TERMS OF REFERENCE (TOR)

CONSULTING SERVICES FOR TECHNICAL FEASIBILITY STUDY FOR MAU SUMMIT – ELDORET- MALABA (A8) ROAD FOR IMPLEMENTATION ON A PPP BASIS

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Terms of Reference

CONSULTING SERVICES FOR TECHNICAL FEASIBILITY STUDY FOR MAU SUMMIT – ELDORET- MALABA (A8) ROAD FOR IMPLEMENTATION ON A PPP BASIS

Financed by a Multilateral Cooperation Center for Development Finance (MCDF) Grant

Background

The Asian Infrastructure Investment Bank (AIIB), a multilateral development bank established in 2016, finances sustainable infrastructure to foster development across its members. AIIB's Mission is to finance Infrastructure for Tomorrow (I4T), with a clear thematic focus on (i) green infrastructure (ii) connectivity and regional cooperation (iii) technology-enabled infrastructure and (iv) private capital mobilization.

Kenya's long-term development strategy, Vision 2030, is implemented through sequential five-year Medium-Term Plans and aims to transform the country into a middle-income economy offering a high quality of life to its citizens. Central to this vision is the modernization of infrastructure to boost competitiveness and improve livelihoods. Currently, the vision is pursued through the Fourth Medium-Term Plan (MTP IV), covering 2023-2027, laying out the strategic steps to transitioning Kenya into an upper-middle-income country. The plan identifies investments in infrastructure as a key priority.

In the infrastructure sector, the government has identified the need to enhance transport connectivity by constructing 6,000km of new roads, maintenance of rural and urban road networks, upgrading of rail, air and seaport facilities and services; expansion of communication and broadcasting systems; and increased investments in renewable energy generation and distribution.

The implementation of MTP IV will require an estimated KSh. 16,136 billion (around USD125 billion at prevailing exchange rates). To meet this funding requirement, the government seeks to mobilize resources from diverse financing sources, with Public-Private Partnerships (PPPs) targeted to deliver 12% of the investment gap — approximately KSh 1,936 billion (or USD 15 billion prevailing exchange rates). Through PPPs, the government aims to harness private sector capital, innovation, and efficiencies to accelerate the rollout of priority infrastructure.

As part of this strategy, the government has prioritized decongestion of its highways through Public Private Partnerships model for construction, operation and maintenance. Among the priority projects is the capacity enhancement of the Mau Summit – Malaba (A8) Road (the 'Project').

Following a financing request letter from the National Treasury of the Republic of Kenya, AIIB obtained a grant from the Multilateral Cooperation Center for Development Finance

(MCDF) to procure the services of a consultant firm or consortium ("the Consultant") to undertake a technical, social and environmental feasibility study for the Project

AIIB and the Kenyan National Highways Authority (KeNHA) will jointly implement this grant, with overall supervision ensured by the Bank. KeNHA is recognized under the PPP Act Cap 430 (PPP Act) as the Contracting Authority responsible for identifying, developing, implementing, and monitoring PPP projects. The PPP Directorate of the National Treasury, which has a mandate to structure PPP projects, will support KeNHA in the development and implementation of the Project.

Under the implementation arrangements of the grant, the Kenya National Highways Authority (KeNHA), on behalf of the Government of the Republic of Kenya (GoK), seeks to procure consulting services of a firm or consortium to undertake technical feasibility studies, as well as preliminary Environmental and Social Impact Assessment (ESIA) and Resettlement Action Plan (RAP) for the Mau Summit–Eldoret–Malaba Road Corridor to be prepared for delivery under a Public Private Partnership (PPP) framework.

1. Project Description

Kenya's transport sector is a key driver of trade, regional integration, and economic growth. The country's 177,800-kilometer road network carries over 76% of all annual freight in the country.

The Mau Summit–Eldoret–Malaba Road Corridor is part of Kenya's strategic Northern Corridor (A104), one of East Africa's busiest trade routes. The corridor is a vital trade route carrying over 70% of the region's transit traffic and supporting significant domestic and regional economic activity. This road connects the Port of Mombasa to Uganda, Rwanda, South Sudan, and the DRC sees nearly 3000 daily trucks moving over 35 million tons of cargo annually. Freight volumes are expected to rise further with regional integration efforts like the African Continental Free Trade Area agreement (AfCFTA).

However, the section between Mau Summit and Malaba (approximately 240 km) experiences congestion, pavement distress, and safety challenges due to high volumes of heavy commercial vehicles. Due to poor road quality and congestion, transit between Mombasa and the Malaba border with Uganda has deteriorated from 71 hours in 2023 to 80 hours in 2025, which is well above Mombasa Port and Northern Corridor Community Charter set target of 40 hours to Malaba[1]. Furthermore, this corridor sees high accident rates with over 4000 annual road accident deaths, underscoring the need for infrastructure upgrades and improvements.

GoK, through the KeNHA, intends to upgrade and toll this section under a PPP model to improve service levels, operational efficiency, and corridor safety.

Considering these challenges, the GoK intends to enhance the capacity of the 243-km Mau Summit—Malaba A8) road, by expanding its capacity from 2 lanes into a minimum of 4 lanes and converting into an access controlled tolled road, while incorporating cost

[1] 2024 Performance Report, 20th Edition (April 2025), Northern Corridor Transport Observatory

effective design solutions to minimize impact on local connectivity. The transport route is part of the strategic Northern Corridor connecting western Kenya and Uganda and will complement the upstream Nairobi -Mau Summit highway, which is earmarked for expansion. The highway is also one of 9 roads that constitute the Trans-African Highway Network, a continental development policy coordinated by the African Union.

The implementing agency, (KeNHA), has secured the right-of-way for much of the corridor and is coordinating with the National Treasury and development partners to structure the project transparently. A Pre-Feasibility Study (Pre-FS) is being carried out for the target road using funding from AIIB. The Technical Feasibility Study that is being procured will build upon the findings of the Pre-FS, which will be made available to the winning bidder, upon completion

AIIB will independently procure a consultant for transaction advisory, including Project financial feasibility and bankability assessment, PPP structuring legal review, bid document preparation and bidding support. The transaction advisor's scope builds on the outputs of the Technical Feasibility Study (FS). The two consultants shall operate as part of a single, integrated PPP advisory team led by the Contracting Authority. The Technical Feasibility Consultant shall provide engineering, traffic, lifecycle, and environmental inputs. The Financial / Transaction Advisor shall rely on these inputs for financial modelling, PPP structuring, and procurement. Technical Feasibility Consultant Procured first to establish an objective, bankable technical baseline then the transaction advisory consultant will be engaged before the FS consultant finalized the assignments, enabling both consultants will work iteratively to refine and develop their respective deliverables. This approach will help close coordination and active information sharing between both consultants.

2. Objectives of the assignment

The **overall objective of this assignment** is to Assess the **technical feasibility,** to undertake a **preliminary engineering design, and to conduct preliminary environmental and social feasibility study** for the capacity enhancement of the Mau Summit – Eldoret – Malaba (A8) Road project**,** ensuring quality standard and engineering soundness and to produce **PPP-ready technical outputs** that will serve as core inputs in financial analysis, PPP structuring process, bidding preparation, and Transaction support.

Specific objectives include:

1. Conducting technical feasibility studies including, but not limited to, project scoping, traffic assessments, economic assessments, assessments of the existing road capacity enhancement and pavement adequacy, road safety, land requirements (for road and Operation and Maintenance, including any associated facilities), and preliminary design.
2. Assess traffic demand, capacity, and operational performance;
3. Confirm the technical viability of upgrading the corridor to a minimum four-lane, access-controlled highway;

4. Identify technically feasible, safe, resilient, lifecycle cost-effective design, financial affordability, Value-for-Money objectives, and construction options;
5. Develop lifecycle-based cost estimates and performance assumptions;
6. Develop PPP-ready output specifications, Performance standards, appropriate technical KPIs and handback requirements suitable for the financial feasibility study and PPP structuring.
7. Preparing an Environmental and Social Framework (ESF) in accordance with Kenyan legislation, NEMA guidelines; and the Lenders Environmental and Social Policy Reference Framework presented in Task 4.
8. Preparing a preliminary Resettlement Action Plan (pRAP) and associated surveys to identify Project Affected Persons and value property that will be affected by the proposed road capacity enhancement works and the establishment of the road reserve, while allowing for refinement at later stages, as appropriate.
9. Develop a preliminary Stakeholder Engagement Plan (pSEP), including stakeholder mapping, policy framework, engagement and communication strategy, documentation requirements, a grievance redress mechanism, roles and responsibilities, and monitoring and reporting arrangements. The SEP should be a living document and be regularly updated throughout the life cycle of the Project.
10. Provide clear, implementable ToRs for preparing the full ESIA and associated management plans.
11. Prepare climate assessment in accordance with AIIB's policy to ensure the Paris Alignment of the project and also its climate finance and GHG impact assessment.
12. Developing a suitable toll system and the design of the tolling regime including tolling infrastructure and systems, i.e. electronic toll collection, traffic management, and control facilities
13. Prepare a feasibility report suitable for private sector participation with details on the project's viability, preferred technical solution and the proposed project scope and performance indicators applicable for the PPP project.
14. Ensure adequate and timely information sharing among the AIIB Project Team, KeNHA, the PPP Directorate of the National Treasury and a team of consultants that will be procured separately to provide economic analysis, PPP structuring and tendering support services.

In carrying out its services, the Consultant shall work closely with KeNHA, PPP Directorate-National treasury, the AIIB project team, as well as the consultant contracted to provide the transaction advisory support for the road, to ensure the project scope is consistent with the Kenya PPP Act, Cap 430 compliant with the Paris Agreement and Kenya's Second National Determined Contributions.

The Consultant shall also ensure that the proposed project scope is aligned with AIIB's mandate of supporting Infrastructure for Tomorrow (i4t) and AIIB's thematic priorities (green infrastructure, technology-enabled infrastructure, regional connectivity and integration, and private capital mobilization).

3. Scope of Services

The Consultant shall perform all the work necessary, as called for in this Terms of Reference, including all technical & economic studies, assessment of existing infrastructure conditions, field data collection and investigations, and related services.

In carrying out the work, the Consultant shall cooperate fully with the competent authorities of the Government of Kenya, in particular, the Kenya National Highways Authority (KeNHA), PPP Directorate, Ministry of Roads and Transport, County Governments , Ministry of Lands & Housing, National Environment Management Authority (NEMA), Ministry of Public Service, Youth & Gender Affairs amongst others.

The Consultant shall provide all the required personnel for the completion of the assignment. The work shall be carried out to appropriate standards and shall cover, but not necessarily be limited to, the aspects outlined in these Terms of Reference.

The Feasibility Study will be comprised of, but not limited to, the following Tasks:

Task 1: Project Scoping (Environmental and Social Scoping details are described in Task 4)

- Define the scope of the project; review needs assessment conducted in the Pre-FS; coordinate with agencies responsible for different sectors.
- Review the high-level socio-economic and cost-benefits assessment conducted in the Pre-FS.
- Collect and review all relevant existing data relating to the Project and whatever information which can aid in the feasibility process and preparation of environmental and social safeguard instruments.
- Assess tolling potential, including toll plaza locations and systems concept.
- Conduct assessment of existing road infrastructure, including geometry adequacy, pavement condition, bridge & structures inventory & conditions, road furniture condition, junctions' details, location & types of existing utilities, protection works, road ancillary facilities (services areas, logistic hubs, truck parking, roadside stations etc.) and Level of Service performance.
- Preliminary engineering design services for the capacity enhancement of the road.
- Prepare reports and drawings, and preliminary costs estimates.

Task 2: Traffic and Economic Feasibility analysis

2.1 Traffic demand Analysis

The Consultant shall undertake comprehensive traffic studies and analysis to establish the current and future traffic conditions along the project road and its area of influence. The scope shall include, but not be limited to, the following tasks:

2.1.1 Existing Traffic and Network Analysis

The Consultant shall determine the type and volume of existing traffic along the Mau Summit – Eldoret – Malaba Highway by analyzing all available statistical data and by conducting traffic counts and origin–destination (O–D) studies.

The Consultant shall undertake a comprehensive road network analysis to identify and quantify the potential for traffic diversion, reassignment, and generated traffic resulting

from the proposed enhancement and adjoining network connections. The analysis shall also evaluate connectivity with regional corridors, feeder roads, and key economic centers to understand travel demand patterns. The analysis shall include:

- Quantification of traffic operations and assessment of the adequacy of proposed road section elements;
- Evaluation of traffic impacts considering level of service (LOS), delays, queues, and volume-to-capacity ratios; and
- Special attention shall be given to towns and urban centers along the project corridor where congestion and pedestrian movements are significant.

Additionally, the Consultant shall evaluate Malaba cross-border movement patterns to understand regional freight and passenger dynamics that may influence the corridor's performance.

2.1.2 Traffic Data Collection and Surveys

The Consultant shall collect, compile, and analyze all relevant traffic data, which shall include but not be limited to the following:

a) Traffic composition, occupancy, and volume counts, capturing seasonal variations;
b) Origin–Destination (O–D) studies for both passenger and freight flows;
c) Forecasts of Annual Average Daily Traffic (AADT), disaggregated by vehicle class and composed of normal, generated, and diverted traffic flows;
d) Axle load surveys and analysis at different locations along the alignment in 50km intervals to determine the Design Equivalent Standard Axle Load (ESAL);
e) Travel time and speed surveys to assess journey efficiency and congestion points;
f) Accident data studies to identify high-risk sections and inform safety measures; and
g) Traffic safety appurtenances and road furniture requirements, including signage, markings, guardrails, lighting, and pedestrian facilities.
h) Willingness to pay surveys.

Traffic surveys shall be carried out for seven (7) consecutive days over 16-hour periods, with two 24-hour counts; one on a weekday, and the other on a weekend. Where appropriate, the Consultant shall divide the project road into homogeneous sections and conduct separate analyses accordingly. Existing traffic count data from KeNHA and other relevant agencies shall also be reviewed and incorporated.

2.1.3 Traffic Growth and Development Factors

In developing the traffic forecast, the Consultant shall identify and assess areas likely to be influenced by future economic development, considering factors that could generate or attract additional traffic. These shall include, but not be limited to:

a) Population growth and distribution trends in rural and urban areas;
b) Regional and national economic growth, including trade and investment trends;
c) Growth in vehicle ownership and motorization rates;
d) Development of agriculture, irrigation, industry, and commerce within the influence area;
e) Expansion of social services, including medical, educational, and administrative facilities;
f) Other relevant socio-economic factors identified during the study.

The Consultant shall determine appropriate traffic growth rates per vehicle category (light, medium, and heavy) using recognized methods, subject to approval by the Client. Traffic

growth projections shall take into account institutional and legal constraints, regional integration objectives, and physical barriers identified during the assignment.

2.1.4 Traffic Forecasting and Analysis

Based on the above investigations and analyses, the Consultant shall prepare traffic forecasts and assess the operational performance of the proposed road. This shall include:

a) Scenario-based forecasts (low, medium, and high) for light, medium, and heavy vehicles, reflecting alternative economic and network development assumptions;
b) Detailed annual traffic forecasts for ten (10), twenty (20) and thirty (30) year periods after project completion, and more general projections for the subsequent five (5), ten (10) and twenty (20), and thirty (30) years;
c) Evaluation of traffic operations under each scenario to assess capacity adequacy, level of service, and safety performance; and
d) Identification of key traffic and operational constraints requiring engineering or policy interventions.

All forecasts and analyses shall be supported by clear documentation of assumptions, methodologies, and data sources, and presented in a Traffic Analysis and Forecasting Report suitable for use in economic and financial feasibility evaluations.

2.1.5: Traffic Analysis and Operational Assessment

a) Assess corridor capacity and Level of Service (LOS) performance and identify capacity constraints;.
b) Conduct capacity analysis for key corridor sections, intersections, and interchanges (using HCM, SIDRA, VISSIM or other equivalent tools).
c) Evaluate current and future Level of Service (LOS) for design horizons (opening year, 10-year, and 30-year projections).
d) Assess toll plaza locations, lane configurations, and queuing performance for both cash and electronic tolling systems.
e) Model traffic flows and turning movements to inform geometric design and access control planning.
f) Identify needs for additional lanes, climbing lanes, service roads, or bypass links.

Deliverables, traffic survey and analysis methodology, traffic counting plan, traffic study report.

2.2 Economic Feasibility Analysis

The objective of the Economic Feasibility Study is to assess the economic viability of the proposed highway capacity enhancement project and determine its suitability for implementation under a Public–Private Partnership (PPP) framework.
The Consultant will undertake the following tasks but not limited to:

2.2.1. Review of Existing Road and Socio-Economic Conditions

- Review all existing road-related data, including traffic volumes, road condition surveys, pavement roughness, safety records, and maintenance history.
- Analyze historical O&M costs, rehabilitation interventions, capital expenditure (CAPEX), operational expenditure (OPEX), and lifecycle replacement costs.

- Assess current socio-economic activities within the project corridor, including population dynamics, freight movement, economic productivity, and transport-dependent sectors.
- Evaluate how the proposed capacity enhancement will influence future socio-economic demand.

2.2.2 Baseline ("Without Project") Scenario Development

- Define the reference case reflecting current road geometry, pavement condition, travel speeds, accident rates, traffic composition, and maintenance practices.
    - Develop baseline estimates of:
    - Vehicle Operating Costs (VOC)
    - Travel time for passengers and freight
    - Road maintenance costs
- Calibrate HDM-IV parameters with local road and environmental conditions to accurately model the "without project" scenario.

2.2.3 Development of "With Project" Scenarios

- Develop alternative project scenarios including, but not limited to:
    - Rehabilitation and overlay strategies
    - Capacity enhancement to a dual carriageway
    - Tolling or user-charge models
- Incorporate for each scenario:
    - Proposed design standards
    - Traffic growth forecasts and generated/diverted traffic effects
    - Tolling policy
    - Maintenance strategies and performance standards
- Ensure HDM-IV inputs reflect field conditions, including roughness, geometry, maintenance levels, and traffic mix.

2.2.4 Cost Estimation (CAPEX, OPEX, Lifecycle Costs)

- - Prepare detailed CAPEX, OPEX, and lifecycle maintenance cost estimates.
- - Separate costs into foreign and local components and exclude taxes/duties.
- - Apply shadow pricing for labor, materials, and non-traded goods where needed.

2.2.5 Estimation of Economic Benefits

- Quantify economic benefits including vehicle operating cost (VOC) savings, travel time savings, accident cost reductions, maintenance cost savings, and residual value.
- Identify and describe qualitative benefits (regional development, employment, trade facilitation, safety).

2.2.6 Economic Evaluation Using HDM-IV

- Calibrate HDM-IV with local parameters (roughness, geometry, climate, traffic mix).
- Compute NPV, EIRR, BCR, and FYRR over a 20–30-year evaluation period.
- Benchmark results against national and international thresholds.

2.2.7 Sensitivity and Risk Analysis

- Identify key variables (construction costs, traffic growth, VOC, discount rate).
- Conduct sensitivity tests and scenario analysis (best, base, worst cases).
- Undertake probabilistic risk modeling (e.g., Monte Carlo) where applicable.

2.2.8 Ranking of Options and Recommendation

- Rank project alternatives based on EIRR, NPV, BCR, and FYRR.
- Recommend the economically preferred option considering cost-efficiency, risk, and socio-economic impact.

2.2.9 Deliverables

- Inception Report
- Data Collection and Baseline Assessment Report
- HDM-IV Calibration Report
- Draft Economic Feasibility Report (including models and assumptions)
- Final Economic Feasibility Report with preferred option recommendation

Task 3: Technical assessment and Engineering Studies:

The Consultant shall undertake technical, economic, and environmental assessments to support the development of a bankable feasibility study for the project. Key activities include, but are not limited to, the following:

3.1 Data Collection & Field Reconnaissance

- Conduct field reconnaissance and surveys as required.
- Collection and review of the existing data on the proposed road project and social and economic activities in the project study area.
- Collection of traffic data, Axle load, road safety and accident data, social, economic, environmental, and physical data that is necessary to assist in the feasibility study, ESIA, RAP and design of the project road;
- Collect required topographical data including Aerial Survey & Mapping
- Material and Geotechnical investigations and tests, pavement evaluation
- Collection of hydraulic and structural integrity data for the major structures.
- Carry out detailed utilities mapping.

3.2 Reviewing and Corridor assessment of existing conditions

The Consultant shall review and verify the existing road condition and available data, as well as the social and economic activities within the project corridor. The findings shall be used to evaluate the engineering adequacy of the existing infrastructure in relation to the projected capacity enhancement needs arising from social and economic growth. Based on this evaluation, the Consultant shall recommend appropriate design measures to address identified gaps and deficiencies.

- Assessment of Existing Infrastructure Condition and Performance shall include, but not be limited to, the following:
  - Assess the current condition, geometry, functionality, and capacity of the main road and associated access roads, junctions, safety installations, and roadside amenities.
  - Assess and analyze safety records and overall operational performance to identify key deficiencies and recommend improvements.
  - Evaluate the structural and functional condition of existing pavement, supported by NDTs.
  - Assess the capacity adequacy and structural integrity of existing bridges, underpasses, overpasses, interchanges, and flyovers.

- Evaluate existing ancillary and connecting infrastructure, including service roads, access roads, non-motorized transport (NMT) facilities, and roadside amenities (e.g., logistics hubs, truck parking, rest and service areas).
- Review existing road-related data and maintenance records, including historical operation and maintenance (O&M) costs, rehabilitation activities, capital expenditure (CapEx), operational expenditure (OpEx), and life-cycle replacement costs.

3.3 Engineering Investigation and Design

The Consultant shall undertake engineering investigation and design to establish a technically sound and economically and Environmental feasible design framework for the capacity enhancement of the Mau Summit – Eldoret – Malaba Road Corridor.

The Consultant shall carry out the required field investigations and analyses to support the preparation of preliminary engineering designs, drawings, cost estimates, and technical recommendations.

3.3.1 Preliminary Topographic Surveys (Aerial & LiDAR)

The consultant shall conduct preliminary engineering surveys to establish the general alignment and site conditions. This forms the basis for geometric design considerations. For this assignment the consultant is to carry out an Aerial and LiDAR Survey covering a 500 m corridor width along the project route and produce reasonably accurate geospatial datasets and topographic maps suitable for 1:2,500 scale to be undertake the preliminary design. All visible features—including buildings, roads, bridges, culverts, water features, and other infrastructure identifiable from the imagery—shall be mapped and organized into clearly defined GIS/CAD layers. The services shall include all activities from mobilization, permitting, ground control establishment, aerial data acquisition, photogrammetric and LiDAR processing, feature extraction, and map production up to the final submission of processed spatial datasets and maps.

The consultant to carry out the following's activities:

- Obtain all aviation permits, security clearances, and approvals.
- Conduct site reconnaissance to plan flight paths and identify access points.
- Prepare survey methodology, safety plan, and flight plans.
- Install Primary Control (wing) Points every 5 km and Secondary Centerline Points every 500 km, with monumentation
- Use the Ground control point for calibrating imagery and LiDAR data.
- Tie all control points to the national survey grid and reference levels to national benchmarks.
- Capture imagery and LiDAR at the resolution (≤15 cm GSD) for 1:2,500 mapping with adequate overlap.
- Process aerial imagery, triangulation, and orthomosaic generation and GIS Mapping and Data Extraction.
- Georeference and classify LiDAR point clouds (ground, buildings, vegetation, water).
- Filter and extract points to produce a Digital Terrain Model (DTM) and point cloud layers.
- Deliverables

- Inception report, methodology report, QA/QC report.
- Ground control survey data, flight logs, and metadata.
- Image Mosaic: 15 cm resolution (ECW, TIFF), CAD-referenced.
- DTM: 5 m × 5 m grid spacing (ASCII).and Contours: 5 m interval (SHP, DXF).
- Topographic Mapping at 1:2,500 based on the imagery in a GIS and CAD environment, including mapping all the observed features at specific layers
- Final Delivery Report.

3.3.2 Existing Utilities and Services Assessment

The Consultant shall undertake a comprehensive inventory of all existing utilities and services located within the Mau Summit–Eldoret–Malaba Road corridor. The purpose of this inventory is to identify all affected infrastructure and provide the Client with timely and reliable information to support coordination, relocation planning, and any required actions during project preparation and implementation.

3.3.3 Hydrology, Drainage, and Climate assessment

The Consultant shall carry out comprehensive hydrological, hydraulic, drainage, and climate resilience investigations and designs for the project corridor to propose **safe, efficient, climate-resilient, and cost-effective drainage solutions** suitable for preliminary engineering design. The scope shall include, but not be limited to, the following tasks:

- Collect, review, validate, and analyze existing hydrological, meteorological, climate, topographic, and catchment data, including historical rainfall, flood records, and climate change projections.
- Assess projected future climate scenarios and climate change impacts relevant to flooding, rainfall intensity, temperature extremes, erosion, and sediment transport.
- Identify data gaps and apply appropriate assumptions or regional analysis techniques to ensure reliable hydrological inputs.
- Review, inspect, and evaluate drainage conditions, hydraulic and structural adequacy of existing drainage structures (bridges, culverts, roadside drains), identifying capacity gaps and failure risks such as scouring, siltation, erosion, washouts, debris blockage, and vegetation overgrowth.
- Determine hydrological parameters, including catchment characteristics and design floods for appropriate return periods for different classes of structures, based on engineering judgment, risk, and economic considerations.
- Conduct hydrological and hydraulic modelling to estimate design discharges, flood levels, flow velocities, backwater effects, flood extents, scour depth, erosion potential, and sediment transport.
- Apply recognized modeling tools such as HEC-HMS, HEC-RAS, HY-8, Autodesk® Storm and Sanitary Analysis, GIS-based platforms, and other suitable regional or international models.
- Conduct Drainage and Hydraulic Design to verify the hydraulic adequacy of existing drainage structures and design new structures where required.
- Design drainage systems, including bridges, culverts, box culverts, roadside and longitudinal drains, outfalls, and energy dissipation structures.
- Establish waterway openings, deck elevations, freeboard requirements, and protection works for embankments and slopes.

- Develop erosion, scour, and sediment control measures to ensure long-term functionality of drainage systems.
- Undertake a climate resilience assessment to identify key climate-related risks affecting the highway corridor. Develop flood risk management and adaptation measures, including
- detention and retention facilities, flood protection works, improved flow paths, and nature-based solutions where appropriate.
- Recommend water harvesting and runoff management solutions, where feasible, to enhance water availability and reduce downstream flood risks.
- Conduct Environmental and Social Considerations along the project corridor and integrate nature-based solutions where appropriate.
- Identify flood-prone sections, wetlands, swamps, erosion- and landslide, and environmentally sensitive areas along the corridor and assess hydrological impacts.
- Recommend mitigation measures such as vegetation plantation, erosion control, gully rehabilitation, and sediment management strategies.
- Ensure drainage designs are compatible with environmental and social impact assessment requirements.
- Deliverables:
- Prepare all required drawings, hydraulic layouts, design notes, and technical reports supporting preliminary engineering design.
- Design assumptions, modeling results, and recommended mitigation measures.
- Provide preliminary engineering cost estimates for alternative drainage and flood mitigation options.
- Coordinate with other discipline teams and ensure consistency across design packages.
- Contribute to tender documents, including technical specifications and Bills of Quantities related to drainage and hydraulic works.

3.3.4 Existing Pavement Assessment

The Consultant to assess and determine the current condition, structural capacity, and performance of the existing pavement along the Mau Summit–Eldoret–Malaba Road. Based on the findings, the Consultant shall develop technically sound recommendations on whether each pavement section should be retained, strengthened, milled and reprocessed for reuse, or fully removed and reconstructed. Where appropriate, the Consultant shall also evaluate options for mechanical stabilization of the existing pavement materials.

The Consultant shall undertake the following tasks:

- Collect and review all available data and reports related to the construction history, maintenance records, and previous pavement evaluations.
- Collect and review available as built pavement chart identify pavement type, thickness, strength, age, maintenance frequency, and performance trends.
- Conduct a detailed visual inspection to assess surface condition, distress types, rating of extent severity, including cracking, rutting, raveling, stripping, potholes & patching, bleeding, and edge damage.
- Classify pavement sections according to condition rating with a combined rating for extent and severity with a rating scale recognized by a standard manual or practice (e.g. with a 5-point rating scale).

- Perform field tests to determine pavement strength and structural condition, including:
    - Falling Weight Deflectometer (FWD) testing: FWD testing shall be correlated to pavement structure, types and thicknesses as determined by the as-built pavement charts supplemented by results from coring, test pitting and ground penetration radar. Residual capacity of the existing pavement structure shall be estimated on the basis of future cumulative standard axles.
    - Dynamic Cone Penetrometer (DCP) tests shall be carried out to assess the subgrade strength at the interface between the carriageway and the shoulder. The DCP tests must be conducted at the location of each Test Pit (TP) immediately before test pit excavation begins. It is required to backfill test pit using minimum C10 concrete
    - Roughness surveys (IRI measurements) to evaluate ride quality.
    - Rutting measurement by straight edges and/or laser profile-meter
- Extract core samples at a max of 10km to determine layer thickness, and analysis for Air void, extraction and indirect tensile strength (ITS) material properties, and degree of deterioration. Air void determination shall be used to assess potential for plastic flow/rutting.
- Conduct Test Pit (TP) at intervals of max 10km and to a depth not exceeding 1m and conduct tests to assess the thicknesses and properties of pavement layers and underlying subgrade soil.
- Also conduct ground penetration radar (GPR) test to supplement the thickness data from the as-built pavement charts, coring and test pitting.
- Determine the remaining life of the existing pavement based on traffic loading, deflection testing, laboratory analysis and distress conditions.
- Evaluate the structural number (SN) and compare with required design strength under forecasted traffic volumes.
- Assess functional adequacy in terms of ride comfort, safety, and drainage efficiency, including external storm water drainage and internal drainage of the pavement.

Deliverables:

- Present findings in a report, including:
    - Pavement condition and roughness maps and inventory (GIS-based where applicable)
    - Results of field and laboratory tests
    - Structural evaluation and residual life assessment
    - Recommended pavement rehabilitation or reconstruction options with cost estimates.

3.3.5 Existing Bridge Structural Integrity Assessment

The Consultant to assess the structural integrity & condition, adequacy of width for the proposed road cross section, load-carrying capacity, and safety of existing bridges along the Mau Summit – Eldoret – Malaba Road and provide recommendations for maintenance, strengthening, or replacement as required.

The Consultant shall undertake the following tasks:

- Collect and review all available bridge design drawings, as-built records, previous inspection reports, and maintenance history.
- Conduct bridge inventory including type, dimensions, materials, age, traffic loads, and historical modifications.
- Collect and review the available substructure as built drawings and report to assess the foundation conditions.
    - Conduct detailed visual inspections of: All structural elements including deck, girders, piers, abutments, bearings, expansion joints, parapets, and approach slabs.
    - Identify cracks, spalling, corrosion, deformation, settlement, joint deterioration, scour, or other signs of structural distress.
    - Record findings using standard condition rating scales.
- Conduct non-destructive tests (NDT) on critical components to assess internal defects and material deterioration.
- Perform laboratory tests on samples, where necessary, to determine concrete strength, reinforcement condition, or steel properties.
- Evaluate current load-carrying capacity relative to existing and projected traffic demands.
- Conduct back analysis for the existing structures to confirm adequacy for the loading requirement in the Kenyan Design manual.
- Assess structural adequacy for heavier axle loads and compliance with relevant design standards.
- Substructure and Foundation Evaluation
    - Assess piers, abutments, and foundations for settlement, scour, erosion, or undermining.
    - Conduct hydrological analysis where necessary to assess flood or water flow impacts.
    - Any differential settlement and defects at the abutment, wingwall etc. to confirm how the foundation is intact.
    - any sulphate or chloride attacks
- Deficiency Identification and Risk Assessment
    - Categorize observed defects by severity and potential impact on safety and serviceability.
    - Identify immediate, medium-term, and long-term remedial actions.

Deliverables

- Bridge Structural Integrity Assessment Report, including bridge inventory, photographs, sketches, condition ratings, inspection results, test findings, structural analysis, and load capacity evaluation, and recommended remedial measures.
- Propose repair, strengthening, or replacement measures, including prioritized actions and indicative costs.
- Cost estimates for the proposed interventions

3.3.6: Soil, Materials and Geotechnical Investigations

The Consultant shall carry out a review of all existing data, followed by field investigations and laboratory testing as per the recommendation of the Kenyan design manual, other relevant standards/manuals as approved by the Client and as outlined below:

- Perform visual survey of the delineation of native soil types along the stretch and present “subgrade soil extension” report to 0.1Km location accuracy.
- Conduct representative soil sampling along the project alignment, with specific focus on proposed widening sections, at intervals as specified in applicable design manuals or closer where soil variability requires additional sampling. The Consultant shall perform all necessary laboratory tests—including soil classification, moisture–density relationships, and California Bearing Ratio (CBR) tests—to determine the engineering properties and suitability of subgrade materials for the proposed design.
- Locate suitable sources of construction materials. Prospect borrow pits for fill, subgrade and cement treated gravel pavement layers. Prospect sources of hard stone and evaluate suitability for AC, concrete, crushed stone pavement layer/s; for concrete and chippings), quantify the usable quantity and report coordinates. carryout representative sample, and test for the required quality tests for the construction materials suitable for pavement and structural works, including locating potential borrow pits and quarries.
- Identify problem areas where soil stabilization, removal or improvement may be required, recommend a preliminary measure for strengthening, replacement or stabilization and estimate the quantity to include in the draft BoQ.
- At the locations of newly proposed bridges or proposed widening of existing bridges, the Consultant shall study available core drilling data from previous studies. and carry out representative investigations through trenching, sampling, and laboratory testing. These investigations shall determine the allowable bearing pressures and other essential geotechnical parameters required to support the structural design of bridge foundations.
- A Soils and Materials Report shall be prepared showing the locations and approximate quantities of all available construction materials, supported by test results. Special attention shall be given to swamps and expansive soils, with recommendations for treatment and design adaptations.

3.3.7 Preliminary Engineering Design

3.3.7.1: Preliminary Roadway Design

The Consultant shall undertake the preliminary roadway engineering design for the project corridor. The scope includes review of the existing road conditions and development of preliminary geometric design solutions that comply with national and international standards.

Key Tasks (including, but not limited to):

1) Review of Existing Conditions
   - Assess the adequacy of current horizontal and vertical alignments, cross-sections, and general geometric characteristics in relation to proposed project requirements.
   - Evaluate existing intersections, interchanges, bridges, and other corridor features for safety, capacity, and compliance with modern standards.
   - Identify required improvements to bring the corridor to the desired design level.
2) Development of Preliminary Roadway Design
   Using Aerial and LiDAR-derived DTM data, the Consultant shall prepare preliminary designs ensuring an acceptable **Level of Service (LOS)** and reflect projected design traffic. Tasks include but not limited to:

- Define the required geometric design controls and criteria, as per the Ministry of Roads and Transport Manuals & other Client-approved guidelines,
- Develop and optimize Horizontal and vertical alignments,
- Cross-section concepts
- Lane configuration, carriageway widths, shoulders, slip roads
- Concept layouts for junctions, roundabouts, signalized intersections, and grade-separated interchanges
- Entry/exit arrangements, channelization, turning movements
- Underpass and overpass facilities
- Climbing lanes, bus bays, acceleration/deceleration lanes, and auxiliary lanes
- Access control strategy and integration with toll plaza arrangements
- Road safety features, including safety barriers, road furniture, and traffic control devices
- Associated infrastructure such as service roads, NMT facilities, wildlife crossings, and other connecting systems
- Establish functional classifications (mainline, ramps, service roads, toll plazas).
- Integrate ESIA and RAP mitigation requirements into the design.

3) Roadside Features
   - Provide concepts for roadside amenities, including logistics hubs, truck parking, emergency lanes, and service areas.
   - Design service roads, median openings, and U-turns where justified.
   - Incorporate signage, road markings, guardrails, and other road furniture per standards.
4) Ancillary and Supporting Infrastructure
   - Identify the need for new or improved linkages and associated facilities such as wildlife crossings and toll plazas, including optimal locations and layouts for tolling and control facilities.
5) Coordination with Other Disciplines
   - Ensure consistency with drainage, structural design, utility relocation, hydrology, and environmental requirements.
   - Provide geometric inputs for culvert and bridge optimization.
   - Support traffic analysts in lane configuration and capacity assessment.
6) Deliverables
   - Preliminary geometric design drawings (plans, profiles, typical cross-sections) in **DWG** format
   - Intersection and interchange concept layout drawings
   - Preliminary Bill of Quantities and cost estimates
   - A detailed Design Report documenting assumptions, parameters, methodology, and compliance with standards

3.3.7.2 Preliminary Pavement Design

The Consultant shall carry out a Preliminary Pavement Design based on the results of traffic analysis, pavement condition assessment, and representative materials investigations. The scope includes but not limited to:

- Undertake preliminary Pavement design using Kenya design Manuals, AASHTO, or Client-approved guidelines.
- Use inputs from existing pavement condition surveys and materials testing.

- Analyze traffic data (AADT, growth rates, ESALs) to determine design traffic loading.
- Consider climatic conditions affecting pavement performance.
- Review availability and suitability of local construction materials, recommending stabilization where needed.
- Provide design recommendations for pavement rehabilitation, strengthening, or reconstruction.
- Develop preliminary flexible pavement thickness
- Assess options for rehabilitation of existing pavement, including overlays or partial retention where feasible.
- Drawings showing pavement layer details, shoulders, and drainage interfaces.
- Bill of Quantities and cost estimates for pavement works.

3.3.7.3 Bridge and major structures Design

- Review existing bridge and structure inventory data, inspection reports, and as-built drawings.
- Identify existing structures requiring rehabilitation, widening, or replacement based on structural adequacy, hydraulic capacity, and geometric constraints.
- Determine their suitability and required intervention for the proposed project configuration and design traffic loading.
- Recommend most suitable structure types based on site conditions, road width, span requirements, constructability, aesthetics, and cost efficiency.
- Define design standards and loading criteria based on Kenya Bridge Design Manual (or other international standards as approved by the KeNHA)
- Verify the load rating and structural adequacy of existing bridges for projected traffic loading.
- Perform preliminary design for all new or extension of the existing bridges, interchanges, underpasses, overpasses, and retaining structures.
- Prepare concept design drawings showing typical elevations, sections, and pier/abutment arrangements.
- Determine preliminary foundation concepts (shallow, deep, piled, or caisson).
- Prepare rehabilitation or strengthening designs where feasible.
- Deliverables
    - General arrangement (GA) drawings for all major structures.
    - Structural drawings (superstructure, substructure, reinforcement, foundations).
    - Bill of Quantities (BOQ) and detailed cost estimates.
    - Design report summarizing methodology, assumptions, analyses, and compliance with applicable codes.

3.3.7.4: Traffic Safety Assessment and Road Furniture

- Review existing traffic, intersection layouts, control devices, and signage.
- Assess accident and safety records to identify high-risk locations and black spots. and evaluate road safety performance; recommend appropriate safety measures, barriers, signage, and road furniture.
- Evaluate roadside conditions, access points, pedestrian crossings, and non-motorized traffic facilities.

- Review existing road signage, pavement markings, barriers, roadside delineators, chevrons, etc. and lighting installations, and recommend the required interventions in accordance with Ministry of Roads and Transport standards.
- Prepare signing and marking plans for the full corridor, including interchanges, junctions, toll plazas, and rest areas.
- Design and specify guardrails, crash barriers, bridge parapets, and impact attenuators per the approved standards.
- Recommend road lighting systems for junctions, toll plazas, and urban sections, including luminaire type, spacing, and power requirements.
- Identify speed management features (rumble strips, signage, or geometric modifications) for improved safety.
- Undertake preliminary Road Safety Audit and recommend appropriate measures including associated costs
- Integrate safety enhancement measures into geometric and traffic control layouts.
- Deliverables
    - Typical details for road furniture and safety devices
    - Intersection and interchange traffic control plans.
    - Cost estimates and Bill of Quantities (BOQ)
    - Preliminary Safety Audit Report

3.3.7.5: Drawings, Specifications, and Bill of Quantities

- Develop indicative output and performance specifications for the proposed road corridor to guide project delivery standards, operational benchmarks, and service-level expectations.
- Prepare preliminary engineering drawings, technical specifications, and bills of quantities (BoQs), including itemized costs for environmental and social mitigation measures identified in the Environmental and Social (E&S).

3.3.7.6: Cost Estimates

The Consultant shall prepare preliminary cost estimates, including:

- Separate identification of all taxes and duties;
- Comparison with similar projects for cost validation (±20% accuracy);
- Separate right-of-way acquisition estimates based on current market land rates;
- Foreign and local currency breakdowns.

3.4 Design of Tolling Infrastructure Systems and Corridor Operations

The Consultant shall undertake a comprehensive assessment to design, evaluate, and plan the implementation of tolling and corridor operations for the proposed highway project. The major tasks include:

3.4.1: Data Collection and Corridor Assessment

- Review existing corridor operations, traffic patterns, access points, and any current tolling practices.
- Collect and analyze traffic volumes, vehicle classifications, and tolling feasibility data.
- Identify optimal toll plaza locations and required supporting facilities based on traffic flow, safety, and operational efficiency.

3.4.2: Tolling Requirements and System Options

- Analyze project geometry, interchanges, and access points to determine suitable tolling points.
- Evaluate tolling models (mainline, ramp, open, closed, hybrid) and ensure compatibility with national tolling systems.
- Recommend the most suitable tolling approach for the corridor.

3.4.3: Tolling Strategy and Technology Concept

- Define the tolling model (manual, electronic, or hybrid) and recommended tolling architecture.
- Assess ETC, AVC, WIM, ANPR, RFID/DSRC, and related technologies.
- Develop the conceptual tolling system, including back-office, financial reporting, security, and data management requirements.

3.4.4: Toll Plaza and Infrastructure Concept Design

- Prepare conceptual layouts for toll plazas, booths, lanes, canopies, control buildings, utilities, and ICT rooms.
- Define lane configurations for ETC, cash, mixed-mode, and heavy vehicles.
- Integrate safety features, lighting, signage, drainage, and climate-resilient design elements.

3.4.5: Tolling Systems Technical Specifications

- Specify toll system equipment (ETC antennas, AVC/WIM sensors, POS terminals, CCTV, lane control signals).
- Define system architecture, interfaces, data transmission networks, and redundancy requirements.
- Prepare functional specifications for procurement and implementation.

3.4.6: Operations & Maintenance Framework

- Develop operational requirements for tolling, incident management, maintenance, and safety.
- Prepare staffing structures, workflows, performance indicators, and enforcement systems.
- Recommend asset management and maintenance plans for tolling infrastructure and equipment.

3.4.7: Traffic and Revenue Forecasting Support

- Provide inputs for traffic modeling and toll revenue forecasts.
- Define vehicle classes, toll categories, and rate structures.
- Assess demand elasticity, diversion routes, and user willingness-to-pay.

3.4.8: Intelligent Transport Systems (ITS) Integration

- Propose ITS solutions including CCTV, VMS, ATCC, and emergency call boxes.
- Define corridor-wide communication architecture and integration with national traffic management systems.

3.4.9: Environmental, Safety, and Social Considerations

- Integrate environmental mitigation, noise/emission controls, and landscaping in toll plaza designs.
- Ensure safety and accessibility for surrounding communities.
- Provide emergency and evacuation arrangements.

3.4.10: Deliverables and Documentation

- Toll plaza concept designs, system schematics, BOQs, and equipment specifications.
- Tolling System Design Report covering architecture, technology, O&M framework, and integration approach.

3.4.11: Coordination and Integration

- Coordinate tolling design with road engineering, ITS, power, ESIA, and financial modeling teams.
- Ensure consistency with corridor operational strategies and PPP agreement requirements.

3.5 Street lighting

The Consultant shall assess the current and future requirements for street lighting along the Mau Summit – Eldoret – Malaba Road corridor, including all interchanges, toll plazas, service areas, pedestrian crossings, and urban sections of the road. The objective is to ensure the provision of safe, energy-efficient, and sustainable lighting systems in accordance with national and international standards.

The Consultant's tasks shall include, but not be limited to, the following:

- Inventory and Assessment of Existing Lighting Systems
- Develop a conceptual and preliminary lighting design for the corridor in accordance with Kenyan standards and relevant international guidelines
- Specify lighting poles, luminaires, control systems, cabling, and switching arrangements consistent with best practice and safety standards.
- Incorporate energy-efficient technologies, including LED luminaires, automatic dimming controls, and smart metering.
- Evaluate existing power sources and distribution networks along the corridor to determine adequacy for the proposed street lighting installations.
- Propose power supply layouts, including feeder lines, transformers, and backup systems, ensuring reliability and cost efficiency.
- Assess the potential for renewable energy integration, especially in rural sections and remote toll facilities.
- Prepare detailed cost estimates (CAPEX and OPEX) for lighting system installation, operation, and maintenance, with clear breakdowns of local and foreign components.

Task 4: Environmental & Social

4.1 General Information

4.1.1: Objectives

The overarching objectives of the environmental and social (E&S) activities are to:

- Avoid E&S red flag issues / showstoppers that would prevent international financing.
- Establish the technical and financial feasibility of E&S Reference Framework (refer to following section) compliance within the Feasibility / Tender Design.
- Optimize the E&S performance of the Feasibility / Tender Design according to the E&S Reference Framework, Good International Practice (GIP) and emerging and

/ or innovative E&S and technical methods, technologies, techniques and practices2 etc.,

- Support inclusion of full-project costs relating to E&S Reference Framework compliance in the financial models for the project by all relevant parties, including relevant government agencies.
- Communicate to the future Concessionaire sufficient E&S information such that it can understand E&S risks and compliance requirements and include accurate costs, contingencies and other financial or other mitigants etc., in its bid to address and achieve these.
- Inform procurement and early implementation planning.

4.1.2: Lenders Environmental and Social Policy Reference Framework

The Lenders Environmental and Social Policy Reference Framework (the "Reference Framework") establishes the policies of the international finance institutions (IFIs) that the E&S activities and deliverables will need to comply with. At this stage in the Project the financiers have not been confirmed, and the Reference Framework is consequently broad. The Consultant should note that where there are differences and inconsistencies between the standards in the Reference Framework the most stringent requirements shall apply in all cases.

4.1.3: Reference Framework:

- Kenyan national and as applicable, regional and local environmental and social laws and regulations
- International treaties and conventions to which Kenya is a signatory
- World Bank Group (WBG) Environmental, Health and Safety (EHS) General Guidelines
- WBG EHS Sector Guidelines for Toll Roads
- WBG EHS Sector Guidelines for Construction Materials Extraction3
- Asian Infrastructure Investment Bank (AIIB) Environmental and Social Framework 2024
- African Development Bank (AfDB) Integrated Safeguards System 2023
- World Bank Environmental and Social Framework (ESF) 2017

[2] The latter is likely to involve collaboration with / input from technical and engineering specialists as part of the E&S Tasks to identify and evaluate within the Feasibility Study innovative and emerging solutions, including but not limited to (the following is an indicative guide only): nature based solutions (NBS) and soft engineering e.g., for drainage; road surfaces and construction techniques to address climate change risks including heat as well as minimizing O&M phase materials use; culvert design for improving biodiversity habitat as well as risk of wash-out etc.; opportunities to minimize resource use and increase efficiency at all project stages etc. It is expected that preferred options taken forward in the feasibility / tender design will include NBS and soft engineering etc., where such options are technically and financially equivalent or better than hard engineering or traditional techniques, methods etc. The team put forward by the Consultant in its bid shall include appropriate knowledge and experience in emerging and innovative practices such that a meaningful and accurate analysis and comparison of options can be performed within the Feasibility Study.

[3] The Consultant shall confirm the relevant applicable WBG EHS Guidelines and expand if needed, once the Project and all associated facilities are defined (e.g., the applicability of WBG EHS Guidelines for Power Transmission and Distribution shall be checked, amongst others). The Consultant should note that the WBG EHS Guidelines are currently under revision and reference should be made to the latest available versions when undertaking the scope of work.

- International Finance Corporation (IFC) Performance Standards (PSs) 20124
- European Bank for Reconstruction and Development (EBRD) Environmental and Social Requirements (ESRs) (2024)5
- Equator Principles III

The Consultant shall review and update the Reference Framework as part of the development of ToRs for the full ESIA.

4.1.4: Summary of Key E&S Activities

The E&S objectives will be delivered through the following key activities[6]:

1. **Baseline characterization.** The Consultant shall undertake desk-top review, engage with governmental agencies and other third parties including local topic specialists as appropriate, and supplement with cost efficient targeted surveys where needed to obtain sufficient baseline information to support (i) delivery of the E&S Objectives, including (but not limited) through (ii) identification of potential E&S risks and impacts relevant to the Project, (iii) informing preliminary assessment of E&S risks and impacts, (iv) informing application of the mitigation hierarchy relevant to the feasibility design stage, in particular E&S risk and impact avoidance and minimization, and (v) informing key activities 2-7 below and E&S deliverables
2. **E&S options appraisal** as part of the feasibility study multi-criteria analysis (MCA) or equivalent approach
3. **Preliminary E&S assessment**
4. **Preliminary assessment of physical & economic displacement**
5. **Preliminary stakeholder identification, analysis and engagement**
6. **Preliminary mitigation, management and monitoring** to the extent possible and appropriate to the robustness of analysis carried out. This shall include a preliminary list of the E&S instruments, including the ESIA, ESMPs, Final-RAP, SEP and other topic-specific plans to be prepared by the successful Consortium based on the preliminary E&S assessment and required to achieve compliance with the Reference Framework[7]
7. **ESIA scoping**, including development of ToRs for the full ESIA and additional E&S instruments that will be developed by the successful Consortium[8].
8. **Review of Institutional Capacity**
9. **Audit of O&M phase E&S Management System, Plans and Procedures etc.**

[4] IFC PSs are undergoing revision. The latest version shall be referred to at the point at which the Consultant works commence.

[5] The Consultant should note that for projects affecting traffic and road safety, the ESRs require the client to take into consideration relevant EU road and traffic safety management standards, consistent with the objectives of Directive 2008/96/EC on road infrastructure safety management (as amended).

[6] This is a summary of key activities only. The Consultant shall review the full scope of this ToR and address all scope items, including those not summarized here.

[7] The Consultant should note that the final list of E&S instruments to be developed by the successful consortium will necessarily be subject to revision / expansion dependent on the findings of the final ESIA.

[8] The ToRs shall provide clear guidance to the bidders on the scope, depth, methodological expectations and E&S reference framework etc., for the full ESIA and associated management plans.

4.1.5: E&S Deliverables

The outputs of the E&S activities will be presented in the following deliverables:

1. Feasibility Study (options appraisal and technical design inputs)
2. Environmental and Social Framework (ESF) – to include (but not limited to) the feasibility stage baseline, preliminary E&S assessment, preliminary mitigation, management and monitoring, Environmental and Social Impact Assessment (ESIA) scoping, ESIA etc., ToRs, institutional capacity, summary and findings of the O&M phase E&S Management System Audit, and all other information required to be recorded and communicated to deliver the E&S Objectives not otherwise addressed through deliverables 1,3 and 4. All outputs from the assessment will be captured in a preliminary E&S Commitments Register for ease of reference.
3. Preliminary Resettlement Action Plan (pRAP)
4. Preliminary Stakeholder Engagement Plan (pSEP) and Grievance Redress Mechanism (GRM).

4.1.6: E&S / Technical Interface

The ESF method adopted by the Consultant shall fully integrate E&S into the feasibility design process. Relevant E&S information shall be used to inform and appraise the design on a continuous basis, as part of an iterative design approach. Design and E&S teams shall work collaboratively with regular, meaningful interaction and 'silo' working shall be avoided. The Consultant shall fully integrate the program for the ESF sub-tasks (e.g., baseline collection, preliminary assessment etc.) and deliverables within the program for Tasks 1-3 and 5 of this ToR. The Consultant's proposal shall describe how this will be achieved and managed.

Relationship between the ESF and the pRAP

The ESF and the pRAP are complementary instruments prepared at the feasibility stage, each serving a distinct but interrelated purpose within the overall environmental and social risk management approach for the proposed Project.
The pRAP focuses specifically on land acquisition, resettlement, and livelihood-related impacts, and provides an assessment of potential displacement risks, eligibility principles, entitlement frameworks, institutional arrangements, and indicative cost estimates, based on the level of design definition and Right of Way (RoW) information available at this stage. Data collected under the pRAP, including socio-economic baseline information, directly informs the social risk analysis under the ESF.

The ESF, in turn, draws upon and builds on data and analyses generated for the pRAP for the undertaking of feasibility-stage Social Impact Assessment (SIA) for key social risk areas. It provides the broader environmental and social assessment and management context within which the pRAP is situated. It consolidates and synthesizes environmental and social risk identification, feasibility-stage impact assessment, and management planning across thematic areas, including social aspects beyond resettlement, such as community health and safety, labor and working conditions, vulnerable groups, gender considerations, and stakeholder engagement.

The ESF and pRAP together will establish a coherent and robust analytical and management foundation to guide subsequent detailed assessments, ensuring consistency, continuity, and clarity of expectations across the transition from public-sector-led feasibility studies to private-sector-led detailed design and implementation as well as managing the risk of material revisions to environmental and social baseline data, and informing impact assessments, and management measures as the Project advances.

4.2: Environmental and Social Framework

4.2.1: Assessment Context

Environmental and social assessment for the Project will be carried out in two stages. First, an ESF will be prepared at the feasibility stage (as per the specification and scope presented in this ToR). The ESF will inform a full ESIA to be carried out by the successful Consortium at detailed design stage, and the ESF shall be structured and formatted to facilitate ease of use at Stage 2. The full ESIA will be based on the selected Consortium's Detailed Design[9] and be informed by supplementary baseline surveys. The full ESIA will include detailed impact assessment studies and all other information as required to comply with the Reference Framework.

The ESF is intended to provide the assessment and management information needed to deliver the E&S Objectives. The Consultant should note that the E&S tasks and activities required to deliver the ESF are therefore broader than conventional ESIA scoping. The methods, techniques and surveys etc., proposed by the Consultant to deliver the ESF should however be proportionate to and reflect the information, schedule and budget constraints of the Project feasibility stage. The Consultant should assume that e.g., season dependent surveys, expensive / resource intensive field surveys, and detailed modelling etc., shall be undertaken as part of the full ESIA to the extent that the E&S Objectives can be delivered in the absence of this information.

The requirements for the ESF set out in this section shall be read in conjunction and supplemented by the information presented in the preceding General Information section.

4.2.2: Overall Approach and Methodology

The Consultant shall adopt a structured, stepwise, and risk-based approach to the preparation of the ESF, integrating environmental and social considerations into feasibility-stage decision making and PPP preparation. The approach shall:

- Be aligned to and compliant with the Reference Framework.
- Reflect the linear and large-scale nature of the Project and the evolving status of detailed engineering design.
- Be informed by, and coordinated with, parallel feasibility-stage instruments, including the technical and financial feasibility study and pRAP; and

[9] Detailed design is a process that continues throughout construction. As the ESIA will need to be completed and accepted prior to construction commencing, based on its knowledge and expectations of the detailed design schedule, mobilization and construction timeline the Consultant shall advise as part of the ESF a proposed 'design fix' date within the selected Consortium's Detailed Design process to enable a robust ESIA to be completed without delay to construction. The Consultant shall capture a realistic roadmap for the full ESIA, including time for Lender Category A disclosure, within the ESF and Project schedule within the Feasibility Study.

- Apply the principle of proportionality, focusing analytical effort on material risks and impacts.

The ESF shall combine corridor-level baseline characterization and feasibility-stage impact assessment to guide subsequent detailed assessment and implementation.

4.2.2.1: Project Description and Definition of the Area of Influence

The Consultant shall include in the ESF the description of the Project option selected through the feasibility studies and as defined in the final Feasibility Study Report. This should include (to the extent that information is available):

- Project objectives, rationale, and strategic context;
- Description of the existing road corridor and proposed upgrading from two lanes to four lanes;
- Indicative horizontal and vertical alignment, typical cross-sections, and design standards;
- Key associated and ancillary facilities, including but not limited to interchanges, junction improvements, toll plazas, weighbridges, service and rest areas, construction camps, borrow pits, quarries, spoil disposal areas, and material haul routes;
- Indicative construction methodology and phasing; and
- Anticipated operational arrangements, including traffic management and maintenance considerations.
- All project information (or where not available, justified assumptions10) used to inform the identification and preliminary assessment of E&S impacts in accordance with the Reference Framework, covering all project phases – design, mobilization, construction, commissioning, O&M etc.,

Based on the above, the Consultant shall define the Project's area of influence, covering:

- The direct physical footprint;
- Areas affected by construction-related activities;
- Zones of indirect and induced impacts; and
- Areas relevant for cumulative impact considerations.

4.2.2.2: Optioneering and Project Alternatives

The Consultant shall undertake a structured and proportionate analysis of Project alternatives, commensurate with the feasibility-stage nature of the ESF and the current level of engineering definition. The purpose of this is to demonstrate that environmental and social considerations have been integrated into strategic project decision-making, while recognizing that final optimization and detailed comparison of alternatives will be undertaken during the ESIA stage.

It is expected that the analysis of alternatives chapter will be informed to a greater extent by Deliverable 1 (E&S options appraisal)[11].

[10] All assumptions to be clearly identified as such in the reporting

[11] The Consultant should note that undertaking E&S appraisal of options and alternatives and clearly and unambiguously recording the findings is a key compliance requirement. Insufficient analysis cannot be

The alternatives analysis shall include, but not be limited to, the following:

- No-Project Alternative: Assessment of the likely environmental and social conditions in the absence of the Project, including implications for road safety, congestion, regional and cross-border connectivity, access to markets and services, and cumulative environmental and social pressures along the corridor.
- Road Safety: A dedicated sub-section on how road safety has been appraised as part of the Feasibility Study and hazards eliminated, likeliness of hazards reduced or where they cannot be removed, severity of those issues mitigated so that they can be removed at a later design stage.
- Alignment and Widening Alternatives: Comparative assessment of feasible alignment options and widening strategies (e.g., on-line widening versus localized realignments), focusing on differences in land take, physical and economic displacement, impacts on informal settlements and roadside businesses, sensitive environmental receptors, and risks to physical cultural heritage.
- Design and Junction Alternatives: High-level assessment of alternative junction, interchange, and access designs, with particular attention to impacts on local mobility, community severance, access to farms and services, and safety risks for non-motorized users.
- Construction Method and Phasing Alternatives: Evaluation of alternative construction approaches and phasing strategies, including traffic management options, staging of works, and use of temporary access arrangements, with a view to minimizing disruption to livelihoods, markets, and community services.
- Operational Alternatives: Preliminary assessment of operational design choices with potential social implications, including tolling regimes, access control measures, service road provision, and location of ancillary facilities, with attention to distributional impacts on different user groups.

4.2.2.3: Policy and Legal Framework

The Consultant shall identify and analyze the policy and legal framework applicable to the Project, including:

- Kenyan environmental legislation and regulations under the Environmental Management and Coordination Act (EMCA) and National Environmental Management Agency (NEMA) procedures
- National requirements related to land acquisition, compensation, labor and working conditions, occupational health and safety, and community health and safety
- Regional-level regulatory requirements along the Project corridor
- Relevant international conventions ratified by Kenya
- Relevant national, regional and local policies and plans etc., that set the planning context of the Project and summarize all components of those policies and plans etc., that need to be considered in the ESF and future ESIA

Subsequently, the Consultant shall:

addressed at full ESIA stage and as such failure to undertake robustly at feasibility stage could result in the full ESIA being non-compliant with the Reference Framework.

- Conduct a gap analysis of national requirements and the international lender requirements included in the Reference Framework.
- Identify potential risks arising from any misalignment and propose measures to address these.
- Ensure that the Project schedule captures activities needed to comply with the full Reference Framework.
- Summarize and capture in ESIA ToRs salient requirements of national policies and plans etc.,
- Present a schedule of activities and responsible parties needed to comply with legislation and obtain all required licenses and permits.

4.2.2.4: Institutional Capacity & Delivery Framework

The Consultant shall identify all state, private and non-governmental parties that will be responsible for delivering the Project in compliance with the Reference Framework. This will include (but not be limited to) KeNHA the State Department for Roads, the PPP Directorate (PPPD) at the National Treasury, the Transaction Advisor, the future Private Party, and the National Environmental Management Authority (NEMA). The capacity of each State party and any confirmed private parties will be reviewed, and the Consultant shall present recommendations to address capacity gaps as applicable and include these within the ESF. As part of this review, the Consultant will identify and consider capacity building measures that KeNHA and other key parties are already subject to under other international financing commitments. For parties that are not known (such as the Consortium that will undertake detailed design and the Construction Contractor), the Consultant shall establish minimum capacity requirements that will be included in relevant ToRs.

Roles and responsibilities of each party for environmental and social management during design, procurement, mobilization, construction, commissioning and O&M shall be clearly identified and defined. An organizational structure showing the hierarchy and inter-relationships of the parties will be provided for each key project stage.

4.2.2.5: Preliminary Environmental Baseline Studies

The Consultant shall compile, review, and analyze environmental baseline data within the defined area of influence, drawing on secondary sources, existing studies, and targeted field reconnaissance. The baseline shall include, as appropriate:

- Climate and meteorological conditions;
- Topography, geology, soils, and geotechnical considerations;
- Surface and groundwater resources, drainage patterns, and flood risk;
- Ambient air quality and noise environment;
- Biodiversity, habitats, and protected or sensitive areas;
- Natural Hazard risks
- Identification of environmentally sensitive receptors that may influence design or mitigation measures (e.g., schools, healthcare facilities, community facilities, energy and utilities, railway crossings, public transport services etc.,).

4.2.2.6: Social Baseline Studies and Integration with pRAP

Building on the socio-economic baseline data collected under the pRAP, the Consultant shall prepare a consolidated social baseline for the Project corridor, including:

- Cultural heritage features;
- Demographic and settlement characteristics;
- The surrounding topography and land use characteristics and proximity to residential neighborhoods from the proposed Project, including current and past land use patterns, whether agriculture, forestry etc.;
- Socio-economic conditions of potentially affected communities and people;
- Vulnerable and marginalized groups, including gender considerations;
- Community health and safety context;
- Existing social infrastructure and services.
- Sensitive receptors and institutions such as schools, dispensaries, hospitals, libraries, places of worships, etc.;
- Past and present use of the location and surrounding land and any historical, religious or cultural significance of the area;
- Demographic character of the surrounding neighborhoods, the sensitivity of the public to the proposed project, including perception to increased traffic, noise, dust, odor, and aesthetic appearance, and potential mitigation measures for such concerns;
- The gender dimensions of the Project including any underlying Gender Based Violence (GBV) risks as a direct result of the Project;
- Other planned development activities on the location and in the nearby surroundings;
- Traffic conditions, existing and proposed, along the Mau Summit – Eldoret – Malaba Road.

The Consultant shall explicitly document the relationship between the pRAP socio-economic baseline survey and the ESF social baseline, clarifying the extent to which data collected for resettlement planning are being used to inform feasibility- SIA. The ESF shall also clearly state that updates to baseline data may be required during the ESIA stage to reflect detailed design and evolving Project conditions.

4.2.2.7: E&S Potential Risk & Impact Identification

In accordance with the Reference Framework and based on the project description, the ESF shall identify and record all potential E&S risks and impacts associated with each stage of the project (design, mobilization, construction, commissioning and O&M).

4.2.2.8: Feasibility-Stage Environmental Impact Assessment & Scoping Conclusion

The assessment shall cover all identified environmental risks and impacts for all project stages. The assessment shall be undertaken in conformity with requirements set out in the Reference Framework.

Potential biodiversity risks and impacts for all project stages will be assessed using desk-top data including iBAT, supplemented with secondary information from non-governmental organisations (NGOs), national and international experts on key species and habitats and academic research etc. The potential for triggering Critical Habitat

under the Reference Framework will be evaluated and a precautionary approach adopted. Potential impacts on natural and critical habitats, protected areas, and sensitive ecological features, including habitat fragmentation and disturbance, shall be assessed to inform avoidance and minimization measures at the feasibility stage. Areas of habitat that will be permanently lost and temporarily impacted will be quantified.

It is expected that the assessment of potential construction risks and impacts will consider (but not be limited to) those associated with earthworks, material sourcing, temporary storage and permanent disposal of excavated spoil, construction camps, workshops, concrete batching / asphalt preparation, stone crushing, quarrying, blasting, piling, in-river works, hazardous substances, waste generation and disposal, traffic diversions, and construction-induced air, noise, vibration, pollution impacts etc., with particular attention to sensitive receptors along the corridor.

Operational phase risks and impacts related to design shall be identified and assessed as a priority, with issues avoided to the extent possible. In particular, risks associated with longitudinal and horizontal drainage design and capacity, treatment and discharge of longitudinal drainage waters, location of relief culverts and identification of associated upstream – flooding and down-stream erosion risks to agricultural lands, surface water crossings, drainage patterns, flood-prone areas, and bridge flood capacity etc. In addition, air quality, noise and vibration changes during operation could affect nearby receptors and may have design implications such as routing, noise barriers etc., to achieve compliance with the Reference Framework. The assessment shall clearly distinguish between impacts that can be reasonably assessed and mitigated at the feasibility stage and those that will require detailed analysis and confirmation during the ESIA. Key assumptions, uncertainties, and data gaps shall be explicitly documented

The assessment findings will inform the scope of the full ESIA, and the results of the scoping will be documented in the ESF.

4.2.2.9: Feasibility-Stage Health and Safety Assessment & Scoping Conclusion

The ESF will consider occupational and community health and safety hazards and risks in accordance with the Reference Framework. In relation to occupational health and safety (OHS), the ESF will identify higher risk activities associated with each phase of the project and establish the Reference Framework compliant actions that will require to be taken by the Construction and O&M Contractors to assess and manage these at future project stages.

Community health and safety hazards and risks are possible during construction and O&M phases, and include encroachment into construction sites, risk of fatalities from construction and maintenance traffic, use of security forces, risks of GBV, SH and SEA, water-borne viruses and malaria, and access to and operation of a higher capacity road etc.

The assessment findings will inform the scope of the full ESIA, and the results of the scoping will be documented in the ESF.

4.2.2.10: Feasibility-Stage Social Impact Assessment and Scoping Conclusion

The Consultant shall undertake a feasibility-stage SIA, informed by the social baseline and data collected under the pRAP, to identify, analyze, and characterize the Project's key social risks and impacts associated with each stage of the project (design, mobilization, construction, commissioning and O&M). The SIA shall go beyond scoping-level identification and provide analytical depth sufficient to inform design choices, resettlement planning, stakeholder engagement, and risk management, while remaining proportionate to the current level of Project definition.

The SIA shall address, at a minimum, the following thematic areas:

- Access, Mobility, and Construction-Related Disruptions: assessment of temporary and permanent impacts on access to farms, markets, schools, health facilities, and places of business during construction. Particular attention shall be paid to small-scale and informal roadside businesses (e.g., kiosks, vendors, repair services), which are highly vulnerable to even short-term disruptions as well as long term severance impacts as may be experienced by e.g., farmers.
- Livelihoods and Local Economic Activities: analysis of potential impacts on formal and informal livelihoods along the corridor, including roadside trading, transport services, and small enterprises. The assessment shall consider both adverse impacts (e.g., loss of informal trading spaces, displacement of businesses) and potential positive effects (e.g., improved market access) and identify groups likely to experience disproportionate adverse impacts.
- Road Tolling, Access Control, and Distributional Effects: preliminary assessment of how tolling arrangements and access control associated with the upgraded road may alter local movement patterns, travel behavior, and transport costs. The SIA shall consider distributional impacts on poorer households, small traders, informal transport operators, and users dependent on frequent short trips and local stops.
- Land Use, Right-of-Way, and Displacement Risks: assessment of social risks associated with expansion of the Right-of-Way (RoW), including economic and physical displacement. The SIA shall explicitly recognize that informal occupation of the RoW is common and that compensation and eligibility for encroachers are often contentious. Findings from the pRAP shall be integrated to inform risk mitigation and communication strategies.
- Cross-Border and Corridor-Based Economic Dynamics: analysis of the Project's potential impacts on corridor-level economic patterns, including high volumes of informal and cross-border trade. The assessment shall consider how road upgrading may reshape local economies, including potential displacement of informal livelihoods and changes in the spatial distribution of economic activities.
- Vulnerable and Marginalized Groups: identification of groups that may be disproportionately affected by construction and operation impacts, access changes, displacement, or livelihood disruptions, including women, the poor, and households dependent on informal economic activities.

- Labor Influx and Community Risks: screening of potential social risks associated with labor influx, including pressure on local services, community health and safety, and risks of gender-based violence and sexual exploitation and abuse (GBV/SEA), commensurate with the feasibility stage
- Gender-related risks, including gender-differentiated livelihood impacts, barriers to access and mobility, and risks of Gender-Based Violence (GBV), Sexual Exploitation and Abuse (SEA), and Sexual Harassment (SH), particularly in relation to labor influx, construction camps, and interactions between workers and local communities.
- Physical displacement and resettlement-related social risks, including the social implications of relocation, disruption of social networks, and differential impacts on vulnerable groups, to ensure consistency and alignment between the SIA and the pRAP.
- Cultural heritage risks, with particular emphasis on chance finds and impacts on known and unknown physical cultural resources, sacred sites, graves, and culturally significant landscapes along the corridor, recognizing the heightened likelihood of such impacts in linear infrastructure projects.

The SIA shall clearly document assumptions, limitations, and uncertainties arising from the feasibility-stage nature of the assessment. It shall identify issues requiring further analysis, data collection, and consultation during the ESIA stage and provide guidance on how such issues should be addressed by the Private Party

4.2.2.11: Cumulative Impacts

The ESF shall include an identification of other existing and planned projects that could result in cumulative E&S impacts and will need to be considered within the full ESIA.

4.2.2.12: Road Safety Assessment

The consultant shall conduct road safety audits on the project road using internationally recognized approaches and standards and the findings fed into the study as well as being shared with the National Transport and Safety Authority • Recommendations of the Road Safety Audit shall be incorporated by the selected Consortium as part of the detailed design activities to further assess, avoid, minimize and otherwise manage identified hazards. The Road Safety Analysis report shall be included in an annex to the ESF and cross referenced.

4.2.2.13: Stakeholder Engagement and Information Disclosure

The Consultant shall carry out stakeholder engagement activities proportionate to the feasibility-stage objectives of the ESF, building upon engagement undertaken under the pRAP and other preparatory studies.

This will include:

- Identification and mapping of key stakeholders, including Project-Affected Persons, vulnerable and marginalized groups, local authorities, civil society organizations, and corridor-level stakeholders;
- Design and implementation of consultation activities at the community and corridor levels, using culturally appropriate and inclusive methods;
- Systematic documentation of stakeholder concerns, expectations, and feedback, and explanation of how these have informed project design choices and the ESF12;
- Disclosure of draft and final ESF outputs in accordance with applicable national requirements and AIIB disclosure policies;
- Establishment of information management arrangements to ensure traceability of stakeholder inputs and continuity into the ESIA and RAP preparation stages.

Stakeholder engagement shall be iterative and continuous and shall provide a foundation for enhanced engagement during subsequent stages of Project preparation and implementation.

4.2.2.14: Implementation Arrangements

The ESF coverage of ES implementation arrangements shall:

- Summarize the environmental and social actions that will follow through to entry into operations.
- Summarize how screening, assessment, and management of site-specific risks will be carried out as Project details evolve
- Reference the ESIA ToRs
- Establish how interfaces between instruments, including the ESIA, RAP, Labor Management Procedures, Stakeholder Engagement Plan, and cultural heritage chance finds procedures etc., etc., will be managed and consistency maintained.
    - Present a structured and proportionate framework for the implementation management of environmental and social measures throughout the Project life cycle, recognizing the transition from public-sector-led preparation to private-sector-led implementation under the PPP arrangement. Outline clear implementation arrangements for E&S management, including the delineation of roles, responsibilities, and interfaces among the following entities: Kenya National Highways Authority (KeNHA), in its capacity as the public implementing authority during project preparation and contract management;
    - The future Private Party, responsible for detailed design, construction, operation, and maintenance, and for compliance with applicable environmental and social requirements;
    - Contractors and subcontractors engaged by the Private Party; and
    - Supervising entities, independent engineers, and relevant regulatory authorities.

The implementation arrangements shall reflect the findings of the institutional capacity assessment and shall identify key coordination mechanisms, reporting lines, and

[12] This shall include feedback on locations of under and overpasses for pedestrians and cattle.

decision-making processes necessary to ensure effective environmental and social risk management during implementation.

4.2.2.15: Implementation Schedule and Indicative Cost Estimates

The Consultant shall prepare a high-level implementation schedule of the implementation actions through to operations, and indicative cost estimates for the environmental and social measures identified under this ESF. This is intended to support feasibility-stage planning, risk identification, and decision-making, while recognizing that detailed scheduling and costing will be refined during the ESIA and Project implementation stages. It is important that the schedule for ESIA activities is realistic to achieve Reference Framework compliance, including survey seasons, Lender ESIA package review timeframes and ESIA package revision and Lender disclosure timeframes etc. The date of Project Financial Close shall be included to demonstrate the achievability of the schedule.

The Consultant shall develop a phased and indicative implementation schedule for key environmental and social activities across the Project life cycle, including but not limited to:

- Completion and updating of environmental and social instruments, including the ESIA, pRAP, Final-RAP and other associated plans;
- Land acquisition, resettlement preparation, and livelihood restoration activities, aligned with Project phasing and construction sequencing;
- Stakeholder engagement, disclosure, and grievance management activities;
- Environmental and social management actions during construction and operation, at a framework level.

The schedule shall reflect the anticipated transition from public-sector-led preparation to private-sector-led implementation under the PPP arrangement and shall identify key sequencing considerations, dependencies, and decision points relevant to environmental and social risk management.

The Consultant shall prepare indicative cost estimates for the implementation of environmental and social measures identified under the ESF, including:

- Land acquisition, compensation, resettlement, and livelihood restoration costs, drawing on available pRAP findings and other feasibility-stage data;
- Costs associated with environmental and social management measures during construction and operation, at a framework level;
- Institutional, monitoring, capacity-building, and stakeholder engagement-related costs.

Cost estimates shall be based on available information and clearly state underlying assumptions, exclusions, and uncertainties. The Consultant shall explicitly note that these estimates are indicative and subject to refinement and adjustment during the ESIA, detailed design, and implementation stages.

The Consultant shall identify key cost drivers and sources of uncertainty that may affect environmental and social implementation costs, including design refinements, changes in construction methodology, and evolving social and environmental conditions.

The task shall outline principles for updating schedules and cost estimates through the adaptive management and change control mechanisms, ensuring transparency, traceability, and alignment with the AIIB Environmental and Social Framework and applicable national requirements.

4.2.2.16: Conclusions

The Consultant shall include a set of clear and unambiguous conclusions in response to each of the Objectives of Task 4.

4.2.2.17: Environmental and Social Commitment Register

The Consultant shall prepare an Environmental and Social Commitment Register (ESCR) as a reference tool for the bidders that sets out the key E&S outputs from the assessment. The purpose of the ESCR is to provide a clear and accessible record of agreed commitments and to support continuity into the ESIA package.
The ESCR shall include the preliminary E&S commitments identified through the ESF and pRAP. It is expected this will include (but not be limited to) e.g., commitments on minimum institutional capacity and organizational structure requirements for all parties responsible for delivering E&S mitigations and commitments (as identified in the ESF); commitments towards the development of ES management policies, plans, procedures, instructions etc., and the minimum standards that each will comply with; specific mitigations that should be included in plans, policies and procedures; institutional capacity development activities, additional actions and activities needed to establish and maintain ongoing compliance with the Reference Framework.

Each commitment will be referenced[13] to:

- The risk / impact it addresses;
- The applicable project stage (design, construction etc); and
- The party responsibility for preparation (as applicable) and delivery of each commitment (e.g., specifically delineating those commitments (plans, actions etc) that will be the responsibility of governmental agencies (to be specified based on the institutional assessment in the ESF) and those that will be the responsibility of the successful Consortium).

4.3: Preliminary Resettlement Action Plan

The Resettlement Action Plan (RAP) for this Project is proposed to be prepared in two stages. First, a Preliminary RAP (pRAP) will be prepared. Subsequently, subject to confirmation of the detailed engineering design, this pRAP will be updated into a Final RAP once the detailed engineering design is confirmed.

[13] This could be via cross referencing to the relevant ESF / pRAP section, or by including all risks and impacts and the corresponding commitments in the register. The format should be proposed by the Consultant and agreed with the Client and Lenders.

This ToR defines the scope of work for the Preliminary RAP. The pRAP should also include a dedicated section outlining the corresponding ToR for the preparation of the Final RAP, to ensure continuity and orderly transition between Project preparation stages.

4.3.1: Objectives of the pRAP

The objective of this pRAP is to provide an implementable-oriented, risk-managed, and policy-compliant plan for addressing land acquisition, resettlement, and livelihood impacts associated with the Project, based on the currently defined road alignment and the Right of Way (RoW) secured to date by the implementing agency, as reported by the government. The pRAP is prepared at the feasibility stage to support informed decision-making and orderly implementation, in a manner consistent with the Reference Framework.

While the overall road corridor is largely defined and the Right of Way has been secured for much of the alignment, the pRAP should recognize that certain design-related refinements may still occur as the Project advances. Given that the Project is being prepared under a Public–Private Partnership (PPP) structure and that the detailed engineering design has not yet been finalized, this pRAP is intentionally designed to balance the need for a comprehensive assessment of potential resettlement impacts with the recognition of inherent uncertainties at this stage of Project development. Accordingly, it adopts a proportionate and adaptive approach, ensuring that key risks, impacts, institutional arrangements, and cost implications are identified and managed early, while allowing for systematic updating and refinement as Project design evolves.

This pRAP is intended to support implementation while allowing for systematic confirmation and refinement prior to final execution. It does not, at this stage, constitute the final, fully implementable RAP. Rather, it establishes a robust methodological, institutional, and procedural foundation upon which the final, fully implementable RAP will be confirmed and updated following completion of the detailed engineering design. Through this approach, the pRAP seeks to manage the risk of significant revisions to baseline data, impact assessments, and budget estimates, while safeguarding the rights and interests of PAPs and supporting timely and orderly Project implementation.

The specific objectives of the pRAP are to:

1. **Ensure Regulatory and Policy Compliance**
   - Prepare the pRAP in compliance with the Reference Framework.
   - Identify gaps between the Lenders requirments and national legal and regulatory requirements and propose practical measures to bridge such gaps.
2. **Define Project Scope and Avoid/Minimize Displacement**
   - Assess land acquisition alternatives and work closely with project designers, engineers, and affected communities at an early stage to avoid, and where avoidance is not feasible, minimize physical and/or economic displacement.
   - Clearly define the project footprint, area of influence, and land requirements, commensurate with the current stage of Project preparation.
   - Provide an overview of land acquisition needs and the general land tenure context along the corridor, with particular attention to marginalized and vulnerable groups, including women.

3. **Assess Community Profile and Impacts**
   - Characterize the communities and people residing within the proposed Project footprint, including their livelihoods and socio-economic conditions, while recognizing the diversity of affected populations.
   - Identify potential PAPs and assess the anticipated impacts of the proposed project on their living conditions and livelihoods and recommend measures to address economic and/or physical displacement.
4. **Establish Baseline Data and Valuation**
   - Carry out a socio-economic baseline survey to generate baseline data for the identification and characterization of PAPs, which will serve as the basis for monitoring and evaluation of land acquisition, resettlement, and compensation. The survey findings will also inform the development of entitlement packages, including detailed compensation measures and appropriate livelihood restoration interventions.
   - Estimate the Project-Affected Population and prepare a preliminary inventory of affected assets, commensurate with the feasibility-stage design information and without constituting a full census or final valuation.
5. **Develop Implementation Framework and Cost Estimates**
   - Define the institutional arrangements for implementation, including clear roles and responsibilities among relevant parties.
   - Establish proportionate monitoring and supervision mechanisms for the implementation of land acquisition and resettlement activities.
   - Develop a preliminary cost estimate for compensation, resettlement, and livelihood restoration measure
6. **Conduct Meaningful Stakeholder Engagement**
   - Conduct public consultations and meaningful stakeholder engagement with PAPs, relevant government agencies, and non-governmental organizations (NGOs) on land acquisition and resettlement processes.
   - Document all consultations, systematically integrate feedback and concerns into project planning, and reflect these issues in the final project design
7. **Outline the Path of the Final RAP**
   - Develop the ToR for updating the pRAP into a Final RAP, including clear guidance on the execution of a full (100 percent) census, updates to the asset inventories and socio-economic baseline surveys, and the detailed design of final entitlement packages.
8. **Audit and Verification of Previously Secured Right-of-Way**
   - Undertake the audit of land acquisition and resettlement activities already completed for sections of the Project corridor where the RoW is reported by the government. The purpose of the audit is to assess the extent to which such activities are consistent with the Reference Framework.
   - Where gaps or legacy issues are identified, the pRAP will define appropriate corrective and remedial measures and the procedures for incorporating such measures through the adaptive management and RAP updating process, to ensure overall compliance and manage risks associated with potential future design refinements.

4.3.2: Work Scope of the pRAP

1. Description of the Project

The Consultant should Identify the potential involuntary resettlement impacts of the Project including the:

- Project components or activities that give rise to involuntary resettlement or restriction of access
- Zone of impact of such components or activities
- Alternatives considered to avoid or minimize resettlement or restriction of access.
- Mechanisms established to minimize resettlement, to the extent possible, during project implementation; and,
- Provision of appropriate maps (on various scales) to describe the proposed Project area and location maps.

2. Review of Regulatory Framework

The Consultant should review all the relevant policies, legislation, regulatory and institutional frameworks related to land acquisition and resettlement, and ensure all appropriate regulations are articulated including the analysis of the following:

- The scope of the power of eminent domain and the nature of compensation associated with it, in terms of both the valuation methodology and the timing of payment.
- The applicable legal and administrative procedures, including a description of the remedies available to displaced people in the judicial process and the normal timeframe for such procedures, and any available alternative dispute resolution mechanisms that may be relevant to resettlement under the project.
- Relevant law (including customary and traditional law) governing land tenure, statutory mechanism for land acquisition, valuation of assets and losses, compensation, and natural resource usage rights, customary personal law related to displacement, and environmental laws and social welfare legislation that are related to resettlement
- Identify the institutions responsible for land acquisition and resettlement and review laws and regulation relating to such agencies.
- Indicate the provisions of the Lenders requirements, present the similarities and gaps, and provide mechanisms and practical measures to address the gaps, confirming which set of standards is to set precedence in the land acquisition and resettlement.
- Any legal steps necessary to ensure the effective implementation of land acquisition and resettlement activities under the proposed Project, including, as appropriate, a process for recognizing claims to legal rights to land including claims that derive from customary law and traditional usage
- Commonalities between GOK, and the Lenders requirements, basis for effecting payment outside Kenyan legal system.

3. Socio-economic Baseline Survey

The Consultant shall carry out a socio-economic baseline survey of affected households to establish baseline conditions for resettlement planning, livelihood restoration, and monitoring and evaluation purposes.

The survey shall be designed to collect household-level data required for the pRAP, while, to the extent feasible, also generating baseline information relevant to the Social Impact Assessment (SIA) requirements under the future ESIA, in order to minimize duplication of surveys and undue disturbance to affected communities.

The socio-economic baseline survey shall be conducted on a sampling basis, proportionate to the level of design certainty and impact definition available at this stage of project preparation. The Consultant shall clearly document the sampling methodology, limitations, and assumptions used.

Notwithstanding the above, the Consultant shall explicitly recognize that, once the detailed engineering design is finalized, the socio-economic baseline data may require updating or validation to reflect changes in the final Project footprint, impact scope, and affected population, and shall outline the approach for such updates in the pRAP.

Detailed tasks of the Socio-economic baseline survey include:

- Develop a Site Work Plan that incorporates a socio-economic baseline survey. This plan must encompass the sampling design, field work arrangements, the survey questionnaire, and a protocol for coordinating parallel surveys and stakeholder consultations. The draft plan shall be submitted for review and approval by KeNHA and AIIB. This socio-economic baseline survey must also fulfill the data requirements of the Social Impact Assessment as well.
- Sampling and selection of households: the sampling design should ensure representation across locations and impact categories.
- Undertake socio-economic baseline survey: carry out face-to-face interviews using structured questionnaires; ensure informed consent and privacy of respondents and collect GPS coordinates and take photographs (with permission) where necessary to validate locations and conditions
- Data entering, processing and analyzing using Excel, or other suitable software

The Consultant should undertake socio-economic baseline survey to serve following essential functions:

- identifying characteristics of displaced households, including a description of production systems, labor, and household organization; and baseline information on livelihoods (including, as relevant, production levels and income derived from both formal and informal economic activities) and standards of living (including health status) of the displaced population
- information on vulnerable groups or persons for whom special provisions may have to be made
- identifying public or community infrastructure, property or services that may be affected

- providing a basis for the design of, and budgeting for, the resettlement program
- in conjunction with establishment of a cutoff date, providing a basis for excluding ineligible people from compensation and resettlement assistance
- establishing baseline conditions for monitoring and evaluation purposes
- land tenure and transfer systems, including an inventory of common property natural resources from which people derive their livelihoods and sustenance, non-title-based usufruct systems (including fishing, grazing, or use of forest areas) governed by local recognized land allocation mechanisms, and any issues raised by different tenure systems in the proposed Project area;
- the patterns of social interaction in the affected communities, including social networks and social support systems, and how they will be affected by the Project
- social and cultural characteristics of displaced communities, including a description of formal and informal institutions (e.g., community organizations, ritual groups, nongovernmental organizations (NGOs)) that may be relevant to the consultation strategy and to designing and implementing the resettlement activities.

4. Estimation of Project-Affected Population and Preliminary Asset Inventory

The Consultant shall undertake a systematic and methodologically robust estimation of the PAPs and prepare a preliminary inventory of potentially affected assets, commensurate with the feasibility-stage level of design information currently available for the Project.

This task shall not be construed as a full and final census or a complete asset inventory and valuation exercise. Rather, it shall apply proportionate, transparent, and fit-for-purpose approaches to identify and estimate the scale, nature, and distribution of potential resettlement impacts, in order to inform impact assessment, risk management, and preliminary cost estimation for land acquisition, resettlement, and livelihood restoration.

The estimation of the Project-Affected Population shall be based on available alignment options, right-of-way information, and indicative land requirements, and may combine spatial analysis, field reconnaissance, representative household verification, secondary data, and community-level consultations, as appropriate. The Consultant shall clearly document the methodologies applied, key assumptions made, confidence levels, and inherent limitations associated with conducting such estimation prior to finalization of the detailed engineering design.

The preliminary asset inventory shall identify the types, categories, and indicative quantities of land, structures, crops, trees, businesses, and other assets that may be affected by the Project, without attributing final eligibility, ownership status, or compensation values at this stage. The outputs shall be sufficient to support the preparation of an indicative resettlement budget and implementation planning, while avoiding the creation of premature expectations among affected communities.

The Consultant shall explicitly acknowledge that, upon confirmation of the detailed engineering design, a full census (100 percent enumeration of affected households) and

a complete asset inventory and valuation will be required prior to Final RAP implementation, and that the estimates and inventories prepared at this stage are subject to updating and refinement under the adaptive management framework of the pRAP and shall not be relied upon for eligibility determination or compensation payment at this stage.

5. Valuation of and Compensation for Losses

The pRAP should describe the proposed methodology to be used in valuing losses to determine their replacement cost; and a description of the proposed types and levels of compensation under local law and such supplementary measures as are necessary to achieve replacement cost for lost assets.

This process should:

- Identify and prepare an inventory of impacted properties and livelihoods for each household whether landowner licensee, tenant, or illegal occupant (female headed, male headed, number if males and females per household)
- Establish compensation criteria and strategies
- Define of the methodology to be used in valuing losses, to determine their replacement cost; and a description of the proposed types and levels of compensation under GoK regulations and such supplementary measures as are necessary to achieve replacement cost for lost assets
- Verify valuation of all land affected both within the ROW and assets including structures, properties, trees crops and livelihoods affected by the Project (disaggregated data) in order to provide the basis for compensation/resettlements; to be acquired and livelihoods lost
- Specify procedures for compensation payment-paying attention to gender aspects, power and control
- Ensure provision for assistance to vulnerable groups – specify who are vulnerable and the type of assistance that can be given in support of their livelihoods

6. Eligibility Criteria and Compensation

The Consultant should do the following:

- Establish criteria for determining the resettlement eligibility of affected households: Eligibility criteria must be advantageous to women and other vulnerable groups, including those without legal title to assets. The eligibility criteria will be disclosed to affected communities and other Project stakeholders. Feedback from the disclosure process will be used in the delivery of compensation and or livelihood restoration.
- Prepare an entitlements matrix listing all likely impacts and identifying the following:
  - All categories of affected persons
  - All types of loss associated with each category
  - All types of compensation and assistance to which each category is entitled
- Prepare standards for compensation and livelihood restoration: Prepare a formula for setting full replacement costs for assets lost, including land, businesses, and crops. Establish options for culturally acceptable replacements for lost services,

cultural sites, common property, or access to resources for subsistence, income, or cultural activities. Define measures for restoration of livelihoods and ensure options promote gender equality

- Prepare options for relocation and income restoration: These will build on the existing social, economic, and cultural parameters of both displaced persons and host communities. Provide for relocation costs, lost income, and income support during transition. Where appropriate, prepare relocation plans, including selection and preparation of relocation sites. Make provisions for landownership, tenure, and transfer and access to resources.
- Where relevant, develop blueprint and plans for replacement housing
- Where incomes must be restored, plan for needs assessment, employment generation, identification of replacement land, and other livelihood-restoration measures. Develop a plan for restoration of livelihoods defining process, compensation measures, partners, time frame, and so forth. Where affected persons are to change their occupation, provide for training and vocational support mechanisms. Review the likely environmental impact of the resettlement process and build in plans to mitigate any adverse environmental effects.
- Make special provision for vulnerable groups: Assess the risks of Gender-based Violence (GBV) throughout the resettlement process. Make provisions for additional support to vulnerable people

7. Public Consultation and Community Consultation

This component should ensure provision of

- A description of the strategy for the interactive and meaningful consultation with and participation of stakeholders and PAPs in the design, implementation of the resettlement activities and modalities for disclosure
- Provide a stakeholder analysis and matrix stipulating the level of power and interest and how to involve them (during pRAP and Final RAP preparation and implementation) in the RAP project cycle;
- A plan for civil society organization / stakeholder structured and on-going engagement in the resettlement planning process
- A summary of the views expressed and how these views were considered in preparing the resettlement plan.
- A review of the resettlement alternatives presented, and the choices made by displaced persons regarding options available to them, including choices related to forms of compensation and resettlement assistance, to relocating as individuals, families or as parts of pre-existing communities or kinship groups, to sustaining existing patterns of group organization, and to retaining access to cultural property (e.g. places of worship and graves)
- Institutionalized arrangements by which the displaced people can communicate their concerns to projects authorities throughout the planning and implementation, and measures to ensure that such vulnerable groups as the poor, the landless and women are adequately represented.
- Clearly document the consultation that occurred during preparation of pRAP
- Coordinate with the relevant parties and undertake pRAP disclosure to the PAPs

8. Grievance Mechanism

A grievance redress mechanism should be established and provides affordable and accessible procedures for settlement of disputes arising from the land acquisition and resettlement. The grievance redress mechanisms should take into account the provisions of the National Land Commission and availability of judicial recourse; and community and traditional dispute settlement mechanisms.

The GRM should be designed to address affected people's concerns and complaints promptly, including gender-related concerns and complaints relating to GBV, using an understandable and transparent process that is gender sensitive, culturally appropriate and readily accessible to all affected people.

9. Institutional Arrangements

The Pre-RAP shall include organizational framework for implementing land acquisition and resettlement, including identification of agencies responsible for delivery of resettlement measures/activities and provision of services; provide analysis of NGOs that may have a role in project implementation.

Explore the arrangements to ensure appropriate coordination between agencies and jurisdictions involved in implementation; and any measures (including technical assistance) needed to strengthen the implementing agencies' capacity to design and carry out resettlement activities; provisions for the transfer to local authorities or PAPs themselves of responsibility for managing facilities and services provided under the Project and for transferring other such responsibilities from the resettlement implementing agencies, when appropriate.

10. Land Acquisition and Resettlement Cost Estimate

Prepare the cost of the resettlement process and the total budget for the land acquisition and resettlement in table format showing item cost estimate – at current replacement cost without consideration for depreciation - for all resettlement activities (costs of structures, land, livelihoods restoration, capacity building and monitoring of the subproject), including allowances for inflation, natural grown considerations in case of a delay in land acquisition and resettlement implementation, and other contingencies; timetable for expenditure; sources of funds and arrangements for timely flow of funds, and funding for resettlement, if any, in areas outside the jurisdiction of the implementing agencies.

The pRAP shall clearly state that indicative budget estimates may be subject to revision as a result of design refinement, completion of a full census and asset inventory, and implementation of corrective measures identified through the RoW audit.

11. Monitoring and Evaluation

The pRAP shall include arrangements for internal monitoring of resettlement activities by the implementing agency, supplemented by independent external monitoring as considered appropriate by KeNHA and AIIB; to ensure complete and objective information; performance monitoring indicators to measure inputs, outputs, and outcomes for resettlement activities and means of verification; involvement of the displaced persons in

the monitoring process; evaluation of the impact of resettlement for a reasonable period after all resettlement and related development.

12. Prepare an Implementation Schedule

Prepare implementation schedule and ensure that all resettlement activities of the land acquisition and resettlement through implementation including timelines for the achievement of expected benefits to potential PAPs and termination of the various forms of assistance. The schedule should indicate how the resettlement activities are linked to the implementation of the overall Project.

13. Adaptive Management

Given that the Project is currently at the feasibility study stage and that the detailed engineering design has not yet been finalized, the pRAP prepared at this stage shall adopt an adaptive management approach. The pRAP shall be treated as an interim yet implementation-oriented instrument and shall include clear provisions for systematic updating and revision once the detailed design is confirmed and prior to any land acquisition and resettlement implementation.

Specifically, the pRAP shall define procedures, decision points and triggers for updating key elements, including but not limited to: (i) the final Project footprint and land requirements; (ii) the census of PAPs; (iii) the inventory of affected assets and associated valuations; (iv) impact assessments; and (v) the resettlement and livelihood restoration budget. The Pe- RAP shall also outline institutional responsibilities, timelines, documentation requirements, and approval processes for such updates, to ensure that revisions are undertaken in a controlled, transparent, and policy-compliant manner.

The adaptive management framework shall also provide for the integration of findings from the audit of previously secured RoW, to be prepared as an annex to the pRAP. Where such an audit identifies gaps, legacy issues, or inconsistencies with the Reference Framework, the pRAP shall define procedures for assessing the implications of such findings and for incorporating any necessary corrective or supplemental measures through the RAP update process

This adaptive management framework is intended to manage the risk of significant revisions to baseline data, impact assessments, and cost estimates as Project information evolves, and to ensure that the final, fully implementable RAP remains fully compliant with the Reference Framework at the time of implementation.

14. Audit of Secured Right-of-Way

The Consultant shall undertake a review and audit of land acquisition and resettlement activities already completed for sections of the Project corridor where the RoW is reported by the government to have been secured prior to the preparation of this pRAP. The findings of this audit shall be documented as a dedicated Annex to the pRAP.

This task shall be undertaken in recognition that the Project is at the feasibility stage, that detailed engineering design has not yet been finalized, and that the scope and footprint of impacts may evolve as project design is further refined.

The audit shall include, at a minimum:

- A summary description of the sections of the corridor where land acquisition and resettlement activities have already been completed, based on information provided by the Client;
- A review of available documentation related to completed land acquisition and resettlement activities, including legal instruments, compensation records, consultation processes, and grievance handling arrangements;
- An assessment of the consistency of completed activities with the Reference Framework;
- Identification of gaps, inconsistencies, or legacy issues, including those related to eligibility, compensation standards, treatment of informal land users or encroachers, consultation and disclosure, and grievance redress;
- An assessment of the implications of potential future design changes on areas where land acquisition has already occurred.
- Recommendations for corrective and remedial measures, as necessary, to address identified gaps and to ensure alignment with the Reference Framework.

The key findings and recommended actions arising from the audit shall be summarized and reflected, as appropriate, in implementation arrangements, indicative budget estimates, and adaptive management provisions of the pRAP and subsequent Final RAP.

Task 5: Climate assessment

Assessment of Paris Alignment, climate finance and GHG impact.
The Climate Risk and adaptation consultant (the Consultant) will work closely with the AIIB Project Team (PT) to carry out the Paris Alignment and Climate finance assessment of the different project components included on the deal following AIIB's methodology.

The consultant must evaluate:

1) The alignment of the Project with the mitigation goals of the Paris agreement following AIIB's 5-steps-methodology (BB1).
2) The alignment of the Project with the adaptation goals of the Paris agreement following AIIB's 3-steps-methodology (BB2).
3) The Project's possible qualification as Climate adaptation finance and the percentage of climate adaptation finance following the JMDB's common principles for climate adaptation finance and AIIB's latest proportional approach.
4) The Project's possible qualification as Climate mitigation finance and the percentage of climate mitigation finance following the JMDB's common principles.
5) The estimate of the GHG relative emissions of the project.

5.1 Climate assessment Scope of Work

The project team conducted an initial analysis on the project component showing some findings. These findings are to be taken into account as a starting point by the consultant on its analysis:

5.1.1 Paris Alignment (BB1).

The project will trigger a capacity expansion of the road network and thus, it cannot be considered as Universally aligned under BB1 (mitigation goals). The project will have to go through a Specific Criteria Assessment (5-steps-methodology) to assess its alignment. The Climate mitigation assessment will follow sequentially the 5-steps of the AIIB methodology for BB1 assessment (SC1-SC5), (link below),

https://www.aiib.org/en/about-aiib/who-we-are/partnership/_download/Methodology-for-Assessing-the-Alignment-of-AIIB-Investment-Operations-with-the-Paris-Agreemement.pdf.

Consisting on:

***SC1 and SC2: Nationally Determined Contribution (NDC) Alignment and Long-Term Strategy (LTS) Alignment*.** The Project should not be inconsistent with the country NDCs, LTSs, and other national, regional, or sectoral low-carbon policies and strategies compatible with the PA mitigation goals.
SC3: Low Carbon Pathway (LCP) Consistency. The Project should not be inconsistent with the road transport fleet decarbonization pathway of the country.
SC4a: Alternatives Test. A more efficient transport infrastructure cannot serve the current and forecasted passenger and freight demand with a similar level of service.
SC4b: Lock-in Test. The Program should not prevent the future deployment of more efficient vehicle fleet, as well as other Paris-aligned activities.
SC5: Economic Viability. The Program should be economically viable, when considering the GHG emissions during construction and operation (valued at a shadow carbon price).

5.1.2 Paris Alignment (BB2).

The Project will be assessed during appraisal stage checking the context of vulnerability and the measures (structural and non-structural) adopted to determine its alignment under the Paris Agreement's adaptation goals (BB2).
This Climate Resilience Assessment (CRA) will follow sequentially the 3-steps of the AIIB methodology for BB2 assessment (link below).

https://www.aiib.org/en/about-aiib/who-we-are/partnership/_download/Methodology-for-Assessing-the-Alignment-of-AIIB-Investment-Operations-with-the-Paris-Agreemement.pdf.

Consisting on i) a full CRVA, identifying the exposure, sensitivity and vulnerability for each one of the possible climate hazards that might affect the Project ii) a set of structural and non-structural measures that will be implemented on the project to mitigate the climate hazards found on the CRVA that could materially affect the project and iii) compatibility of the project against the NDC and other national adaptation strategies. Further explanation on the steps is as follows:

Step 1) Establishment of the Climate Risk and Vulnerability Context. This requires an operation to identify any material physical climate risks that could adversely impact its activities, and assess the sensitivity, exposure, and overall vulnerability of the project to relevant climate related hazards. The timeframe for the assessment should be appropriate for the lifetime of the investment. Several data and analytical tools are available to support an initial project physical climate risk screening. Where risks have been identified as medium or high (i.e., material), a detailed climate risk and vulnerability assessment (CRVA) is required in order to support the consideration of suitable adaptation measures. Next sub-steps should be followed:

i) Defining boundaries and scope,

ii) Sensitivity Analysis: Sensitivity analysis aims to identify which climate hazards are relevant to the specific activity and acts as an initial filter for hazards that are not relevant to the operation in question. Sensitivity analysis is irrespective of location and should consider various components of the activity's operation and how it operates within a wider sector or system. It should consider any onsite assets and processes, inputs and resources, products and services and wider transport links, and how these might be affected by different climate hazards, including, for example, flood risk, drought, sea-level rise, landslides, wildfires and heatwave risk. There are a number of sensitivity matrices with varying degrees of detail (both in relation to the granularity of economic activity, and the levels of sensitivity assigned) that can be used to support this step.

iii) Exposure Analysis: Once the climate hazards that may affect an operation have been identified, location-specific data should be used to understand the level of exposure to different hazards and how this may change under differing climate scenarios. Good practice would use at least two emissions scenarios in the assessment and draw from the ensemble of climate model projections in order to account for future uncertainties. When using publicly available data for exposure analysis, several aspects of data should be considered to ensure a robust assessment is made, including, spatial coverage and resolution; Temporal coverage and timeframe; Representativeness; and Replicability (for re-assessment).

iv) Vulnerability Analysis: This combines exposure and sensitivity to determine the overall vulnerability of the operation to a specific hazard. In this assessment framework there is no need to include adaptive capacity, as the second step is to demonstrate how specific vulnerabilities are managed through the project – so if the capacity of the beneficiary is high then this will be reflected in the adaptation measures included in the project and listed in the second step below.

Step 2) Incorporating measures (both structural measures on the design as well as operational measures) to address climate risks and opportunities and enhance climate resilience. For each climate vulnerability identified, appropriate resilience measures need to be identified and integrated within the design of the project or activity. These may include structural measures – increasing resilience by adjusting the design of infrastructure and technology to mitigate physical climate risks and avoid the worst

impacts, operational measures such as the development of emergency plans for different risks, or non-structural measures such as capacity-building, improved maintenance schemes or improved systems for monitoring and early warning. Applicable engineering design standards should be considered. Typically, where engineering standards and codes exists, the design measures to mitigate climate risks are covered, however an assessment on how the standards and codes have been applied should be undertaken, especially regarding the relevant hydrometeorological parameters. The assessment should consider whether changes in relevant hydrometeorological design parameters have been factored in, based on best available science, and taking into account associated uncertainties.

The set of measures to mitigate the climate hazards of the CRVA must be real measures that will be incorporated into the project, and thus they must be discussed and agreed with the client and designers, not just a pure list of proposed measures. These measures can be structural and operational (ie. evacuation plans, etc.).

Step 3) Check that the operation and its components are not inconsistent with the sectoral or national priorities for climate resilience. This requires an assessment of whether project activities are inconsistent with existing local, national, regional or sectoral policies and priorities for adaptation and resilience.

5.1.3 Climate Finance.

Estimate climate finance, i.e., AIIB finance associated with activities that contribute to mitigation (reducing GHG emissions) and adaptation (reducing the vulnerability/enhancing the climate resilience of the project and/or relevant communities, ecosystems or economic sectors). The Climate finance estimate will be based on the methodology of the JMDB common principles for tracking climate mitigation finance and on the JMDB common principles for tracking climate adaptation finance (links below).
https://www.adb.org/sites/default/files/institutional-document/885296/common-principles-climate-mitigation-financing-tracking.pdf

https://thedocs.worldbank.org/en/doc/20cd787e947dbf44598741469538a4ab-0020012022/original/20220242-mdbs-joint-methodology-climate-change-adaptation-finance-en.pdf
Each one of the climate mitigation finance activities must be justified by its inclusion on the list of climate mitigation finance activities of the JMDB common principles for tracking climate mitigation finance. The activity must comply also with the guidance and criteria of the JMDB common principles for that category.

Close coordination shall be maintained with the climate risk assessment team and engineering design team to assess the climate risks and vulnerability and to analyze the climate mitigation and adaptation measures incorporated in the project design.

5.1.4 GHG assessment:

The consultant must perform GHG emissions calculation of the assigned Project, i.e., both gross and relative emissions, by following AIIB's GHG accounting methodology which will be provided by the Project team. Specifically,

- Identify the most plausible Baseline scenario and the key GHG emission sources for both Baseline and Project scenarios.
- Present the key information and assumptions (where relevant) applied in the calculation.
- As needed, discuss with AIIB Climate Specialist on the choice of alternative sector-specific methodologies.
- Construction emissions must be included in the calculation.

The consultant will provide all the calculations in a spreadsheet format on top of the written summary.

A summary table showing the Baseline Emissions, Project Emissions, Relative Emissions and Gross Emissions is also required. See the indicative table format below.

<table>
<tr><td></td><td colspan="3">Project Scenario</td><td>Baseline Scenario</td></tr>
<tr><td>Service or product provided by the Project</td><td colspan="4"></td></tr>
<tr><td>Description of activities</td><td colspan="3"></td><td></td></tr>
<tr><td rowspan="2">Types of emissions</td><td colspan="2">Gross Emissions</td><td rowspan="2">Other consequential emissions</td><td rowspan="2">Baseline Scenario emissions</td></tr>
<tr><td>Scope 1+2</td><td>Scope 3</td></tr>
<tr><td>Material emission sources</td><td></td><td>-</td><td>-</td><td></td></tr>
<tr><td>Relative Emission (tCO_2e/yr)</td><td colspan="4"></td></tr>
<tr><td>Note</td><td></td><td>-</td><td>-</td><td></td></tr>
</table>

Task 6: Development of PPP-Ready Technical Outputs:

In addition to the conventional technical feasibility and preliminary engineering design, the Consultant shall develop output-based specifications defining what outcome the Concessionaire must deliver, rather than prescribing how it must be delivered. These specifications shall be measurable, verifiable, and suitable for direct incorporation into PPP bidding documents and PPP Agreement schedules.

The Consultant shall work closely with KeNHA, the PPP Directorate, AIIB, and the Transaction Advisory Consultant to ensure full consistency between the technical, financial, and legal aspects of the PPP structure

6.1: Development of Output Specifications

The Consultant shall develop output-based technical specifications defining the service and performance outcomes required from the Project. These specifications shall focus on what outcomes must be delivered by the future PPP Concessionaire over the full concession period rather than prescribing detailed design solutions.

- Focus on what outcomes must be achieved and how performance is measured, rather than prescribing detailed design solutions;
- Enable private sector innovation while ensuring service quality and risk transfer;
- Be measurable, auditable, and enforceable;
- Be consistent with lifecycle assumptions, traffic forecasts, environmental and social commitments, and climate resilience requirements.

Output Specifications shall cover, at a minimum:

6.1.1 Infrastructure, Asset Availability & Capacity Outputs

Develop specification for the following output area

- Road geometry, lane configuration, Junctions, interchanges, and interfaces with existing infrastructure;
- Access control and service road functionality;
- Pavement performance outcomes including ride quality (IRI), structural capacity, durability, skid resistance, and lifecycle intervention thresholds;
- Structural outputs for bridges and structures including load capacity, resilience, durability, hydraulic capacity, seismic, scour and minimum design life;
- Drainage and hydrological performance outcomes, including Design flood return periods, freeboard, flood recovery and response outcomes, erosion and sediment control performance, and climate resilience outcomes & adaptation measures.
- Road furniture and streetlighting
- Design life and lifecycle rehabilitation outcomes

6.1.2: Operations & Maintenance (O&M)

- O&M must ensure continuous, efficient, and safe operations.

6.1.3 Traffic Operations & Road Safety Outputs

- Minimum Levels of Service (LOS) for traffic operations under normal and peak conditions;
- Incident detection, response, clearance, and emergency management outcomes;
- Road safety performance outcomes, including signage, road furniture, lighting, and safety barriers;
- Blackspot mitigation and safety audit outcomes

6.1.4 Tolling, Intelligent Transport Systems (ITS) & Corridor Operations Outputs

- Toll system availability and transaction accuracy
- interoperability, enforcement capability, and cybersecurity
- Data security and system redundancy

6.1.5 Environmental, Social, and Climate Outputs

- Compliance with ESIA, ESMP, RAP, and stakeholder engagement commitments;
- Environmental performance outcomes related to noise, air quality, biodiversity protection, and community health and safety;
- Climate resilience and adaptation requirements consistent with AIIB policies.

6.1.6 Handback Outputs

- Minimum asset condition and remaining useful life at the end of the concession;
- Inspection, certification, and remediation requirements prior to handback;

- Asset registers, maintenance records, and technical documentation to be transferred to the Contracting Authority.

6.2 Development of Performance Standards (Detailed, Measurable, and Enforceable)

The Consultant shall translate the Output Specifications into clear, measurable, and enforceable performance standards applicable throughout the concession period:

- Be objective, auditable, and enforceable;
- Define clear thresholds, tolerances, and intervention levels;
- Specify inspection regimes, monitoring requirements, and reporting obligations;
- Enforceable throughout the concession period
- Be aligned with the role of the Independent Engineer.

Performance Standards shall include, but not be limited to:

- Performance thresholds and tolerances for pavement, structures, etc.
- Inspection and monitoring methods such as Bridge and structure inspection frequencies, condition indices, and intervention triggers, Drainage performance standards, blockage tolerances, and rectification timelines;
- Response and rectification times such as Traffic operations and incident management response times;
- Escalation and non-compliance conditions;
- Tolling and ITS standards including system uptime, transaction accuracy, and data security;
- Environmental and social compliance standards aligned with ESMP and RAP obligations.

6.3 Development of Key Performance Indicators (KPIs)

The Consultant shall develop a KPI framework that directly linked to PPP performance to payments, deductions, and incentives.

KPIs shall be directly derived from the Output Specifications and Performance Standards and shall include, at a minimum:

6.3.1 KPI Categories

- **Availability & Continuity of Service KPIs**: lane availability, carriageway availability, toll system and ITS uptime, unplanned downtime, restoration time;
- **Asset Condition & life cycle performance KPIs**: pavement condition indices, bridge condition ratings, drainage functionality, structural integrity, maintenance, life cycle renewal, etc.;
- **Safety & regulatory compliance KPIs**: fatale incidences, incident response times, accident reduction targets, road safety audit;
- **Service quality & Customer Service KPIs**: queue / congestion time, toll transaction accuracy, complaint resolution timelines, user satisfaction score, information availability;
- **Operations & Maintenance (O&M):** O&M staffing levels, Equipment uptime, Planned maintenance execution, Incident reporting, etc.

- **Environmental and Social KPIs**: compliance with noise, air quality, biodiversity, and social management requirements.

6.4 Lifecycle Costing and Technical Cost Estimates

The Consultant shall:

- Prepare CAPEX and OPEX estimates for each technical option;
- Undertake lifecycle cost analysis covering routine and periodic maintenance and rehabilitation;
- Provide cost inputs and assumptions suitable for later financial feasibility analysis.

The Consultant shall coordinate closely with the Transaction Advisory Consultant to ensure that the KPI framework and payment mechanism inputs are fully aligned with the financial model and the overall PPP risk allocation.

6.5 Design manual, Standard and Specification for the design and construction

Standards and Specifications for the Design Works
1. Part I – Geometric Design of Rural Roads, January 1979 and the draft RDM. 2. Part II –Road Design Guidelines for Urban Roads, August 2001. 3. Part III – Materials and Pavement Design for New Roads, August 1987 & draft new RDM. 4. Part IV – Bridge Design (Including Major Structures) & draft new RDM. 5. Part V – Pavement Rehabilitation and Overlay Design, May 1988 & draft new RDM. 6. Proposed Manual for Traffic Signs in Kenya – Part I, Road Markings published by Ministry of works Roads department, 1974 & draft new RDM. 7. Proposed Manual for Traffic Signs in Kenya – Part II, Traffic signs published by Ministry of works Roads department, Authorized by Kenya gazette supplement No 90, 1975 & draft new RDM. 8. Capacity analysis for Multi-lane Rural Road to be done through Road Capacity Manual of USA, Highway Capacity Manual (HCM), published by Transportation Research Board of the National Academics, Washington DC, USA. 9. Relevant International Standards to be used for the design and installation of street lighting and high mast lighting.
Standards and Specifications for Construction works
10. Standard Specifications for Road and Bridge Construction, 1986 published by Ministry of Roads and Public Works & draft new RDM.
Guidelines of Kenya Railway Corporation for design of Railway under/over Bridge
Guidelines to be followed for Environmental and Social Impact assessment and Mitigation measures during Design and Construction

1. Provisions of Kenyan Constitution.
2. Guidelines of National Environmental Management Authority of Kenya.
3. Any relevant laws, acts, regulations and policies published or gazette by Government of Kenya.
4. AIIB guidelines and IFC performance standards.
5. Any other International Conventions and Treaties relating to the environment to be adhered for achieving sustainable development.

International Standards and Specifications for Design and Construction Works to be used for missing references of Standards and Specifications in the Kenyan manuals

Standard/Specification	International Standards/Specifications to be used
Rigid Pavement Design	Relevant manuals of American Association of State Highway and Transportation Officials (AASHTO)
Flexible Pavement Design (for above 60 msa traffic loading)	Relevant manuals of American Association of State Highway and Transportation Officials (AASHTO)
Overlay Design	Relevant manuals of American Association of State Highway and Transportation Officials (AASHTO)
Vehicle Damaging factor calculations	Relevant manuals of American Association of State Highway and Transportation Officials (AASHTO)
Intersection design analysis	Highway Capacity Manual (HCM), published by Transportation Research Board of the National Academies, Washington DC,USA.
Highway capacity analysis	Highway Capacity Manual (HCM), published by Transportation Research Board of the National Academics, Washington DC, USA
Hydrology and drainage design	TRRL East African Flood Model
Material design and specification (for the materials not defined in Part III Road Design Manual)	Relevant British Standards and American Society for Testing Materials standards
Traffic signs and road markings (for the traffic signs and road markings not defined in Proposed Manual for Traffic Signs in Kenya Part I)	Relevant sections of International Design Manual for Roads and Bridges.
Pedestrian Crossings	Relevant sections of International Design Manual for Roads and Bridges.
Street Lighting	Relevant International Standards.

7. Reporting requirement and time schedule for the deliverables

7.1 Reporting Requirements

The Consultant shall consolidate findings from all technical, economic, and environmental, into a preliminary report, to be presented to the Asian Infrastructure Investment Bank (AIIB) and the Government of Kenya, through its implementing agency, the Kenya National Highways Authority (KeNHA).

The Consultant shall undertake the assignment in close coordination with the Client (KeNHA) and other relevant stakeholders, including the PPP Directorate (National Treasury) and AIIB. Regular consultations shall be maintained throughout the project to ensure alignment with stakeholder expectations and timely resolution of emerging issues.

All reports shall be prepared in English and presented in both hard copy and electronic format (editable Word, Excel, and PDF versions).

The reports shall include sufficient technical, socioeconomical, environmental and analytical detail to support the conclusions and recommendations made. All drawings shall be submitted in appropriate CAD/GIS formats, while data and models shall be provided in editable and accessible formats.

The consultant will discuss and get approval of the software format used to prepare the soft copies for drawings to ensure compatibility with available software in the client's establishment.

Interim progress presentations shall be made at each key stage to review findings, receive feedback, and ensure alignment with the Client's expectations.

The Consultant/Consortium will report directly to AIIB, Director (PPP) KeNHA, and PPPD/NT. Payments will be processed once the deliverables have been approved by KeNHA, with the advice of AIIB and PPPD/NT.

Deliverables must be simultaneously submitted to AIIB, KeNHA and the PPP Directorate in soft and hard copies as shown in the table below. Report must be delivered at the following addresses:

Director General
Kenya National Highways Authority (KeNHA)
Barabara Plaza, Airport North Road, Opposite KCAA.
P.O. Box number: 49712 - 00100 Nairobi. Kenya.

Director General
Public Private Partnerships Directorate
Kenya-Re Plaza, 6th Floor, Taifa Rd
P.O. Box 30007-00100 Nairobi, Kenya

AIIB Headquarters, Tower A, Asia Financial Center,
No.1 Tianchen East Road, Chaoyang District, Beijing 100101

Tel: +86-10-8358-0099 • Fax: +86-108358-0903 • aiib.org

The Consultant shall deliver the following reports and outputs according to the time schedule indicated below (from the date of contract commencement):

a) Inception Report: This shall summarize initial findings and give proposals covering methodologies of the preliminary engineering studies, and the detailed work plan for the conduct of the Feasibility study and preliminary design – Five (5) hard copies and three (3) softcopies

b) **Progress Reports:** These shall be submitted monthly and shall detail all work performed during the reporting period and utilization of the study personnel, and work plan for the subsequent month. This shall contain preliminary conclusions (covering such topics as traffic studies and design standards), based on the analyses substantially completed, and shall also identify actual and anticipated difficulties and delays in the work, their causes and the remedies proposed to solve them. Summary of key findings and interim results – Five (5) hard copies and three (3) softcopies

c) **Draft Technical Feasibility Study reports:** This shall summarize the findings, analysis, results, and recommendations of the study, assessment, and engineering design, and shall contain all supporting material and include an executive summary. The Consultant shall prepare preliminary design drawings and reports in accordance with the format and title sheets as directed by the Client. The following draft documents shall be submitted to the Client for approval, prior to the production of Final Documentation:

S/N	Report description	No of report to be submitted
1.	Draft existing infrastructure condition and corridor assessment report	5 (Hard Copies) + 5 hard drives
2.	Draft Topographic survey including Aerial Photography and Mapping report	5 (Hard Copies) + 5 hard drives
3.	Draft Existing Utilities and Services Assessment	5 (Hard Copies) + 5 hard drives
4.	Draft Traffic and Economic Feasibility analysis	5 (Hard Copies) + 5 hard drives
5.	Draft Engineering design reports	5 (Hard Copies) + 5 hard drives
6.	Draft Pavement evaluation report	5 (Hard Copies) + 5 hard drives
7.	Draft Soil, Material and pavement report	5 (Hard Copies) + 5 hard drives
8.	Draft Hydrology & climate resilience report	5 (Hard Copies) + 5 hard drives

9.	Existing Bridge Structural Integrity Assessment	5 (Hard Copies) + 5 hard drives
10.	Draft Bridge and major structures Design	5 (Hard Copies) + 5 hard drives
11.	Draft Tolling Infrastructure Systems and Corridor Operations Designs report	5 (Hard Copies) + 5 hard drives
12.	Draft Road Safety Audit	5 (Hard Copies) + 5 hard drives
13.	Draft ESF	5 (Hard Copies) + 5 hard drives
14.	Draft Land Acquisition Plans	5 (Hard Copies) + 5 hard drives
15.	Draft Valuation Report	5 (Hard Copies) + 5 hard drives
16.	Draft RAP Report	5 (Hard Copies) + 5 hard drives
17.	Draft Climate Assessment	5 (Hard Copies) + 5 hard drives
18.	Output Specifications, Performance Standards, and KPI Register	5 (Hard Copies) + 5 hard drives
19.	Draft BoQ and specification report	5 (Hard Copies) + 5 hard drives
20.	Lifecycle Cost Estimates and Assumptions	5 (Hard Copies) + 5 hard drives
21.	Draft Final Book of drawings (A3)	5 (Hard Copies) + 5 hard drives
22.	Draft Engineer's Cost Estimate Report	5 (Hard Copies) + 5 hard drives

d) **Final Technical Feasibility Study:** This shall incorporate all revisions deemed necessary arising from comments received from the Client, following discussions and agreement between the Client and the Consultant. It shall include a concise executive summary in which the project design standards and cost estimates broken down into foreign and local currencies shall be shown clearly – Five (5) hard copies and Three (3) softcopies. The following final documents shall be submitted to the Client,

S/N	Report description	No of report to be submitted
1.	Final existing infrastructure condition and corridor assessment report	Five (5) hard copies and 5 hard drives
2.	Final Topographic survey including Aerial Photography and Mapping report	5 (Hard Copies) + 5 hard drives
3.	Final Existing Utilities and Services Assessment	5 (Hard Copies) + 5 hard drives

4.	Final Traffic and Economic Feasibility analysis	5 (Hard Copies) + 5 hard drives
5.	Final Engineering design reports	5 (Hard Copies) + 5 hard drives
6.	final Pavement evaluation report	5 (Hard Copies) + 5 hard drives
7.	Final Geotechnical, Soil, Material and pavement report	5 (Hard Copies) + 5 hard drives
8.	Final Hydrology & climate resilience report	5 (Hard Copies) + 5 hard drives
9.	Final Existing Bridge Structural Integrity Assessment	5 (Hard Copies) + 5 hard drives
10.	Final Bridge and major structures Design	5 (Hard Copies) + 5 hard drives
11.	Final Tolling Infrastructure Systems and Corridor Operations Designs report	5 (Hard Copies) + 5 hard drives
12.	Final Road Safety Audit	5 (Hard Copies) + 5 hard drives
13.	Final ESF	5 (Hard Copies) + 5 hard drives
14.	Final Land Acquisition Plans	5 (Hard Copies) + 5 hard drives
15.	Final Valuation Report	5 (Hard Copies) + 5 hard drives
16.	Final RAP Report	5 (Hard Copies) + 5 hard drives
17.	Final Climate Assessment	5 (Hard Copies) + 5 hard drives
18.	Output Specifications, Performance Standards, and KPI Register	5 (Hard Copies) + 5 hard drives
19.	Final BoQ and specification report	10 (Hard Copies) + 5 hard drives
20.	Lifecycle Cost Estimates and Assumptions	5 (Hard Copies) + 5 hard drives
21.	Final Book of Drawings (A3 size) as plan and profile drawings, mass haul diagram, Typical cross-sections, layout of junctions & tolling plaza, road furniture, standard details and typical drawings, etc.	10 (Hard copies) + 5 hard drives
22.	Final Engineer's Cost Estimate Report	5 (Hard Copies) + 5 hard drives

e) Meetings and Reviews

The Consultant shall attend the following key meetings:

- Project Kick-off Meeting – within the first week of contract commencement.
- Monthly Progress Meetings – to review progress and resolve issues.

- Stakeholder Consultation Workshops – as required for technical, environmental, social, and financial discussions.
- Final Presentation Meeting – to present final outputs and recommendations for approval.
- Whenever called for by the client to ensure smooth implementation of the study.

7.2 Deliverables and Time schedule/Timeline

The complete design and documentation for both phases shall be completed within 12 months of the commencement of the assignment.

All reports shall be completed and forwarded to the Client within the period specified under the Time Schedule Table for Design below and harmonized at inception.

The Consultant shall allow for one (1) month for comments and discussions including a PowerPoint presentation with the Client between submission of each report in accordance with the agreed schedule but not deviating much from the schedule below.

The Consultant shall then submit the final reports and documentation for each stage within one month after presentation. The table below shows the tentative time schedule shall be observed in carrying out the studies:

In carrying out the ESIA, the consultant is expected to indicate clearly assignment critical milestones, with timing for each activity; considering the duration of the entire project implementation period. In addition, the Consultant would, however, outline the scheduling of activities such as to include:

(a) Preliminary meetings and inception activities
(b) Field visits
(c) Public consultative forums
(d) Reports preparation and submission of deliverables to the Client and
(e) Any anticipated constraints likely to affect the desired timeframe.

No.	Deliverable	Description / Key Contents	Timeframe (from contract start)	Approval / Review Authority
1.	Inception Report	Understanding of assignment, detailed methodology, work plan, staffing schedule, data needs, and risk management plan.	1 Months	Client
2.	Comments and Approval by the Client	Comments and feedback	1.5 Months	Client

3.	Draft Technical Feasibility Study Reports and Environmental Scoping Report	Preliminary technical, environmental, social, legal analysis of alternatives; preliminary cost estimates and risk assessment.	6.0 Months	Client
4.	Comments and Approval		7.0 months	Client
5.	Final Technical Feasibility Study Report and draft ESF Report	Corridor design concepts, traffic analysis, pavement and structures evaluation, tolling infrastructure layout, and cost estimation. ESIA, valuation, ESMP, RAP Final Land Acquisition Plans	9.0 months	Client
6.	Comments and Approval		10 months	Client
7.	Final ESF, Climate and RAP Report	Completion of ESF, RAP, valuation, Land Acquisition Plans activities	12 Months	Client

8. Budget/Payment Schedule

8.1 Basis of Payment

The Consultant shall propose a detailed financial proposal, clearly distinguishing between:

- **Remuneration costs** (professional fees by expert, in man-months);
- **Reimbursable expenses**, including travel, accommodation, per diem, communication, equipment, and other incidentals; and
- **Applicable taxes, levies and duties**

All costs shall be quoted in both foreign and local currency components, as applicable, and shall comply with the financial proposal format provided in the Request for Proposals (RFP).

The Client reserves the right to review and approve the financial proposal before contract award. Payments will be made based on actual deliverables achieved and approved by the Client.

Payments to the Consultant shall be output-based and linked to the satisfactory completion and acceptance of deliverables as defined in the agreed work plan and reporting schedule.

No advance payment shall be made unless specifically provided for in the contract and backed by an appropriate advance payment guarantee from a reputable financial institution acceptable to the Client.

8.2 Payment Milestones

The total agreed contract amount shall be disbursed in tranches according to the schedule below, subject to approval of each deliverable by the Client:

The final price for the consultancy services is expected to be a result of a competitive bidding under this tender. The invoicing of the consultancy services is expected to be based on the acceptance of individual deliverables by the Project Implementation Team, the Contracting Authority and AIIB. A detailed payment schedule of the transaction advisory services is provided below.

No	Deliverable	Payment Amount	Timeline (After Contract Signature)
1	Completion of the Inception report	10%	1 Months
2	Completion of draft Technical Feasibility Study Deliverables including Technical Feasibility Study Report and Environmental Scoping Report	30%	6 Months
3	Completion of final Technical Feasibility Study and draft ESF, Climate and RAP Report	30%	9 Months
4	Completion and acceptance of final ESF, and RAP Report	30%	12 Months
TOTAL		100%	12 Months

The timelines outlined above, as well as the reporting format, may be adjusted subject to the approval of AIIB and KeNHA. All reports shall be prepared and submitted in English.

Task 9. Qualifications

9.1 Requirements for the Firm:

The Consultant/Consortium shall comprise a firm or consortium of firms with demonstrated experience in PPP infrastructure projects, tolling projects and associated civil works, operations and maintenance encompassing the requisite expertise in highway engineering, tolling systems design and integration, financial structuring, legal advisory, traffic and revenue studies, environmental management, and social safeguards.

The qualification submissions for the firm/consortium of firms will be evaluated against the following criteria:

General Eligibility Requirement

1. You confirm that your firm is a company/organization registered or incorporated under applicable local laws.

2. You confirm that you/your firm is duly licensed or authorized under applicable local laws to provide the goods, works, general services or consulting services required.
3. You confirm that your firm has been in operation for at least two (2) years' providing the goods, works, general services or consulting services required.
4. You confirm that your firm is currently not under sanction by AIIB in accordance with the Policy on Prohibited Practices (PPP) as per link (please click)
5. You confirm that you have not been breach of Bank's Policy on Prohibited Practices as per link
6. You confirm that you do NOT have Conflict of Interest to provide the goods, works, general services or consulting services required constituting of the following:

- You directly or indirectly participated in preparing the procurement documents including but not limited to the TOR, evaluation criteria etc.
- You are a former AIIB employee or otherwise have no prior HR approval to participate in any instance of corporate procurement
- You are a former AIIB employee who has terminated in the past 2 years and in your former official capacity has participated personally and substantially in a matter related to the goods, works, general services and consulting services required
- You are the duly appointed external auditor of the Bank, its subsidiaries and affiliates
- You are a partner, spouse or close relative of a current bank staff
- You are an owner or principal or holds a significant financial interest and companies in which a former Bank Staff member or his or her Partner or Close Relative is an owner, principal, director or executive officer or holds a significant financial interest during the cooling-off period required under applicable rules
- You have financial or other interests that could improperly influence, or be perceived to improperly influence your performance

9.2 Financial Health/Stability

7. You confirm that your firm has not filed or petitioned for bankruptcy in the past 2 years
8. You confirm that your financial status of your firm is stable and healthy as your net worth is positive within the past 2 years
9. You confirm that the cost of the goods, works, general services or consulting services you are bidding for does not constitute more than 50% of the income in the year prior.
10. You confirm that your firm has more than one business client and not more than 20% of your firm's total revenue in the last reporting period was derived from AIIB contract

General Experience

The Consultant shall comprise of a firm or consortium of firms with demonstrated experience in PPP infrastructure projects, tolling projects and associated civil works, encompassing the requisite expertise in highway engineering, tolling systems design and integration, traffic and revenue studies, environmental management, and social safeguards.

The lead firm in the consortium needs to be ISO 9001 and ISO14001 certified.

The qualification submissions for the firm/consortium of firms will be evaluated against the following criteria:

Design & Engineering

- **General Experience:** The Consultant/Consortium shall be an established engineering firm with a minimum of fifteen (15) years' experience in preparing technical feasibility studies and detailed engineering designs for large-scale transport projects. The consultant should also demonstrate capacity to deliver multidisciplinary assignments integrating technical, environmental, climate and economic analyses. Experience in projects developed or structured under the Public–Private Partnership (PPP) framework will be considered a distinct advantage.
- **Highway Design Experience:** The Consultant/Consortium should demonstrate extensive experience in the roads sector, particularly in the planning, design, and engineering of major highways and corridors. The consultant should have demonstrable expertise in traffic studies, corridor analysis, geometric and pavement design, cost estimation, and life-cycle costing.
- **Tollway Design Experience:** Experience in toll way design and feasibility studies and toll way operations and maintenance on at least two (2) projects of comparable scale size and complexity shall be considered a distinct advantage.
- **Tolling Infrastructure & Systems Experience:** The firm/consortium must demonstrate experience in the design and implementation of tolling infrastructure and intelligent transport systems (ITS) for major road or expressway projects in Kenya or comparable jurisdictions, including electronic toll collection (ETC), traffic management systems, and control center operations;
- **Registration:** The engineering consultant shall be registered with the Engineers Board of Kenya (EBK) and shall provide a valid Letter of Good Standing issued by the Board. Registration as a Kenyan consultant and having an established presence in Kenya shall be considered a distinct advantage.
- **IFI Experience:** The Consultant should have prior experience working with International Financial Institutions (IFIs), including AIIB, WB, ADB, IFC or similar organizations.

Environmental and Social Impact Assessment:

- **General Experience:** The Consultant shall demonstrate proven experience in undertaking Environmental and Social Impact Assessments (ESIAs) for at least five (5) large-scale infrastructure projects of similar scale, scope and complexity (requiring RAP, Livelihood Restoration Plan and other safeguards instruments) in accordance with national legislation and International Financial Institution (IFI) safeguard standards such as those of the AIIB, World Bank, or AfDB.

- **Road Infrastructure Experience:** Experience in conducting ESIAs for road projects in Kenya of a similar scale, scope and complexity (requiring RAP, Livelihood Restoration Plan and other safeguards instruments) to the current project—will be considered a significant advantage.
- **Environmental and Social Management Plans (ESMPs) and Resettlement Action Plans (RAPs):** The firm should demonstrate proven capacity in baseline data collection, environmental modelling, impact prediction, and mitigation planning, as well as in stakeholder consultation. This includes demonstrated experience in preparing ESMPs and RAPs, undertaking socio-economic surveys, engaging Project Affected Persons (PAPs), and providing implementation and compliance oversight.
- **Vulnerability and Adaptive Capacity Analysis:** Demonstrated ability to integrate vulnerability and adaptive capacity analysis into RAPs and PAPs engagement.
- **Green and Low Carbon Road Infrastructure:** Proven capacity to provide advisory services on green road construction, low carbon engineering options, and optimized utility relocation aligned with resource efficiency principles.
- **Registration:** The environmental consultant shall be duly registered by NEMA as both an ESIA trainer and consultant with a minimum of 15 years professional experience in environmental and social safeguards for infrastructure project. Registration as a Kenyan consultant and having an established presence in Kenya shall be considered a distinct advantage.
- **IFI Experience:** The Consultant should have prior experience working with International Financial Institutions (IFIs), including AIIB, WB, ADB, IFC or similar organizations.

Climate Assessment:

- **General Experience:** The Consultant shall demonstrate proven experience in undertaking climate assessment following the JMDB methodologies for Paris Alignment and climate finance, for at least five (5) large-scale infrastructure projects of similar scale, scope and complexity.
- **Road Infrastructure Experience:** Experience in conducting climate assessments for road projects in Kenya of a similar scale, scope and complexity will be considered a significant advantage.
- **Climate resilience assessment:** The firm should demonstrate proven capacity and experience in undertaking climate resilience assessments following the JMDB methodology and discussing with the relevant stakeholders (client and designer) the inclusion of mitigation measures when needed.
- **GHG assessment:** the firm should have demonstrated ability to generate GHG assessments to work out the emissions on the project under a baseline and project scenarios, including emissions during construction.
- **Green and Low Carbon Road Infrastructure:** Proven capacity to provide advisory services on green road construction, low carbon engineering options, and optimized utility relocation aligned with resource efficiency principles.
- **IFI Experience:** The Consultant should have prior experience working with International Financial Institutions (IFIs), including AIIB, WB, ADB, IFC or similar organizations.

In addition, the Consultant must not be in a state of reorganization, liquidation or bankruptcy and have no conflicts of interest.
Under each of the experience criteria, firms are expected to clearly state relevant projects for the experience required, country where the project was done and stage in the PPP project cycle where the firm reached with project. This should be supported by relevant documentation (contract award letters, completion certificates, letters of recommendation etc).

9.3 Requirements for the Personnel (Team Composition)

The Consultant should propose a multidisciplinary team of qualified professionals with excellent skills and experience in the development of Feasibility Studies.

The inclusion of international experts to bring in advanced global experience, alongside local (national) experts who are familiar with on-the-ground conditions (language, culture, local regulations), is highly recommended. The Consultant may form a consortium or partnership with a local organization and/or may sub-contract with one or more individual experts to ensure effective execution of the assignment, subject to the terms and conditions of the contract.

The Consultant should provide a suitable level of effort (LOE)/number of key person-months using the form provided in the RFP format and be ready to deploy additional staff with AIIB approval to ensure timely and high-quality delivery. Roles and responsibilities should be read together with the Scope of Work in the TOR

9.4 Qualification Requirements for Personnel

Consultant should propose a suitable delivery team structure consisting, but not limited to, the following:

#	Position	Qualifications
KEY EXPERTS		
1.	K – 1: PPP Expert/Team Leader	• A master's degree in Civil engineering or related field and at least 15 years of highly relevant experience in the transport infrastructure operation & maintenance projects., or a bachelor's degree in civil engineering, or a related field with 20 years of highly relevant experience in the transport infrastructure operation & maintenance projects. • He/She must be accredited by a relevant official professional body in any country and be in good standing. The consultant may also be required to obtain the corresponding local accreditation, such as registration with the Engineers Board of Kenya, prior to contract signing.

#	Position	Qualifications
		• Demonstrated experience in the development of large infrastructure projects on PPP basis with at least two completed projects. • Strong understanding of Kenya's infrastructure sector policies. • Experience in toll road/highway projects will be an additional merit. • Experience of working in Kenya or in the region in a team leader position is strongly preferred. • Proven experience working with government agencies and multilateral development banks is preferred. • Strong analytical and communication skills, with a track record of delivering high-quality reports and recommendations.
2.	K – 2: Environmental and Social Expert / Deputy Team Leader	• Master's degree in Environmental Science, Environmental Engineering, or a related field. • Minimum of 15 years' experience in environmental and social impact assessment for major infrastructure projects, preferably highways or PPPs. • Registered as a Lead Expert with the National Environment Management Authority (NEMA) and in good standing. • Proven experience in undertaking ESIA assignments in at least five (5) large infrastructure project of a similar scale, scope and complexity (Requiring RAP, Livelihood restoration and social safeguards instruments). • Demonstrated experience in leading multidisciplinary ESIA and RAP studies, preparing ESMPs, and ensuring compliance with EMCA (Cap 387) and international safeguard policies (AIIB/World Bank/IFC). • Proven track record of managing stakeholder engagement processes and coordinating with government institutions and development partners. • Excellent report writing, analytical, and project management skills.
3.	K – 3: Highway Engineer	• Must have a university degree in Civil Engineering or related field, with a relevant post-graduate qualification in road or highway engineering.

#	Position	Qualifications
		• He/She must be accredited by a relevant official professional body in any country and be in good standing. The consultant may also be required to obtain the corresponding local accreditation, such as registration with the Engineers Board of Kenya, prior to contract signing. • Possess a minimum of 15 years for bachelor's degree or 12 years for post-graduate qualification in road or highway engineering, demonstrated experience in major Highway projects implementation including costing and specification. • Relevant qualifications and experience in major road designing, road project management, operations, and maintenance of PPP projects in general, and in Africa in particular. • Demonstrated experience in: Highway geometric design, Interchanges, roadside amenities, corridor planning, Road safety considerations • Familiarity with international and national design standards (AASHTO, Eurocodes, BS, or equivalent). • Proficiency in relevant highway design software (e.g., Civil 3D, OpenRoads, MX Road, InfraWorks or equivalent). • Experience in feasibility studies, detailed design, and preparation of tender documents for highway projects. • Experience working on IFI-funded projects (e.g., World Bank, AfDB, ADB) is an added advantage. • Strong analytical and communication skills, with a track record of delivering high-quality reports and recommendations.
4.	K – 4: traffic & Transport Planner/ Transport Economist	• University degree Engineering, transport planning, Economics, or related field with, optionally, relevant post-graduate qualification in transport planning. • He/she must be accredited by a relevant official body in any country and in good standing and may be required to attest the said accreditation to be granted corresponding local accreditation. • 15 years' demonstrated experience in traffic data collection and analysis, transport planning, corridor traffic modeling and travel demand forecast modelling, traffic engineering, and management.

#	Position	Qualifications
		• Demonstrated expertise in Capacity analysis and Level of Service (LOS) assessment, Development of traffic management and road safety measures, Tolling and traffic revenue assessments (desirable for PPP projects) • Experience with traffic modelling software including HDM • Familiarity with relevant standards and methodologies (HCM, AASHTO, PIARC, local standards, etc.). • Experience in feasibility studies and master planning for major transport corridors. • Relevant qualifications and experience in urban roads transport planning and traffic engineering in general, and in Africa in particular. • Experience with IFI-funded projects (World Bank, AfDB, ADB, AIIB, etc.) is an advantage. • Strong analytical and communication skills, with a track record of delivering high-quality reports and recommendations.
5.	K – 5: Tollway Engineer / Operations Expert	• Possess a university degree in Engineering or related field, with a relevant post-graduate qualification in transport or highway engineering. • He/she must be accredited by a relevant official body in any country and in good standing and may be required to attest the said accreditation to be granted corresponding local accreditation. • Have a minimum of 15 years' demonstrated experience in similar toll road design and cost estimation. • Relevant qualifications and experience in tollway management, operations, and maintenance projects in general, and in Africa in particular. • Proven experience in planning, design, and/or implementation of modern tolling systems, including Electronic Toll Collection (ETC), Open Road Tolling (ORT) / Multi-lane Free-flow tolling, Manual tolling systems and hybrid systems, Toll Plaza layout and operations • Experience in toll policy, revenue modeling, and operations optimization. • Knowledge in Intelligent Transport Systems (ITS), traffic control centers, and highway operations and maintenance strategies.

#	Position	Qualifications
		• Familiarity with cybersecurity and data management considerations for tolling systems (advantageous). • Experience with International Financial Institution (IFI)–funded projects (e.g., World Bank, AfDB, ADB, AIIB) is an added advantage. • Strong analytical and communication skills, with a track record of delivering high-quality reports and recommendations.
6.	K – 6: Sociologist	• Degree in Sociology, Anthropology, Development Studies, or a related social science discipline (Master's preferred). • Minimum of 7 years' experience in conducting social impact assessments and resettlement planning for road or infrastructure projects. • Proven experience in successfully undertaking at least five (5) Social Impact Assessment (SIA) and/or Resettlement Action Plan (RAP) assignments for large infrastructure or transport projects. • Experience in community engagement, stakeholder mapping, and grievance redress mechanisms. • Familiarity with Kenya's social safeguards framework and World Bank OP 4.12 / AIIB ESS2 & ESS5 on Involuntary Resettlement. • Demonstrated ability to design and implement socio-economic surveys and analyze livelihood impacts.
7.	K – 7: Ecologist	• Degree in Ecology, Environmental Biology, Natural Resources Management, or a related field (Master's preferred). • Minimum of 7 years' experience in ecological and biodiversity assessments, especially for large-scale transport or infrastructure projects. • Proven experience in successfully undertaking at least five (5) ecological or biodiversity assessment assignments, including flora and fauna surveys, habitat mapping, and biodiversity impact evaluations. • Demonstrated expertise in flora and fauna surveys, habitat mapping, and biodiversity impact assessments.

#	Position	Qualifications
		• Familiarity with IUCN Red List species, biodiversity offset principles, and Kenyan wildlife and forestry legislation. • Ability to develop and monitor biodiversity management and conservation measures within ESMPs.
8.	K – 8: Surveyor & GIS Expert	• Bachelor's degree in surveying, Geomatics, Geography, or related field; professional certification in GIS and remote sensing preferred. • At least 7 years' experience in spatial data management, mapping, land use analysis, and preparation of GIS-based impact maps for ESIAs or infrastructure projects. • Proven experience in successfully undertaking at least five (5) GIS, topographic, or route survey assignments for highways, bridges, or large-scale infrastructure projects. • Skilled in GPS data collection, spatial data management, digital terrain models (DTM), DEM/DSM processing, and LiDAR data interpretation using ArcGIS or QGIS. • Experience on mapping, and spatial database development and Unmanned Aerial Vehicle (UAV)/drone mapping is an added advantage • Experience in integrating GIS data with environmental and social baseline information and producing high quality cartographic outputs for ESIA reports. • Demonstrated experience in Topographic and route surveys for highways and bridges, Geodetic control establishment and GPS/GNSS surveying, • Proficiency in modern surveying tools and software such as Total Station, GNSS/GPS systems, LiDAR scanners, and related processing tools. • Competency in GIS software such as ArcGIS, QGIS, Global Mapper, Civil 3D, or equivalent. • Knowledge of international and national survey standards for infrastructure development. • Experience working on feasibility/PPP road corridor projects is preferred. • Membership or eligibility for membership with a recognized professional surveying/geospatial

#	Position	Qualifications
		institution (e.g., Institution of Surveyors of Kenya — ISK or equivalent) is an advantage.
9.	K – 9: Land Valuer/ Valuation expert	• A Bachelor's degree in Land Economics, Real Estate, Property Valuation, or a related field, with at least 10 years of relevant professional experience in land acquisition, property valuation, and compensation for major infrastructure projects. • Demonstrated experience in land and property valuation for infrastructure corridors, including highways, railways, and utilities. • Proven experience in successfully undertaking at least five (5) land acquisition and property valuation assignments for large infrastructure corridors such as highways, railways, or utility projects. • Preparation of compensation schedules and participation in Resettlement Action Plans (RAPs). • Familiarity with land acquisition procedures and valuation methodologies in accordance with Kenyan legislation and international standards. • Coordination with survey, legal, and social teams to support right-of-way (ROW) determination and acquisition. • Assessment of socio-economic impacts and valuation of affected assets (land, buildings, crops, trees, etc.). • Knowledge of international standards, including the International Valuation Standards (IVS) and World Bank/IFC safeguard policies on involuntary resettlement. • Experience with IFI-funded projects (e.g., World Bank, AfDB, ADB, AIIB) is an added advantage. • Registration or eligibility for registration with a recognized professional body such as the Institution of Surveyors of Kenya (ISK) — Valuation and Estate Management — or an equivalent national institution is preferred.
10.	K – 10 Climate Resilience expert	• Minimum of 10 years of direct experience in the environmental assessment field, with at least 7 years specifically focused on Climate Risk Assessment, climate adaptation, and climate mitigation for infrastructure projects. • Proven experience in aligning projects with the mitigation and adaptation goals of the Paris

#	Position	Qualifications
		Agreement. Specific experience applying methodologies similar to AIIB's 5-step methodology for mitigation (BB1) and 3-step methodology for adaptation (BB2) is essential. • Demonstrated expertise in qualifying projects for climate adaptation finance and climate mitigation finance according to the Joint Multilateral Development Banks (JMDB) common principles and, where applicable, AIIB's proportional approach for adaptation finance.
Non – Key Experts (Local)		
1.	NK – 1: Hydrologist	• Degree in Hydrology, Water Resources Engineering, Civil Engineering, or Environmental Engineering (Master's degree preferred). • Minimum of 8 years' experience in hydrological and water resources assessments for road, bridge, or other large infrastructure projects. • Proven experience in rainfall-runoff modelling, flood-risk assessment, stormwater management, and drainage system design. • Familiarity with Kenya's Water Act (2016), EMCA (Cap 387), and regulations of the Water Resources Authority (WRA). • Demonstrated ability to use GIS-based hydrological mapping tools and integrate findings into ESIAs and design reviews. • Experience on projects within Kenya or the East African region will be considered a distinct advantage.
2.	NK-2 Material/Geotechnical Engineer	• Degree in, Civil Engineering, or geotechnical or pavement Engineer or related (Master's degree preferred). • Minimum of 10 years' and demonstrate high level of experience in road/infrastructure works as a materials/geo-technical engineer pavement evaluation for road, bridge, or other large infrastructure projects. • Demonstrated experience in pavement condition assessment, structural evaluation, materials testing, and geotechnical field investigations. • Proven expertise in design and analysis of pavement structures, subgrade stabilization, and geotechnical risk assessment.

#	Position	Qualifications
		• Familiarity with international design standards (e.g., AASHTO, ASTM, Eurocodes) and relevant local standards. • Experience working on donor-funded/IFI projects (e.g., WB, AfDB, ADB) is an added advantage. • Professional accreditation or eligibility for registration with a recognized engineering body (e.g., Engineers Board of Kenya or equivalent) is preferred. • Experience on projects within Kenya or the East African region will be considered a distinct advantage.
3.	NK – 3: Bridge and structural Engineer	• A Bachelor's degree in Civil/Structural Engineering or a related field (Master's degree preferred), with at least 10 years of demonstrated experience in the planning, design, assessment, and rehabilitation of bridges and structural elements for major transport infrastructure projects. • Proven experience in structural analysis, bridge load rating, and design of new and replacement bridge structures. • Extensive knowledge in structural condition assessments, strengthening/retrofitting works, and materials engineering (concrete, steel, prestressed structures). • Familiarity with international standards and codes (e.g., AASHTO, Eurocodes, BS, ASTM) and relevant national codes. • Experience with bridges on highways or major transport corridors, including work on river crossings, interchanges, overpasses, and culverts. • Proficiency in structural design software • Prior experience working on IFI-funded projects (e.g., World Bank, AfDB, AIIB, ADB) is an added advantage. • Professional accreditation or eligibility for registration with a recognized engineering body (e.g., Engineers Board of Kenya or equivalent) is preferred. • Experience on projects within Kenya or the East African region will be considered a distinct advantage

#	Position	Qualifications
4.	NK – 4: Electrical Engineer	• A Bachelor's degree in Electrical Engineering, Power Systems Engineering, or a related field, with at least 8 years of relevant experience in the design, installation, and maintenance of street lighting and electrical systems for major road or urban infrastructure projects; (Master's degree preferred). • Demonstrated experience in: ➢ Planning and design of street lighting systems, including layout design, luminaire selection, and power distribution, ➢ Preparation of technical specifications, cost estimates, and specification for lighting systems. ➢ Design of energy-efficient and smart lighting systems, including LED and solar-powered solutions. ➢ Coordination of electrical utilities along highways, interchanges, and urban corridors. ➢ Compliance with national electrical codes and international standards (e.g., IEC, IEEE, BS, EN, or equivalent). • Familiarity with smart city technologies, lighting control systems, and renewable energy integration. • Experience in infrastructure feasibility studies and PPP projects is an added advantage. • Proficiency in relevant design software (e.g., Dialux, Relux, AutoCAD, or equivalent). • Registration or eligibility for registration with a recognized professional engineering body (e.g., Engineers Board of Kenya or equivalent) is preferred.
5.	NK – 5: Road safety expert	• A Master's degree in Transportation or Highway Engineering or related, with at least 8 years of relevant professional experience in road safety analysis and design integration. • Demonstrated experience in: • Conducting Road Safety Audits (RSA) and Road Safety Impact Assessments (RSIA) at feasibility, design, and construction stages. • Identifying hazardous road locations and developing engineering countermeasures.

#	Position	Qualifications
		• Integrating safety principles in highway geometric design, intersections, and non-motorized transport (NMT) facilities. • Reviewing crash data and performing black spot analysis. • Preparing safety management plans and capacity-building programs for implementing agencies. • Familiarity with international and regional road safety standards and guidelines (e.g., IRF, PIARC, iRAP, AASHTO, ISO 39001). • Certification as a Road Safety Auditor or formal training in road safety auditing is a strong advantage. • Experience with IFI-funded projects (World Bank, AfDB, ADB, AIIB, etc.) and alignment with Vision Zero or Safe System approaches. • Membership or eligibility for registration with a recognized professional institution (e.g., Engineers Board of Kenya, Institution of Highways and Transportation (IHT), or equivalent).
6.	NK – 6: Quantity surveyor	• A Bachelor's degree in Quantity Surveying, Construction management, Civil Engineering, or a related field, with at least 10 years of relevant experience in cost estimation and contract management for major transport or infrastructure projects. • Demonstrated experience in Preparation of Bills of Quantities (BoQs), cost estimates, and cost breakdown structures, Development of cost models for feasibility studies, PPP, or EPC projects, Life-cycle cost analysis, value engineering, and cost-benefit assessments. • Familiarity with FIDIC and other standard forms of contract. • Knowledge of international and national cost estimation standards and practices. • Proficiency in cost estimation software such as CostX, WinQS, Candy, or equivalent. • Experience with PPP or IFI-funded (World Bank, AfDB, ADB, AIIB) projects is an added advantage. • Registration or eligibility for registration with a recognized professional body (e.g., Board of

#	Position	Qualifications
		Registration of Architects and Quantity Surveyors of Kenya — BORAQS or equivalent) is preferred. • Experience on projects within Kenya or the East African region will be considered a distinct advantage
7.	NK – 7: Environmental Economist	• Degree in Economics, Environmental Economics, or Natural Resources Management (Master's degree preferred). • Minimum of 8 years' experience in economic and financial analysis of infrastructure or environmental projects, including cost–benefit and cost-effectiveness assessments. • Proven experience in valuing environmental and social externalities, assessing ecosystem services, and preparing economic justification for environmental mitigation measures. • Proven experience in GHG assessment in infrastructure projects on both baseline and project scenarios. • Knowledge of Kenya's national development and environmental policy frameworks and experience working with multilateral development banks (MDBs) such as AIIB, World Bank, or AfDB. • Ability to link ESIA outcomes with project feasibility and Value for Money (VfM) analysis. • Experience in Kenya will be considered a distinct advantage.
8.	NK – 8: Livelihood Restoration Specialist	• Degree in Sociology, Anthropology, Development Studies, or related social sciences (Master's degree preferred). • Minimum of 8 years' experience in resettlement planning, livelihood restoration, and community development within large-scale infrastructure or PPP projects. • Demonstrated expertise in designing and implementing Livelihood Restoration Plans (LRPs) and integrating them with Resettlement Action Plans (RAPs). • Familiarity with World Bank OP 4.12 and AIIB Environmental and Social Standard (ESS) 5 on Land Acquisition and Involuntary Resettlement.

#	Position	Qualifications
		• Proven experience in community engagement, vulnerability assessment, and monitoring of income restoration outcomes. • Experience working along major transport corridors in Kenya is a distinct advantage.
9.	NK – 9: Wildlife Specialist	• Degree in Wildlife Biology, Ecology, Zoology, or Natural Resources Management (Master's degree preferred). • Minimum of 8 years' experience in wildlife habitat assessment and biodiversity management for linear or transport infrastructure projects. • Proven expertise in species inventory, habitat connectivity analysis, and mitigation of wildlife–vehicle conflict. • Knowledge of Kenya Wildlife Service (KWS) policies and biodiversity conservation legislation. • Ability to develop biodiversity management and monitoring plans and coordinate with conservation agencies. • Experience in Kenya's protected and dispersal areas, particularly along major road corridors, will be considered a distinct advantage.
10.	NK – 10: Field / Technical Assistants (4 Nos.)	• Diploma or certificate in Environmental Studies, Natural Resources Management, or related field. • Minimum of 3 years' field experience supporting data collection for environmental and social studies. • Ability to assist with survey logistics, sampling, stakeholder consultation documentation, and baseline field measurements (noise, air, and water). • Knowledge of local languages and community dynamics along the Mau Summit–Eldoret–Malaba Corridor is an added advantage.

9.5 Estimated man-days per expert

S/N	**Key Staff**	**Staff man days**
K-1	Team Leader	180
k-2	Environmental and Social Expert / D/Team Leader	180
k-3	Highway Engineer	120

K-4	Tollway Engineer / Operations Expert	72
K-5	Traffic, Transport Planner/ Transport Economist	84
K-6	Surveyor & GIS Expert	72
K-7	Sociologist	120
K-8	Ecologist	72
K-9	Land Valuer/ Valuation expert	120
K - 10	Climate Resilience expert	100
	Sub Total	**1120**

2 **Non-key Staff**

S/N	Non-Key Staff	Staff man days
NK-1	Hydrologist	72
NK-2	Quantity surveyor	72
NK-3	Material/Geotechnical Engineer	72
NK-4	Bridge and structural Engineer	72
NK-5	Electrical Engineer	48
NK-6	Road safety expert	60
NK-7	Environmental Economist	72
NK-8	Livelihood Restoration Specialist	72
NK-9	Wildlife Specialist	72
NK-10	Field / Technical Assistants (4 Nos.)	480
	Sub Total	**1092**
	Estimated Total Staff Input (Staff days)	**2112**

7. Duration of the Assignment

The duration of the assignment is 12 months

8. **Payment Terms**

Payments under the consulting contract will be tied to the submission and approval of key deliverables by the Project Implementation Team and the Contracting Authority. As per payment schedule of the consultancy service included with the deliverables.

All payments shall be milestone-based and subject to the written approval of the Project Implementation Team (PIT), Contracting Authority (KeNHA) and the PPP Directorate. The final payment shall only be made upon confirmation of commercial and financial close by the PPP Directorate.

9. Scoring Matrix

9.1 Technical Evaluation

<table>
<tr><th>S/N</th><th>EVALUATION CRITERIA FOR TECHNICAL PROPOSAL</th><th colspan="2">Scoring</th></tr>
<tr><td>A</td><td>Preliminary Check (Mandatory Requirements)</td><td>YES</td><td>NO</td></tr>
<tr><td>A1</td><td colspan="3">A bidder who scores NO in the mandatory criteria shall be considered unresponsive and shall not proceed to the technical evaluation stage.</td></tr>
<tr><td>B</td><td>Technical Evaluation</td><td colspan="2">POINTS</td></tr>
<tr><td>B1</td><td>Specific experience of the consultant/consortia related to the assignment</td><td colspan="2">30</td></tr>
<tr><td>B2</td><td>Adequacy of the proposed work plan and Methodology in responding to the Terms of Reference</td><td colspan="2">30</td></tr>
<tr><td>B3</td><td>Qualifications and competence of the key staff for the assignment (Relevant education, training, experience in the sector/similar assignments
<table>
<tr><th>Ref</th><th></th><th>Key Expert</th></tr>
<tr><td>K-1</td><td></td><td>PPP Expert/ Team L</td></tr>
<tr><td>K-2</td><td></td><td>Highway Engineer</td></tr>
<tr><td>K-3</td><td>Traffic & Transport Planner/ Transport Economist</td><td>13</td></tr>
<tr><td>K-4</td><td></td><td>Tollway Enginee Operations Expert</td></tr>
<tr><td>K-5</td><td>Environmental and Social Expert / Deputy Team Leader</td><td>14</td></tr>
<tr><td>K-6</td><td></td><td>Sociologist</td></tr>
<tr><td>K-7</td><td></td><td>Ecologist</td></tr>
<tr><td>K-8</td><td>Surveyor & GIS Expert</td><td>8</td></tr>
<tr><td>K-9</td><td>Land Valuer/ Valuation expert</td><td>8</td></tr>
<tr><td></td><td></td><td>TOTAL</td></tr>
</table></td><td colspan="2">30</td></tr>
<tr><td>B4</td><td>Proof of involvement of at least 50% local staff in the assignment</td><td colspan="2">10</td></tr>
<tr><td></td><td>TOTAL</td><td colspan="2">100</td></tr>
<tr><td></td><td colspan="3">A firm/consortium that attains a PASSMARK of 70 % and above shall proceed to financial evaluation.</td></tr>
</table>

9.2 Financial Evaluation

The bidders are required to quote a composite amount for phase I – Feasibility Study - of the assignment. For Phase II, III, & IV, the bidders are required to cost the

assignment per asset. The assumption is that assets will progress to the transaction phase (II, III, &IV) based on viability and prioritization by KPA.

The formula for determining the financial scores (Sf) of all the Bids is calculated as follows:

- The lowest evaluated Financial Proposal (Fm) shall be given the maximum financial score (Sf) of 100.
- Sf = 100 x Fm/ F, in which “Sf” is the financial score, “Fm” is the lowest price, and “F” the price of the proposal under consideration.

9.3 Combined Technical and Financial Evaluation

The weights given to the Technical (T) and Financial (P) Proposals are:

T = 70%; and
P = 30%

Bids are ranked according to their combined technical (St) and financial (Sf) scores using the weights (T = the weight given to the Technical Proposal; P = the weight given to the Financial Proposal; T + P = 1) as follows:

Total Score (S) = St x T% + Sf x P

Disclaimer

The Consultant shall perform all the work necessary, as required by these Terms of Reference, including all technical studies, field investigations and related services.

In carrying out the work, the Consultant shall cooperate fully with the competent authorities of the Government of Kenya, in particular, the Kenya National Highways Authority (KeNHA), PPP Directorate, County Councils, Ministry of Lands & Housing, National Environment Management Authority (NEMA), Ministry of Public Service, Youth & Gender Affairs amongst others.

The Consultant shall provide all the required personnel for the completion of the assignment. The work shall be carried out to appropriate standards and shall cover, but not necessarily be limited to, the aspects outlined in these Terms of Reference.