/2008	30d																				
24	No Objection of the Bank	3/11/2008	3/31/2008	21d																				
25	Negotiation and Award of Contract	4/16/2008	4/16/2008	1d																				
26	Works Execution	5/19/2008	1/3/2012	1325d																				
27	Construction Period (32 months)	5/19/2008	1/3/2011	960d																				
28	Defects Liability Period	1/4/2011	1/3/2012	365d																				

KENYA: NAIROBI – THIKA HIGHWAY IMPROVEMENT PROJECT

Summary of Financial and Economic Analysis

Methodology

The economic viability of the project has been assessed within the broad framework of Cost Benefit Analysis using the Highway Development Management Tool (HDM) - IV which is found to be appropriate. The Nairobi – Thika Highway is divided into four links on the basis of homogeneity of traffic with characteristics of the links varying from urban- high traffic to peri- urban and finally to rural. The project road condition data input into the HDM IV has been in the “with and without” project scenarios using the characteristics of the different road sections. HDM IV allows for modelling over the analysis period of each link, the interaction between traffic volume, composition, road condition, geometry and characteristics and the vehicle operating costs for the “with” and “without” project scenarios.

For the economic analysis, financial construction and maintenance costs have been converted into economic costs by applying a conversion factor of 0.78. The measures of project worth used are the EIRR, NPV, BCR and the FYRR. A discount rate of 12.0% which is the opportunity cost of capital in Kenya has been used for the economic evaluation. The base year taken for economic evaluation is 2008, the year in which construction is expected to commence with a construction period of 32 months and first year of opening the facility to traffic put at 2011. In addition to the 3 years construction period, the analysis period also take into account a service life of 20 years ending in 2030. All appraisal components have been inputted into the model in KES and output values are also in KES. Investment costs have been distributed over three years of construction period in line with the projected implementation schedules at 30, 40 and 30 percent of costs assumed to be incurred in the first, second and third year respectively.

Appraisal Assumptions

Maintenance of the existing road has been fair and consists mainly of routine maintenance undertaken yearly and involves day to day repairs and maintenance of road pavement, structures cleaning of drainage system etc. Selection of the maintenance strategy, in the “without project” case follows this historic maintenance pattern. The strategies incorporated into the appraisal and fitted in the model are scheduled work items rather than responsive as follows:

“Without project” do minimum: this is essentially the historic routine maintenance practice comprising edge repairs, cleaning of culverts, crack resealing, patching, maintenance of road signs and road markings, drainage clearance, collection of litters etc.

“With project” moderate paved standard: involves routine maintenance, patching 5 percent of the surface area each year, and periodic maintenance of overlay/resealing with a 12mm SSD every 6 to 7 years.

Residual Value

Residual values have been calculated for a road operating life of 20 years based on various investment components of the project made up of general, earthworks, drainage structures, ancillary & road works, bridges, and design and supervision services. This has been estimated after 20 years of service life at 10% of original economic investment cost.

Costs

The costs taken into account are the Road Agency costs in the “with” and without project situations which include both the cost of routine and periodic maintenance, the investment cost of upgrading the project road to higher standard facility. The capital cost of the project taken into account include the financial base cost for civil works plus the physical contingencies and the consultancy services for supervision of civil works and project audit amounting to KES 19.271 billion. These are converted to economic cost using the conversion factor of 0.78. The financial contingencies are not taken into account, as they do not constitute consumption of economic resources. The economic investment cost amounts to KES 15.03billion to be disbursed over the period 2008 to 2010.

Benefits

The benefits include road user benefits in terms of Vehicle Operating Cost Savings, time savings for passengers and cargo, road maintenance savings as a result of the new facility. Accident cost savings are not quantified and valued due to incomplete documentation and therefore not taken into account in the estimation of project benefits. Time savings would result from the free flow of traffic under the new facility and has been estimated for both passengers and cargo as difference in travel time under the 'with and without' project situations. The time values for passengers in different categories of vehicles are estimated based on income and employment, income distribution of Kenya as applicable to the Project Influence Area and purpose of trip. Work related travels are put at 80.2% while the remaining is non work related and is valued at 30.0% of work time value. It is assumed that the richest 20.0% of the population use personalized vehicles while the rest 80.0% use buses and other mass transport system. Value of cargo time is estimated by inventory method. Based on origin destination surveys and classified traffic counts, vehicle wise weighted average value cargo is used and the time value is calculated using ongoing market rate of interest. The forecast vehicle operating costs savings are derived from the road-planning model HDM-IV.

Result of Cost – Benefit Analysis

The economic evaluation using the measures of investment worth on the basis of most likely traffic forecast scenario resulted in an Economic Internal Rate of Return of 30.04% which is higher than the current opportunity cost of capital of 12.0% in Kenya agreed between Government and Development Partners for admission of projects in the RSIP at advanced stage of preparation. Other measures of project investment worth in the base case scenario indicated a FYRR of 30.5% and a NPV of KES 18.67 billion at 12.0% discount rate. The result of the analysis confirms the viability of the intervention in the project.

Sensitivity Analysis

Sensitivity testing has been made on the result of the base case scenario with respect to all measures of investment worth for the project road and the results indicated in the Table below confirm the project viability. Switching value for capital works costs indicated that the costs would have to go up by more than 81.7% before project viability is threatened and while the result with respect to benefits indicated that benefits would drop by over 67.32% before the project economic rate of return fall below the 12.0% which is the opportunity cost of capital in Kenya.

Cost Benefit Analysis Results and Sensitivity Tests/Switching Values

Scenario	Change (%)	EIRR (%)	NPV (KES million)	NPV/COST	FYRR (%)	Switching Values (NPV=0; EIRR=12%)
Base Case	-	30.04	18,670.03	1.586	30.5	
Capital Costs	+15.0	27.0	17,045.21			+81.17
Benefits	-15.0	26.3	13,754.93			- 67.32
Costs &Benefits	+15.0/- 15.0	23.3	12,130.11			

Kenya: Nairobi-Thika Highway Improvement Project

Discounted Costs Benefits Streams

Year	Capital Cost	Recurrent Cost	Total Cost	MT VOC Savings	MT Time Savings	Accident Savings	Exogenous Benefits	Total Benefits	Net Economic Benefits (NPV)
2008	3578.21	0	3578.21	0	0	0	0	0	-3578.21
2009	5239.66	-13.44	5226.22	-960.38	-110.99	0	0	-1071.37	-6297.59
2010	1561.55	-12.02	1549.53	446.1	1177.53	0	0	1623.63	74.1
2011	0	16.09	16.09	1382.08	1787.38	0	0	3169.46	3153.37
2012	0	14.38	14.38	1333.59	1652.08	0	0	2985.67	2971.29
2013	0	-291.68	-291.68	1289.62	1528.07	0	0	2817.69	3109.37
2014	0	11.46	11.46	709.38	1392.29	0	0	2101.67	2090.21
2015	0	10.23	10.23	680.51	1168.73	0	0	1849.24	1839.01
2016	0	388.06	388.06	646.26	1185.58	0	0	1831.84	1443.78
2017	0	8.16	8.16	635.85	1193.83	0	0	1829.68	1821.52
2018	0	-165.51	-165.51	611.6	1007.96	0	0	1619.56	1785.07
2019	0	6.51	6.51	378.74	925.47	0	0	1304.21	1297.7
2020	0	5.81	5.81	355.67	852.55	0	0	1208.22	1202.41
2021	0	220.07	220.07	333.93	781.24	0	0	1115.17	895.1
2022	0	4.61	4.61	319.12	717.52	0	0	1036.64	1032.03
2023	0	-93.88	-93.88	302.32	659.33	0	0	961.65	1055.53
2024	0	3.68	3.68	247.48	604.41	0	0	851.89	848.21
2025	0	3.31	3.31	230.89	557.94	0	0	788.83	785.52
2026	0	124.17	124.17	215.81	515.03	0	0	730.84	606.67
2027	0	2.63	2.63	202.47	471.56	0	0	674.03	671.4
2028	0	-53.28	-53.28	187.97	438.93	0	0	626.9	680.18
2029	0	2.08	2.08	170.24	393.02	0	0	563.26	561.18
2030	-98.83	1.87	-96.96	156.39	358.81	0	0	515.2	612.16
Total	10280.59	193.31	10473.9	9875.64	19258.27	0	0	29133.91	18660.01

KENYA: NAIROBI THIKA HIGHWAY IMPROVEMENT PROJECT

Abridged TOR for Nairobi Metro Study

1.0 BACKGROUND

Having recognized the traffic congestion problems of Nairobi City, the Government of Kenya envisages the need for an efficient, economical, equitable and environmental friendly Mass Rapid Transit System (MRTS) for the city. The government of Kenya intends to undertake the study of 'Project Feasibility and Detailed Engineering Design for Nairobi Public Transportation System'. Towards this end the government would like to engage a consultant to carryout a Feasibility and Detailed Engineering for study of Rapid Public Transportation System for Nairobi City.

2.0 OBJECTIVES OF CONSULTANCY SERVICES

To carry out necessary surveys/studies and prepare detailed Project Report (DPR) for the proposed Mass Rapid Transport System for Nairobi City.

3.0 JURISDICTION

The study area shall include the Nairobi City Council area and the 13 municipalities that make up the Nairobi Metropolitan area. All Mass Rapid Transit Systems like Light Rail Transit System, Bus Rapid Transit System, Enhanced Commuter Rail, etc which have a potential of proving to be viable, are to be considered. The study shall cover different forms of right of way (ROW) like elevated, underground, completely exclusive rights of way.

4.0 SCOPE OF CONSULTANCY SERVICES

The study is divided into two parts – Part A and Part B. The study under Part A would cover tasks leading to the financial and economic analysis of the project and Part B would cover subsequent tasks like preparation of tender documents, bid documents, model concession agreements etc. Part B would depend on the recommendations of Part A of the study being economically feasibility. Bidding for the two parts should be separate so that the study can be terminated after the feasibility study stage.

PART – A

The Scope of Consultancy services for the proposed project under Part A will include, inter-alia, the following:

1. Examine available traffic data and collect the required traffic data, land use details etc., analyze and forecast the transit system's rider ship for the horizon period of 30 years at 5 year intervals. This would also involve selection of a suitable transport model, calibration and validation of the same.
2. Preparation of master plan to identify the route corridors for MRTS.
3. Evaluate available technologies and selection of the most appropriate technology for the city. Factors such as domestic sourcing, economy of scale on the basis of proposals for similar systems in other developing countries, upgrading capability are some of the important areas to be considered.
4. Planning and Designing of the opted transit alignment including horizontal and vertical profile, constrictions etc. This will include adequate engineering details, specification consisting of civil, electrical, S&T, car shed, traffic control transit stations, ticket booking areas, commuter facilities, parking areas, circulation spaces etc.
5. Provide a realistic estimate of infrastructure costs and operational costs. (This will be based on the suggested technology and designs). Maintenance practices to be adopted and scale of facilities to be created. The bill of quantities (BOQ) should be with an accuracy of $\pm 10\%$.
6. Suggest short-term measures to improve the existing situation. (Till the new system becomes operational).

7. Estimate a minimum fare structure to determine whether the fare box collection will be sufficient to meet the O & M cost.
8. Comparison of the fare structure arrived at with other alternative modes is also to be done.
9. Provision of feeder buses or other modes of transport for attraction dispersal of traffic to the proposed Mass Transit system.
10. Plan for dispersal system, parking and transfer facilities, including integration with existing commuter system for transfer of passengers.
11. Study the impact of MRTS, particularly the stations, on the urban fabric in the vicinity.
12. Suggest method of raising additional financial resources if the fare box collection is found to be inadequate for operation and maintenance.
13. Carry out the social and environmental impact assessments for the selected alignments for identification and quantification of significant social and environmental impacts on the environmental media including effects on air, noise, traffic congestion, land drainage, aesthetics, heritage monuments, impact on traditional communities and to devise ways to accomplish project objectives to minimize adverse social and environmental impacts and to formulate feasible rehabilitation action plan (RAP) and Environmental Management Action Plan (EMAP) including mitigating measures both during and after construction.

PART – B

The scope of Consultancy services under Part B of the project will include, inter-alia, the following:

1. Suggest appropriate package for financing of construction of the MRTS. This should be public, private/public or private funding in the form of foreign or Kenyan or joint ventures (local, foreign/local or foreign) to construct, operate and maintain the proposed system.
2. Prepare draft bid documents for inviting bids on ICB.
3. To assist Ministry in obtaining all the required clearances/approvals for the project, and the same include, besides preparation of reports, preparation of audio-visual presentation materials, attending various meetings, making presentation in different forum, giving additional information etc, as may be necessary and required by Ministry in connection with the approvals to the project.

5.0 STUDY DURATION AND DELIVERABLES

The duration of consultancy services for Part-A of the detailed project report (DPR) study will be 7 (seven) months and for PART-B of the DPR study will be two (2) months(or less depending on the recommendations of Part A) from respective commencement dates. The following reports need to be submitted during the course of preparation of DPR by the consultants at specified time period: Inception Report, Interim Reports, Draft Final Reports, Final Reports, Presentation material

8.0 PROJECT TEAM

It is expected that the consultants shall provide following key personnel with requisite background and normally having minimum 15 years professional experience in respective areas of specialization.

S.No.	Specialist	S. No.	Specialist
1.	Team Leader.	11	System-wide Design Specialist.
2.	Transportation Planner.	12	Signal & Telecommunication Engineer.
3.	Transit Specialist	13	Structural Engineer
4.	Transport Economist	14	Architect
5.	Traffic Engineer	15	Geo-technical Engineer
6.	Urban Planner	16	Quantity Engineer
7.	Electrical Engineer	17.	Contracts Specialist
8	Traction Engineer	18	Environmental Specialist
9	Rolling Stock Specialist	19	Socio-Economic Specialist
10	Alignment Engineer		

KENYA: NAIROBI THIKA HIGHWAY IMPROVEMENT PROJECT
Abridged TOR for Private Sector Participation
Operation and Maintenance of Nairobi Thika Highway

Introduction

The Ministry of Roads and Public Works, Kenya, would like to explore the possibility of contracting to a private entity the maintenance, management and operation of Nairobi - Thika Highway, and is seeking consultancy service on the detailed operating modalities and transaction advisory services for private sector participation. The intention is to recover the operation and maintenance expenses through revenues generated from road user charges.

Scope of Consultancy Services**Stage I***Operation and Maintenance strategy*

1. The consultant shall estimate the Operation and Maintenance costs for the smooth and uninterrupted flow of traffic during implementation period. The operation costs include operation of toll plaza, patrolling systems, emergency and medical and aid services etc.
2. The consultant shall estimate the maintenance costs for both routine and periodic maintenance of the road. The routine maintenance shall include maintenance of pavement, shoulders, landscaping, road furniture, drains, junctions, overpasses/underpasses/flyovers, bridges, etc in accordance with the agreed standards as per the O & M manual.
3. The periodic maintenance shall include the renewal of pavement surface for carriageway of highway, service roads, toll plaza, bus and truck lay bye, and the related profile corrective layers, stone rip rap at specific locations etc.

Review of existing financial allocation for operation and maintenance of roads

1. Review of financial needs for operation and maintenance of roads for the last five years vis-à-vis allocated fund from the government's consolidated budget to support road maintenance.
2. Review existing road user taxes and charges and estimate how much money is collected during the last five years in the form of
3. Review of additional requirement for the proposed Nairobi - Thika road project and validation of the estimated strategy and needs.

Estimation of User Charges

1. Estimation of road user charges for different categories vehicle and clearly establishes the rationale behind it. Also establish the mechanism for estimation of user charges for frequent users.
2. Establish the mechanism for indexing of user charges along the program horizon of 15 years.

Exploring the possibility of imposing road user charges

1. Conducting "willingness to pay survey" for different category of road users also indicate the level of acceptance by the society in general.
2. Estimate the share of frequent users among the total users according to vehicle category.

Establishment, operation and maintenance of toll plaza

1. Indicate the locations of toll plazas/ booths/ counters for minimum leakages and estimate the capital investment to establish the same.

2. Indication of locations after conducting necessary surveys for other utility services including road safety measures
3. To build up toll plazas/booths and other structures keeping in balance with culture and producing a proper ambience through landscaping.
4. Estimate the operation and maintenance costs of the toll plaza.

Financial Analysis

1. Estimate the cost and revenue streams.
2. Indicate the scope and extent of other sources of revenues.
3. Analyze the attractiveness of the proposition to the private sector in terms of financial internal rate of return.
4. Conducting sensitivity analysis for the proposed investment.
5. If it turns out as non-viable proposition, the consultants have to indicate possible scope and extent of sops including tax benefits and/ or grants to make it viable.
6. If the proposition attracts excess profit, consultants have to indicate the extent of concession fees to be imposed on the private party.
7. Estimate the requirement of minimum concession period.
8. Estimate the fund flow to the road maintenance fund during the defect liability period.
9. If it is possible to impose concession fees, estimate the stream of fund flow to the road maintenance fund during the concession period.

Concession Agreement

1. Based on the approved financial analysis the consultant should prepare draft concession agreement.
2. The concession agreement will also take care of legal aspects of private sector participation with proper amalgamation with the national legal procedures.

Policy document, institutional framework and Capacity Building

1. Consultants have to prepare draft tolling policy in general and subsequently to make it specific to the project road and to indicate its replicability elsewhere in the country with required level of modification.
2. Consultants have to recommend the institutional framework and to identify the needs for capacity building in connection with monitoring the program as well as to maintain the road maintenance fund.

Stage II

Selection of Private Party

1. Consultants have to provide necessary support in the process of bidding and evaluation to select the private party.
2. During pre-bid meeting consultants needs to make presentation to the intended private parties and to clarify the queries in association with Ministry of Roads and Public Works.
3. Consultants have to prepare the evaluation criteria and recommend to the ministry about the final selection of private party.
4. Based on identified need of capacity building, consultant will finalize the scope of training and prepare training calendar.
5. Conducting training program.

BANK GROUP OPERATIONS IN KENYA
Ongoing Operations as of 10 October 2007

ANNEX 6

Project Title	Sector	Financing Source	Approval Date	Sign. Date	Effect. Date	Disb Deadline	Amount Signed	Amount Canceled	Net Loan Amount	Total Amount Disbur.	Undisb. Balance	Percent Disburs.
KIMIRA-OLUCH SMALLHOLDER IRRIGATION DEVE	Agriculture	ADF	31.05.2006	14.07.2006	20.10.2006	30.09.2013	22.98	0.00	22.98	0.09	22.89	0.41
							1.15	0.00	1.15	0.02	1.13	2.08
							0.04	0.00	0.04	0.00	0.04	0.00
TIOMIN KWALE TITANIUM MINE	Mining	ADB	26.07.2006	31.07.2006	#	#	40.00	40.00	0.00	0.00	0.00	X
KISUMU SCHOOLS WATER AND SANITATION PROJ	Water & Sanitation	5600	19.12.2006	29.01.2007	#	#	0.23	0.00	0.23	0.15	0.07	67.36
INSTITUTIONAL SUPPORT FOR GOOD GOVERNANC	Multisector	ADF	26.07.2006	08.12.2006	04.06.2007	#	5.52	0.00	5.52	0.00	5.52	0.00
ASAL-BASED LIVESTOCK AND RURAL LIVELIHOOD	Agriculture	ADF	17.12.2003	03.06.2004	23.02.2005	31.12.2011	18.41	0.00	18.41	5.71	12.70	31.00
							3.17	0.00	3.17	1.45	1.72	45.73
GREEN ZONES DEVELOPEMNT SUPPORT PROJECT	Agriculture	ADF	12.10.2005	30.11.2005	16.03.2006	31.12.2013	25.04	0.00	25.04	2.33	22.71	9.32
EWASO NGIRO NORTH NAT RES CONS PROJECT	Environment	ADF	22.04.2005	16.06.2005	06.02.2006	31.12.2012	13.59	0.00	13.59	0.28	13.31	2.07
							2.89	0.00	2.89	0.39	2.50	13.42
ROADS 2000-DISTRICTS RURAL ROADS REHAB.	Transport	ADF	12.07.2001	15.02.2002	03.10.2003	31.12.2006	20.00	0.00	20.00	3.00	17.00	15.00
RIFT VALLEY WATER SUPPLY & SANITATION	Water & Sanitation	ADF	07.07.2004	06.09.2004	22.03.2006	31.12.2009	13.04	0.00	13.04	1.01	12.03	7.77
							5.02	0.00	5.02	0.42	4.70	6.33
LINE OF CREDIT TO CFC BANK LIMITED	Finance	ADB	29.10.2003	18.03.2004	02.07.2004	17.03.2005	7.00	0.00	7.00	7.00	0.00	100.00
EDUCATION III PROJECT	Education	ADF	17.12.2003	03.06.2004	24.11.2004	31.12.2010	24.26	0.00	24.26	0.09	24.17	0.39
							6.75	0.00	6.75	0.05	6.70	0.73
							0.02	0.00	0.02	0.00	0.02	0.00
RURAL HEALTH PROJECT III	Health	ADF	07.07.2004	06.09.2004	18.04.2006	31.12.2010	17.18	0.00	17.18	0.14	17.04	0.81
							6.00	0.00	6.00	0.00	6.00	0.00
HUMANITARIAN EMERGENCY ASSISTANCE	Social	SRF	29.03.2006	14.07.2006	#	31.03.2007	0.50	0.00	0.50	0.00	0.50	0.00
KENYA - CREATION OF SUSTAINABLE TSETSE A	Agriculture	ADF	08.12.2004	04.02.2005	09.12.2005	31.12.2011	6.55	0.00	6.55	0.30	6.25	4.58
KENYA/ETHIOPIA: MOMBASA-NAIROBI-ADDIS Rd	Transport	ADF	13.12.2004	04.02.2005	24.01.2006	31.12.2010	33.60	0.00	33.60	0.90	32.70	2.70

PROJECT COST, SOURCE OF FINANCE & EXPENDITURE SCHEDULES**Table 1 - Summary of Project Cost by Category of Expenditure (Net of Taxes)**

Category of Expenditure	Kenya Shillings (million)			Unit of Account (million)		
	Foreign Exchange	Local Cost	Total	Foreign Exchange	Local Cost	Total
1. Civil works	9,084.03	6,056.02	15,140.06	87.88	58.59	146.46
2. Consultancy Services	301.00	203.00	504.00	2.92	1.97	4.88
3. Compensation & Resettlement	0.00	350.00	350.00	0.00	3.39	3.39
Base Cost	9,448.03	6,546.02	15,994.06	91.40	63.33	154.72
Physical Contingencies	681.30	454.20	1,135.50	6.59	4.39	10.98
Price Escalation	438.06	532.03	970.09	4.24	5.15	9.38
Total	10,504.39	7,595.26	18,099.65	101.62	73.48	175.10

Table 2 - Sources of Finance by Component

Component	Cost	ADF Financing		GOK Financing	
	Amount (UA Million)	Amount (UA Million)	Percent	Amount (UA Million)	Percent
A. Civil works Nairobi-Thika	144.16	100.71	70%	43.45	30%
B. Civil Works Urban Sections	22.67	17.00	75%	5.67	25%
C. Supervision	1.02	0.00	0%	1.02	100%
D. Nairobi Metro Study	3.05	2.90	95%	0.15	5%
E. PSP Study Nairobi-Thika	0.68	0.25	35%	0.43	65%
F. Project Audits	0.14	0.14	100%	0.00	0%
G. Compensation & Resettlement	3.39	0.00	0%	3.39	100%
Total	175.10	121.00	69%	54.10	31%

Table 3 - Expenditure Schedule by Component (UA Million)

Component	2008	2009	2010	2011	Total
A. Civil works Nairobi-Thika	43.25	43.25	43.25	14.42	144.16
B. Civil Works Urban Sect.	6.80	6.80	6.80	2.27	22.67
C. Supervision	0.30	0.30	0.30	0.10	1.02
D. Nairobi Metro Study	0.76	1.52	0.76		3.05
E. PSP Study Nairobi-Thika	0.17	0.34	0.17		0.68
F. Project Audits		0.04	0.04	0.05	0.14
G. Compensation & Resettlement	3.39				3.39
Total	54.67	52.26	51.33	16.84	175.10

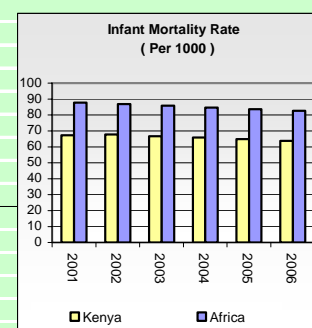
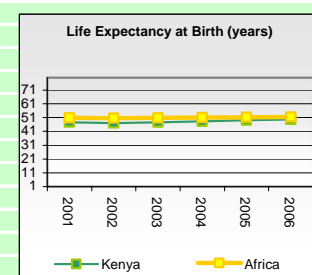
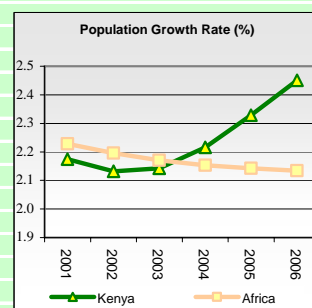
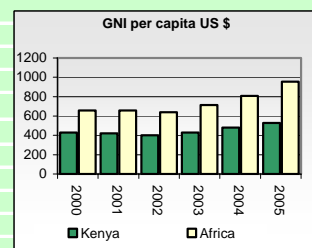
Table 4 - Expenditure Schedule by Source of Finance (UA Million)

Source	2008	2009	2010	2011	Total
ADF	36.09	36.94	36.14	11.83	121.00
GOK	18.58	15.32	15.19	5.01	54.10
Total	54.67	52.26	51.33	16.84	175.10

Kenya

COMPARATIVE SOCIO-ECONOMIC INDICATORS

	Year	Kenya	Africa	Developing Countries	Developed Countries
Basic Indicators					
Area ('000 Km ²)		580	30 307	80 976	54 658
Total Population (millions)	2006	35.1	924.3	5 253.5	1 211.3
Urban Population (% of Total)	2006	39.3	38.4	43.1	78.0
Population Density (per Km ²)	2006	59.2	30.5	60.6	22.9
GNI per Capita (US \$)	2005	530	955	1 154	26 214
Labor Force Participation - Total (%)	2005	50.7	42.3	45.6	54.6
Labor Force Participation - Female (%)	2005	47.1	41.1	39.7	44.9
Gender -Related Development Index Value	2004	0.487	0.475	0.694	0.911
Human Develop. Index (Rank among 177 countries)	2004	152	n.a.	n.a.	n.a.
Popul. Living Below \$ 1 a Day (% of Population)	2000	51.8	45.0	32.0	20.0
Demographic Indicators					
Population Growth Rate - Total (%)	2006	2.5	2.1	1.4	0.3
Population Growth Rate - Urban (%)	2006	4.3	3.5	2.6	0.5
Population < 15 years (%)	2006	42.9	41.3	32.4	18.0
Population >= 65 years (%)	2006	2.8	3.4	5.5	15.3
Dependency Ratio (%)	2006	83.9	80.8	57.8	47.8
Sex Ratio (per 100 female)	2006	100.5	99.9	102.7	94.2
Female Population 15-49 years (% of total population)	2006	26.5	26.8	27.1	25.0
Life Expectancy at Birth - Total (years)	2006	49.6	51.4	64.1	76.0
Life Expectancy at Birth - Female (years)	2006	48.8	52.2	65.9	79.7
Crude Birth Rate (per 1,000)	2006	39.4	36.5	22.8	11.0
Crude Death Rate (per 1,000)	2006	14.1	14.9	8.7	10.4
Infant Mortality Rate (per 1,000)	2006	63.9	82.5	59.4	7.5
Child Mortality Rate (per 1,000)	2006	109.5	137.7	89.3	9.4
Total Fertility Rate (per woman)	2006	5.0	4.7	2.8	1.6
Maternal Mortality Rate (per 100,000)	2002	500	623	440	13
Women Using Contraception (%)	2003	39.0	26.6	59.0	74.0
Health & Nutrition Indicators					
Physicians (per 100,000 people)	2005	26.1	38.2	78.0	287.0
Nurses (per 100,000 people)	2005	125.3	110.7	98.0	782.0
Births attended by Trained Health Personnel (%)	2003	42.0	43.7	56.0	99.0
Access to Safe Water (% of Population)	2004	61.0	62.3	78.0	100.0
Access to Health Services (% of Population)	2000	77.0	61.7	80.0	100.0
Access to Sanitation (% of Population)	2004	43.0	44.2	52.0	100.0
Percent. of Adults (aged 15-49) Living with HIV/AIDS	2005	6.1	4.5	1.3	0.3
Incidence of Tuberculosis (per 100,000)	2004	619.0	310.2	144.0	11.0
Child Immunization Against Tuberculosis (%)	2005	85.0	78.1	82.0	93.0
Child Immunization Against Measles (%)	2005	69.0	68.0	73.0	90.0
Underweight Children (% of children under 5 years)	2003	19.9	39.0	31.0	...
Daily Calorie Supply per Capita	2004	2 149	2 435	2 675	3 285
Public Expenditure on Health (as % of GDP)	2002	2.2	5.6	1.8	6.3
Education Indicators					
Gross Enrolment Ratio (%)					
Primary School - Total	2004/05	111.0	96.7	91.0	102.3
Primary School - Female	2004/05	108.0	90.4	105.0	102.0
Secondary School - Total	2004/05	48.0	43.1	88.0	99.5
Secondary School - Female	2004/05	46.0	36.5	45.8	100.8
Primary School Female Teaching Staff (% of Total)	2003/04	44.4	47.5	51.0	82.0
Adult Illiteracy Rate - Total (%)	2006	26.4	43.3	26.6	1.2
Adult Illiteracy Rate - Male (%)	2006	22.3	34.5	19.0	0.8
Adult Illiteracy Rate - Female (%)	2006	29.8	52.4	34.2	1.6
Percentage of GDP Spent on Education	2004	7.0	4.7	3.9	5.9
Environmental Indicators					
Land Use (Arable Land as % of Total Land Area)	2005	7.0	6.0	9.9	11.6
Annual Rate of Deforestation (%)	2000-05	0.5	0.7	0.40	-0.20
Annual Rate of Reforestation (%)	2000-05	1.0	10.9
Per Capita CO2 Emissions (metric tons)	2005	0.3	1.0	1.9	12.3



Sources : ADB Statistics Department Databases; World Bank: World Development Indicators;

last update : October 2007

UNAIDS; UNSD; WHO, UNICEF, WRI, UNDP; Country Reports

Note : n.a. : Not Applicable ; ... : Data Not Available; * : latest data available within 1995-2000

Procurement Arrangements

Table 1
Summary of Procurement Arrangements

Project Categories	Cost (UA Million)			
	ICB	Short-List	Non Bank Funded	Total
1. Civil Works				
1.1 Civil works Nairobi-Thika	144.16	[100.71]		144.16 [100.71]
1.2 Civil Works Urban Sect.	22.67	[17.00]		22.67 [17.00]
2. Consulting Services				
2.1 Supervision			1.02 [0.00]	1.02 [0.00]
2.2 Nairobi Metro Study		3.05 [2.90]		3.05 [2.90]
2.3 PSP Study Nairobi-Thika		0.68 [0.25]		0.68 [0.25]
2.4 Project Audits		0.14 [0.14]		0.14 [0.14]
3. Miscellaneous				
3.1 Compensation & Resettlement			3.39 [0.00]	3.39 [0.00]
Total	166.83	[117.71]	4.41 [0.00]	175.10 [121.00]

[] Figures in brackets are amounts financed by the ADF.

Civil Works - The procurement of civil works will be carried out under International Competitive Bidding (ICB) procedures, with pre-qualification of contractors. The civil works for the Nairobi-Thika Highway are valued at UA 144.16 million, and will be packaged in two contracts. The civil works for the Nairobi urban sections are valued at UA 22.67 million and will be packaged in a single lot.

Consulting Services - Procurement of consulting services for the ADF-financed components, as detailed in Table 5.2 above, will be undertaken in accordance with the Bank's "Rules of Procedure for the Use of Consultants."

Construction Supervision - The consulting services for the construction supervision have been procured by the Government of Kenya through international competition. The consulting firm selected for the design of the project has also been retained for the construction supervision. The costs of the design and supervision services are solely borne by the Government of Kenya.

Nairobi Metropolitan Transit System Study - The Consulting services for the feasibility and engineering design of the Nairobi Metro Study will be acquired on the basis of a short-list of qualified consulting firms preceded by pre-qualification. The selection procedure will be based on technical quality with price consideration.

Private Sector Participation Study - The Consulting services for the feasibility and transaction advisory services for the Nairobi Thika PSP study will be acquired on the basis of short-lists of qualified consulting firms. The selection procedure will be based on technical quality with price consideration.

Audit Services - The financial audit services will be subcontracted to firms of auditors to be procured through short-lists, subject to clearance by the Auditor General of Kenya prior to call for bids. The technical audit will be acquired on the basis on short-lists of Expert Engineers or Engineering firms. The selection procedure for both audits will be based on establishing the comparability of technical proposals and selection of the lowest financial offer.

Compensation and resettlement – Compensation, relocation and resettlement will be the sole responsibility of the GOK. An amount of UA 3.39 million has been estimated in the project costs for this activity.

National Procedures and Regulations - The national procurement laws and regulations of Kenya specifically the Public Procurement Act of 2005, and the Public Procurement and Disposal Regulations of 2006 have been reviewed and determined to be acceptable.

Executing Agencies - The Ministry of Roads and Public Works and the Ministry of Transport will be the executing agencies of the project. The resources, capacity, expertise, and experience of the Procurement Departments of the two executing agencies are adequate to carry out the procurement activities.

General Procurement Notice - The GOK requested the authorization of the Bank to initiate an Advance Procurement Action (APA) because of the high priority accorded to the Project and the need to start construction works in early 2008. The Bank approved the APA request and the GPN was published on 31 July 2007. Advance action up to the evaluation of bids, but not including award of contracts, covers the prequalification of contractors, bidding, and bid evaluation for the civil works contract packages. The advance action is being undertaken in accordance with the Bank's *Procurement Rules*. The Government of Kenya has been advised that approval of advance action does not commit the Bank to financing the Project.

Review Procedures - The following documents are subject to review and approval by the Bank.

- ✓ Specific Procurement Notices
- ✓ Invitation for pre-qualification Documents
- ✓ Tender Documents and Requests for Proposals from consultants
- ✓ Tender Evaluation Reports and Reports on Evaluation of Consultants' Proposals
- ✓ Draft Contracts, if the Form of Contract document in the Standard Bidding Document has been amended.