



**Government of the People's Republic of Bangladesh
Ministry of Road Transport and Bridges
Bridges Division
Bangladesh Bridge Authority (BBA)**

**(Draft)
Terms of Reference (ToR)**

for

**Feasibility Study & Preliminary Design for
Construction of Dhaka-Chattogram Elevated
Expressway.**

May 2026

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Elevated Expressway

1. Background of the Project

Bangladesh Bridge Authority (BBA) is a statutory organization under the Bridges Division of Ministry of Road Transport and Bridges with the role to construct, operate and maintain the 1500 meter and above length bridges, elevated expressway, ring road, causeway, tunnel, toll road and associated other structures for promoting ease of access in road transportation connectivity of the country. As an executing agency of the bridge project, BBA on behalf of the Government of Bangladesh (GOB), is very much conscious about the increased volume of road traffic due to economic growth and development works around the country.

Dhaka-Chattogram Highway (N1) is one of the main transportation artery and most important transport corridor in Bangladesh. This Highway significantly supports the economic growth of Bangladesh. To maximize this support in future years, it must become a high capacity, fast and efficient transport corridor. It is connecting the capital city of Dhaka and the southern port city of Chattogram. The highway is limited to two lanes of traffic in each direction for most of its length. In 2009, it was estimated that daily usage of the highway was around 25,000 motorized vehicles, up 40% of which were trucks. Traffic jams or tailbacks lasting many hours have been reported. In one instance in July 2015, a truck losing one of its tyres in Cumilla created a 22 kilometres (14 miles) long tailback.

The Dhaka-Chattogram corridor is the economic lifeline of Bangladesh, facilitating the majority of the nation's import-export trade through the Chattogram Sea Port. Chattogram is the second largest city in Bangladesh, the commercial capital of the country, and a heavy industry-intensive region. This district includes the government's priority Mirsarai Economic Zone, and due to its natural beauty, countless domestic and foreign tourists visit every year. The country's largest and most effective seaport, an international airport, and a planned deep-sea port are located in this district. The majority of the country's imports and exports are handled through the Chattogram Seaport. The Government of Bangladesh has already approved a mega-project for the construction of 03 (three) Bay Terminals centered around the Chattogram port, which is expected to be completed by June 2031. It is anticipated that nearby Sri Lanka, India, Myanmar, China, Bhutan, Nepal, and Singapore will use this port to conduct their import-export and business operations. Consequently, the volume of import and export will increase manifold. Additionally, various development projects are either under implementation or planned for the greater Chattogram region. As a result, the volume of traffic on this alignment will increase to more than one lakh daily.

Currently, the Roads and Highways Department (RHD) has planned to upgrade the existing 4-lane highway on the Dhaka-Chattogram alignment to 6 lanes. However, the project report titled 'Technical Assistance for Detailed Study and Design of Dhaka-Chattogram Expressway on PPP Basis,' executed by the RHD with financial assistance from the Asian Development Bank (ADB), stated that an At-grade Expressway is not timely suitable for the Dhaka-Chattogram alignment, which is considered the lifeline of Bangladesh's economy. Therefore, constructing an Elevated Expressway would be the logical, effective, and economically beneficial solution for transport, providing an uninterrupted, improved, safe, time-and-cost-saving, environment & vehicle friendly road transport system from Dhaka to Chattogram. The existing at-grade national highway, despite its planned 6-lane upgrade, is projected to be insufficient to handle

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the multi-fold increase in traffic volume anticipated from major economic zones and the utilization of the Chattogram Port by neighboring countries (India, Nepal, Bhutan, etc.). To reduce travel time drastically (from 6-14 hours to maximum 2.0 hours) and provide a continuous, high-capacity, access-controlled route, the construction of an Elevated Expressway is deemed the most logical and economically beneficial solution.

Dhaka-Chattogram Elevated Expressway will be the shortest possible suitable route. As a result, the 6-14 hours at-grade journey will certainly be transformed into a 2.0 hours elevated journey. Currently, approximately 50 million people from 19 districts—including Dhaka, Narayanganj, Cumilla, Feni, Chattogram, Cox's Bazar, the Eastern part of Greater Dhaka, the Sylhet region, and the Hill Tracts—are directly connected to Dhaka by road using this alignment. This means that the people and businesses of the described regions will directly be benefitted from this elevated expressway. Furthermore, it is noteworthy that BBA took the initiative to construct the facility and issued a Notice for Expression of Interest (International) for the consultancy services for Feasibility and Preliminary Design in 2016. Also, the government has provided kind instructions to take the necessary measures for the construction of this elevated expressway on 27 April 2025 (Appendix-A). Also in present government's manifesto 2026 (Appendix-B), it is stated that the Dhaka-Chattogram Expressway completion will be done as early as possible.

Therefore, BBA had conceived the project for development of an elevated expressway to minimize the existing traffic congestion in Dhaka as well as the Southern part of the country and more specifically in and around Dhaka, Chattogram area.

2. Objectives of the Assignment

The objective of this assignment is to prepare a preliminary design to establish an uninterrupted, safe, high-speed, time-saving, and economically viable communication link between Dhaka to Chattogram, the commercial capital and main seaport of Bangladesh. For this purpose, BBA seeks to engage a consulting firm (Consultant) to undertake the study.

The primary objectives of the consultant are to:

- i. Conduct a Comprehensive Feasibility Study to re-validate the project's technical, economic, financial, environmental, and social viability;
- ii. Develop Preliminary Engineering Designs and prepare bid documents for the detailed Engineering design and project's construction;
- iii. Develop an optimal Public-Private Partnership (PPP) structure and provide related TOR and other related documents to assist the Executing Agency in selecting a Concessionaire/Private Partner;

3. Methodology

Consultant will review all the reports and documents generated by different stakeholders and national-international organizations to develop and analysis the corridor. Also review the relevant projects and studies which will be encompassed a comprehensive analysis of foundational elements. This includes detailed geotechnical and topographic surveys to assess the site's feasibility and terrain. The use of drone technology for right-of-way restriction analysis is essential, along with meticulous study of loop intersections. This comprehensive review will inform the project's planning and design.

A comprehensive feasibility study is essential to assess the viability of this project. It will help analyze various factors such as construction feasibility, traffic impact, and long-term



sustainability. Without a detailed study, implementing the project could lead to unforeseen technical, economic and financial challenges, delaying its effectiveness in alleviating congestion and enhancing mobility.

Consultant will prepare geometric design of the proposed alignment for the selected structure and approach road/ ramp network which will not limited to:

- i. General Characteristics and Design Considerations;
- ii. Cross-Sectional Elements;
- iii. Roadside Design;
- iv. Traffic Control Devices;
- v. Provision for Passing;
- vi. Grade Separated Interchange, trumpet interchange (where applicable) and ramps/viaducts;
- vii. Access Management and Operational Control and Regulations;
- viii. Pedestrian Facilities for Inspection/Maintenance Purpose;
- ix. Drainage, Lighting and Utilities;

Based on the results of geotechnical investigation, geometric design and previous studies, the Consultant will conduct Preliminary Engineering Design and Cost Estimate considering-

- i. Establish the design criteria in consultation with the Client;
- ii. Conduct design of the proposed alignment consists of both at grade and grade separated road components determined through following studies;
- iii. Pavement design, Structural design, Line and sign marking design;
- iv. Drainage design for the structure as well as for whole RoW;
- v. Lighting design, Power Distribution Design;
- vi. Safety amenities design;
- vii. Toll plaza and monitoring building at the site (if required);
- viii. Staff accommodation building (Site Office);

4. Scope of the Services

4.1 Feasibility

Review previous studies and finalize the optimal "Shortest Possible Route" for the Elevated Expressway, considering both technical viability and minimum land acquisition/utility shifting, resettlement, economic & financial benefit, local demand, socio-political issues and future development growth.

Conduct comprehensive Origin-Destination (O-D) surveys, traffic counts, Traffic Demand Analysis, forecasting for the next 30 years, segmented by vehicle type and cargo/passenger profile, Present volume and related other survey need to be conducted for analyzing potential effects on existing and planned upcoming infrastructure. Determine the optimal number of lanes.

Traffic Volume Counts, Origin-Destination Surveys, Travel Time and Delay Analysis, Parking Studies, Public Transport Assessment, Accident Analysis, Environmental Impact Assessment, Economic Analysis, Traffic Forecasting, Tolling Strategy, Pedestrian and Bicycle Studies, Congestion Management Solutions, Public Consultation and Engagement, Road Safety Audits, Parking Demand Analysis, Traffic Demand Modeling and Policy Review.

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Other traffic surveys as may be required by the projects; The data derived from the surveys above shall be analyzed to forecast demand for the proposed structures. To achieve this objective, the Consultant shall establish possible traffic growth rates in respect of all categories of vehicles, taking into account the past trends, annual population and real per capital growth rate, elasticity of transport demand in relation to income and estimated annual production increase. The other aspects including social-economic development plans and the land use patterns of the city and cross elasticity shall have to be taken into consideration.

The assignment shall also have to be carried out taking account of local and national issues, applicable laws, regulations, standards, specifications, and other relevant considerations.

4.2 Economic Analysis

Conduct detailed economic and financial analysis (EIRR, FIRR, EBCR, FBCR, ENPV, FNPV & B/C ratio of all options) for the project. Calculate key economic metrics, including Economic Internal Rate of Return (EIRR), Net Present Value (NPV), and Benefit-Cost Ratio (BCR), considering reduced travel time, fuel savings, reduced accidents, and regional trade benefits. Safety of the vehicle and goods, passengers and drivers and vehicles health condition

4.3 Financial Analysis–

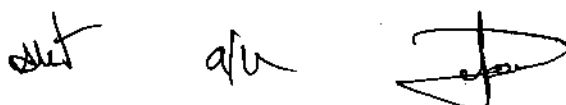
Develop a comprehensive financial model, including Financial Internal Rate of Return (FIRR), equity returns, and an optimal tolling mechanism (closed toll system charging by distance) to ensure financial attractiveness to the private sector. Also develop model for PPP investment

4.4 Economic Feasibility

Assessing economic and financial viability and cost-effectiveness to ensure optimal investment and long-term sustainability. Carry out sensitivity analysis of the different parameters identified. Based on the investigation, advice whether the proposed project is feasible or not.

4.5 Preliminary Engineering Design

- i. Topographic & Geotechnical Surveys: Execute ground surveys, sub-surface investigations, and soil testing along the entire alignment as per requirement.
- ii. Structural Design: Prepare preliminary structural designs for the elevated structure, including piles, pile cap, piers, pier cap, girder type, deck segments, ramps, and interchanges, trumpets etc as per requirement along the whole length of the structure like elevated expressway, bridge, engineer's facilities and other facilities.
- iii. Ancillary Facilities Design: Design toll plazas, Operation & Maintenance (O&M) centers, highway rest/service areas, control centers, and intelligent transport systems (ITS), Electronic Toll Collection System (ETCS), Engineer's service area, Hotel, Elevated fuel station, fire safety service, Elevated Restroom, washroom, Relaxation Centre for Drivers and passengers including parking facilities.
- iv. Traffic Sign, Signal & Vigilance System: The Consultant has to propose a comprehensive traffic sign, signal, and surveillance systems design, including preliminary designs and suggestions for implementation, ensuring safety and efficient traffic flow.
- v. Drawings and Specifications: Prepare necessary engineering drawings and technical specifications requirement for detailed engineering design following relevant international standards accepted by the client.



- vi. All the studies and technical design will be done considering all climate change aspects. The project is aimed to have recognized climate fund as co-financing.

4.6 River Study

Consultant is to conduct comprehensive studies for river morphology assessment including detail analysis of the river's characteristics, behavior, and potential impact on the project, including data collection, modeling, and mitigation measures, considering the design of necessary river crossing bridges/ tunnels and the selection of appropriate technologies, taking into account cost, environment, river morphology and technical feasibility. The consultant has to propose river training works and associated other structures with preliminary design for the safety of the bridges. The Consultant shall develop the design for river training works, including guide bank protection, embankment protection, bridge pier and pile protection.

Consultant will arrange mathematical and physical modelling for major rivers at location of crossing of the alignment. Consultant may sub-consult this sub-task to the organization preferably River Research Institute (RRI) or Institute of Water Modelling (IWM) or Center for Environmental and Geographic Information Services (CEGIS) or equivalent organization.

4.7 Environmental and Social Safeguards

Environmental Impact Assessment (EIA): Conduct a comprehensive EIA and develop an Environmental Management Plan (EMP) in line with GoB laws and donor/lender safeguard policies (where applicable).

Consultant will study detail on environmental and social impact of each structural options. Based on Initial Environmental Examination (IEE) report, the Terms of Reference (ToR) of the EIA report should be approved from the DoE and the EIA report should be prepared as per by the consultant.

4.8 Social Impact Assessment (SIA) & Resettlement

Conduct SIA and prepare a detailed Land Acquisition and Resettlement Plan (LARP) outlining compensation mechanisms, resettlement sites, and livelihood restoration for all affected persons.

Develop a practical and cost-effective plan for the shifting/relocation of existing utilities (gas lines, power lines, water, fiber optic, telephone cable internet data cables etc.) along the Right-of-Way (ROW). Provide underground/ at-grade utility location mapping with relocation plan and costing. Provide plan for taking permissions from the cross-cutting agencies. Assist Client to take NOCs from relevant agencies;

The consultant shall propose a comprehensive utility shifting plan and mapping for the project and provide the exact location of utility service lines which are located along the selected alignment of the structure at underground level and at-grade level as well as grade separated level. Consultant will also provide the action plan of utility service providing line which needs to be relocated before construction. Consultant need to consult with the utility service providers.

The consultant shall specify the required methodologies for data collection and assessment, outline the specific environmental aspects to be covered like air and water quality, and define the reporting requirements, including documentation and deliverables.

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A social study in this context will be involved assessing the potential impacts of the expressway on the local communities. This includes things like population displacement, effects on livelihoods, community infrastructure, and social dynamics.

4.9 Focus Group Discussion and Stakeholder Workshop

Consultant have to conduct several FGD Stakeholder Consultation Meeting, Workshop at BBA HQ and at site with the administrative support from BBA/Bridges Division to sensitize the local people in favour of the project. Before finalizing the alignment and structural options Consultant must conduct several seminars/workshops for getting comments from different national level stakeholders and disseminate the information among relevant agencies.

4.10 Public Private Partnership (PPP) Project Mode and Construction Period

The estimated construction period for the Dhaka-Chattogram Elevated Expressway may be proposed for 05 (five) years including land acquisition period or the consultant shall suggest the appropriate duration of the project.

Consultant's will provide a detailed plan for implementation, specifically evaluating the feasibility and proposed approach for a Public-Private Partnership or BBA own-funded model, detailing the construction and implementation strategies for each. consultant shall also provide detailed suggestions and concepts for PPP implementation to the BBA, including potential models, risk allocation and financial strategies tailored to the project. The investor shall have the right to collect tolls and other fees and charges, lease price from only structure from project users to recover their investment and generate returns.

4.11 Connectivity

The alignment should prioritize seamless integration with key economic and military zones such as the Chattogram Port and relevant cantonments. Suggestions need to be provided how to create connectivity between Dhaka-Chattogram elevated expressway and the northern part of Bangladesh.

Consultant shall propose detailed connectivity solutions for optimized interchanges, access points, and integration with national and local transport networks, ensuring seamless connection to Land or River Ports, EPZs, surrounding districts and important locations. The consultant shall propose appropriate connectivity strategies to effectively link the eastern-southern region to the northern region of Bangladesh.

The Government of the People's Republic of Bangladesh intends to construct the Dhaka-Chattogram Elevated Expressway (DCEE) including all modern amenities for the length of around 200 kilometer starting from the joining end/nose of Dhaka Elevated Expressway (DEE) at Kutubkhali, Dhaka and also establish elevated connectivity among DEE, N8, Jatrabari Flyover & DCEE and mostly followed the new green field alignment towards Chattogram. The structure may be constructed by BBA itself or by Public Private Partnership (PPP) basis.

To identify the optimum technical, environmental, economic, financial viability to construct the elevated connectivity based on a robust analysis of all possible alternatives, alignments, standards, etc. with comparison and confirmation of alignment and the structure type with preliminary design of all substructure and superstructure features and components, the study will include but not limited to:

1. preliminary design of the elevated structure including bridges for rivers, optimization of length, location and alignment of the corridor, access/ approach roads, ramps,

- viaducts and other components, detail geotechnical investigation, reliable cost estimate for the proposed solution;
2. carry out detail topographic survey. Also hydrological and morphological study for rivers along the corridor;
 3. conduct all detailed traffic survey and analysis, prepare robust traffic forecasts for a number of different scenarios (optimistic, medial and pessimistic) for a defined appraisal period and establish traffic model;
 4. undertake appropriate formal risk and sensitivity analysis for different scenarios of the proposed investments. Detail economic and financial analysis to determine EIRR, NPV, BCR, FIRR and other financial indicators for both GOB funded project and PPP mode project;
 5. provide an indication of potential contribution of public-private sectors in each scenario and determine optimal implementation model of the project and financial model for PPP concept. Review and comment on legislation in force related to different options of project financing and project implementation model.

4.12 Operation & Maintenance Manual, Emergency Response Plan and Other Plan

The consultant shall propose the Rescue Plan, Operation Plan, and Seismic Hazard and other Emergency Plan. The consultant is to provide a comprehensive Operations and Maintenance Manual, along with detailed operational procedures for the functioning of the project.

The consultant must propose a comprehensive construction methodology, including detailed safety plans and quality control frameworks. The necessity and design of an international management consultant, as well as the required quality control lab facilities, field test, meteorological lab/stations.

4.13 Preparation of Land Acquisition Plan (LAP) and Resettlement Action Plan (RAP) based on the latest mouza rate and structural cost considering GoB rules & practices

Consultant have to procure latest published Mouza maps of the Right of Way (RoW) area and the area around 200 m from the edge line of the RoW (both side of Main Line, Ramps and Links), scan Mouza maps with high quality scanner, care should be taken to maintain Geographical North Alignment, Digitization of those mouza in ArchGIS Platform, digitized sheet should be zoomed to 300% typically stand 2.5 to 5 meter so that center line would be digitized, Then digitized sheets shall be Geo Referenced by using Ground Control Points (GCP) to be collected from Field Survey, at least 05 (five) number of GCP shall be taken for each Mouza Sheets which shall be identical with real field condition such as permanent building corners, monuments, traverse points, Sharp Corner of Mouza Plots, Road Crossings, Corner of Hydraulic Structures, etc., GCPs shall have to be taken using both RTK GPS and Total Station Survey Technique; not all GCP shall be used for Geo Referencing; some points shall have to be used for validation purpose involves comparison of the Coordinates of the known GCP with coordinates of the same points after Geo Referencing, Geo Referencing shall be done repeatedly until highest accuracy is achieved, Having Geo Referenced digitized Mouza sheets under jurisdiction shall be edge matched and joint together with caution and accuracy, the GPS so chosen and fixed on the ground shall have to be preserved in such a way that those shall be inspected as and when required by client in subsequent time.

The extent of the project area includes the Main Alignment, Elevated Links, and Interchanges Area. The Main Alignment, Elevated Link, Interchanges, and Ramp Area, the digitization area would be 200 meters wide in either direction from the edge of the Right of Way (RoW), i.e.,



the width of digitization area may $200+25+200 = 425$ meters and length including Link, Interchanges, Ramps and the main bridge; Later, attribute database which include mouza name, sheet no, Jurisdiction List (JL) number, and plot number will be incorporated. If any plot falls partially within the project area boundary, the whole plot area will be taken under the jurisdiction of the project area in the boundary line.

High Resolution Satellite Image shall have to be procured, World View 3 with resolution of 0.5m or less of Jurisdiction Area as specified above, the positional accuracy of the image is 3m (CE90). The accuracy shall be improved in cm level using RTK GPS system, minimizing land acquisition should be prioritized when selecting routes by including criteria that consider factors such as existing infrastructure and the avoidance of densely populated areas. Highest priority should be given to acquiring government land where applicable.

The consultant shall provide recommendations on the effective and sustainable utilization of the green spaces under the elevated expressway to ensure financial viability. This should include conservation strategies that offer environmental benefits while exploring compatible economic activities, such as sustainable tourism, renewable energy projects, conservation of ecology, revenue-generating amenities, maintenance & sustainable architecturally lucrative and aesthetic view that align with the core objective of maintaining green zones. The consultant shall submit detailed proposals for integrating tourist attractions and aesthetic elements within the elevated expressway corridor. This is crucial for maximizing the project's potential impact as a landmark destination.

4.14 Resettlement Action Plan

The main scope and objective of the consultancy services for RAP preparation is divided in two parts, Review of relevant policies of Bangladesh Government and prepare a resettlement framework, conduct socio-economic surveys on the project effected persons/ households and preparation of the resettlement action plan. The assignment for the consultants will include but not limited to the following tasks:

Review of relevant policy, legal and administrative frameworks of the government. Review social safeguard policies of BBA & GoB that will form the framework for the resettlement study. Review other projects' documents to understand scope and operations of BBA constructed/ operated structures.

Conduct census survey and inventory of assets of the final alignment covering all affected households, commercials and business enterprises, community properties, livelihoods, etc. An inventory survey of the affected asset will also be taken for preparation of the database and resettlement action plan. The census and inventory will cover number of affected house hold with demographic and socio-economic information and quality of the affected properties, relocation options etc.

Prepare a Resettlement Action Plan and implementation of the same and thereby mitigate the adverse social impact of the project which will facilitate the smooth implementation of the overall project activities. Conduct consultation with various stakeholders related to project sites.

- i. Address gender issues in resettlement planning
- ii. Formulate detailed income restoration programs



- iii. Prepare an Entitlement Matrix for the RAP based on category of losses identified during census and detailed inventory survey. Prepare consultation and participation plan for local/ affected person.
- iv. Create a detailed computerized database to use throughout the RAP preparation by using standard software that will enable easy analysis of the data.

The consultant will conduct survey with structured questionnaires to make an inventory of affected assets within the project right of way/site. Information to be collected through the questionnaires would be used for preparation of RAP. All categories of affected properties such as land, structure, trees, crops and other physical assets will be surveyed during Inventory of losses (IOL).

Conduct a market survey for property valuation with structured questionnaires to collect data on rate of the affected land, structure and trees, crops, etc. from the local eligible people i.e. potential seller, potential buyer, teacher, religious leader, community leader etc. and determine the market/ replacement value of the affected properties.

The consultation meeting with the affected people and stakeholders would be held during conducting census & socio-economic survey. All the proceedings and interactions of FGD session and consulting meeting are recorded and session minutes are drafted to illustrate community people's needs and desires in resettlement action plan.

Video filming of the affected properties is to be done to prevent fraudulent claims in the future. The selected consulting firm will paste household number on the visible wall of the structure and household owners or any senior proxy will say the household head with father's or husband's name and address during video filming in a prescribed format.

4.15 Risk Register

The Consultant shall prepare a detail Risk Register. This register will identify technical, commercial, contractual, environmental, program and other risk. It will identify the probability of the occurrence, mitigation requirement, residual risks and the consequences should the risk be realized. It must identify those who are responsible for addressing the risks and what stage the risks are to be addressed.

4.16 Institutional Study

The Consultant will analyze the present BBA capacity (financial, manpower, legal, logistic and other aspect) to implement the project, to operate and maintenance of the project for both GOB/Own Funded project or PPP base project. Consultant will generate a report proposing BBA manpower, logistics and other aspects to implement the project as well as to maintain and operate the project in near future.

5. Language

The Proposal shall be written in English. All correspondence and documents related to the Proposal shall also be in English. Any supporting documents and printed literature provided by the Consultant as part of the Proposal must be in English.

6. Location of Services (Field Office)

The Services shall be performed at project site/corridor, local field office and BBA.

7. Technical Solution

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Propose specific technical and structural solutions for the elevated expressway, for land part and bridge/ tunnel for crossing river/canal/large water bodies considering factors like structure type, design standards, materials, construction methodologies, and potential challenges. The project is expected to be a 100% elevated structure and expected design speed is 120 to 180 km/hr and the design period will be 100 years and the consultant's design must adhere to this requirement throughout the entire corridor. Based on comprehensive traffic analysis, projected demand, and international best practices, Consultant shall propose the appropriate number of road lane for the structure and the best expected is considering 06 (six) lanes.

Roadside service areas/ facilities should be strategically placed along the elevated expressway to provide safe and convenient resting places for drivers, including restrooms, food services, fuel station, electro-mechanical workshop, parking, limited recreation, the structure may be considered elevated. Engineer's facilities should be established in each district through the corridor. BBA may establish O&M offices (Site Office) in each district during construction period.

Carry out detailed geotechnical investigations, geological mapping, seismic study and morphology study, river engineering. Comprehensive geotechnical and geophysical investigations shall be carried out for the project. The field investigation program shall include conducting SPT, CPT, P-S suspension logging, Pressure meter Test (PMT) with required laboratory tests. All of these tests shall be conducted along the alignment for at 500 m to 2000 m or greater interval for a depth of 40 m to 70 m. For offshore pier location up to 100 m depth test will be carried out. Laboratory testing including physical, index, and engineering properties shall be performed for each soil stratum, with special tests (geo-chemical, mica content, static and dynamic triaxial) will be carried out. Selection of field and laboratory investigation types, number of tests, and depths shall strictly follow BNBC and relevant international standards (AASHTO, Eurocode, etc.). Probabilistic and deterministic seismic hazard analyses shall also be conducted and included in the geotechnical interpretative report. Review the available data and information and will assess the requirement to collect supplementary information;

- i. Undertake a detailed geotechnical investigation to identify the potential requirement of soil treatment etc. and identify the geotechnical features of the study area by preparing a geotechnical map;
- ii. Briefly investigate the seismic characteristics of the area to assess the potential earthquake hazard to be infrastructure and conduct a detailed seismic hazard assessment, including site-specific investigations, analysis of geological and geotechnical conditions, and evaluation of seismic risks to the expressway.
- iii. Conduct other investigation that may conduct study for climate change aspects;
- iv. Take the results of the above investigations and will ascertain the foundation requirement, stability aspects and construction methods;
- v. A total-station based digital strip survey will be carried out along the whole corridor to get detailed geometric features of at-grade road as well as road adjacent land use development condition.

After finalization of alignment and concept of the structure, Consultant will provide procurement & funding strategy income (investment payback) strategy, implementation technology with safety plan and Risk management plan, etc. Also prepare this document for PPP Project Concept.

8. Office Management and Logistic Support



The Consultant may set up field offices in the project area, if required at their own cost. Consultant may hire/ purchase (if required) support staff, logistics, office stationery, vehicle/ transport, software, data, documents, reports and others with the consent/discussion of BBA project team within the Consultant's budget and arrange support for both BBA and themselves. Consultant will provide logistics support (vehicle, office staff, fuel cost, stationary etc.) to the BBA Counterpart Personnel, if required. All the relevant cost (if applicable) will be reimbursed as per the Bill of Quantity (BoQ).

9. Obligations and Responsibilities of the Client and the Consultant

Consultant shall be responsible for arranging all necessary physical facilities at site such as: office space, transportation, testing and laboratory equipment, communication, survey equipment, computers, printing, etc. Costs of these facilities should be included as reimbursable expenses in Financial Proposal of the Consultant. The minimum reimbursable expense heads are shown in RFP Document and the Consultant is allowed to include additional reimbursable expenses as its own judgement for execution of the assignment. The Consultant shall perform all engineering, administrative, financial and other service required within the scope of this assignment outlined with due care and finance to achieve the objective of this assignment. Consultant shall immediately mobilize/appoint its Key and Non-Key Experts and other Staffs soon after being selected for the project.

Bangladesh Bridge Authority will support to arrange available information, data, drawings, maps, materials and reports relating to the services. The consultant shall be responsible, however, for the analysis and interpretation of the data received for his conclusion and recommendations. The responsibility for the correctness of the said data shall rest upon consultant. All the said information, data and reports shall be treated as confidential; the consultant shall not disclose such information and documents to any person or group without written permission of the Client and return all such information, documents, reports and capital components to the Client within the contract period.

BBA will assist to the Expatriate personnel (if any) with multi-entry and exit visa as needed for their stay in Bangladesh within the Contract Period. BBA will deploy Counterpart Personnel to the assignment (as additional charge/committee formation) immediately soon after appointing the Consultant.

10. Co-ordination

The Consultant will sit with BBA minimum once in a month and as when necessary for reviewing the progress and to discuss on constraints to complete the assignment. Actions to be taken and the key actors for the tasks concerned will be identified as tasks assigned from respective agencies. The Co-ordination meeting should come up with recommendations/ decision, which should be approved and implemented through competent authority.

11. Technology Transfer Program

The consultant shall implement Technology Transfer Program including exposure visits for learning session may be conducted by the Consultant for smart highway management, expressway O&M in different countries. The purpose of these visits should be to facilitate knowledge exchange, observing best practices and technological advancements in similar contexts, knowledge dissemination, skill acquisition, and technological benchmarking. 08 (eight) participants (BBA-7, Bri Div-1) will attend in each exposure visit (foreign training) program for 07 days excluding travel time. The participants may get experience from Japan and South Korea as 1st batch and France and Germany as 2nd Batch. Technology Transfer

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Program also includes workshops, seminars, local training sessions to transfer expertise to the local teams. Local training to be conducted by the Consultant consists of 25 participants from BBA in each batch. Participants will receive two-thousand-taka training allowance per day and other expenditure will be incurred as per discussion with BBA project team and within the Consultant's budget head.

Provide total training plan to be conducted during study and design phase focusing on structural design, feasibility study, procedure of regular operation and maintenance, major repair of the elevated expressway components and health monitoring and assessment report, accident/crush rescue and management, latest expansion joint technologies, bearing pad and other latest technology related all other structural and managerial issues.

12. Counterpart Personnel

BBA professional [1 SE, 1 EE, 2 AE, 2 SAE] will act as counterpart professional for the assignment and field survey/study. On-the job training and direct involvement of the assignment will ensure the capacity development of BBA. The consultant will take initiative to fulfill that capacity development purpose and arrange on-the job training. The assignment for the consultants will include the following tasks:

13. Reports

Preparation of Preliminary Cost Estimate for implementation of the project. the consultant is to consider cost-effectiveness, requiring the use of minimum cost technologies where feasible and appropriate, without compromising quality, safety, or project requirements.

Submission of preliminary engineering design, drawings and technical specifications with relevant reports, calculation/ measurement sheet, design methodology, construction methodology for various components of the selected structure in accordance with the design requirements of BBA. Provide required procurement list of works, goods & services for the project, safeguard study/plans, etc. with required number of drafts. The consultant is to prepare a detailed location map clearly indicating the proposed route and its elevated or at-grade connections to adjacent districts and important/viable locations. Submission of Inception Report, Interim Report, Final Report, FS Report, Complete soil investigation reports, Preliminary engineering design report, design calculation sheet, drawings, procurement documents, etc. for both GoB funded project and PPP base project.

The consultant is to prioritize the selection of the technically shortest route, while also considering factors like environmental impact, cost-effectiveness, and constructability and Public demand and national/international interest. The consultant shall submit the following reports/deliverables related to the project:

i)	Draft Inception report within 01 (one) months from the date of commencement.
	Inception Workshop before finalizing the report.
	Inception report within 02 (two) month from the date of commencement.
ii)	Draft Feasibility Report with related documents within 08 (eight) months from the date of commencement.
	Stakeholder Workshop before finalizing the FS Report.
	Final Feasibility Study Report within 12 (twelve) months from the date of commencement.
iii)	Draft of Preliminary design within 10 (ten) months from the date of commencement.
	Workshop with concerned officials before finalizing the design concept & techniques
	Final Preliminary Design version within 14 (fourteen) months from the date of commencement.
iv)	Related other draft reports/documents (as per ToR) need to be submitted within the time period as per requirement.
	Workshop, Meeting, FGD need to be completed within Contract Period as per ToR.

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	All reports/documents (as per ToR) finalized within the Contract Period.
v)	Draft Final Reports within 14 (fourteen) months from the date of commencement.
	Final Workshop (national level) with the stakeholders.
	Final Reports within the contract period.

14. Mode of Deliverables

Sl.	Description	No. of Copy	Comments
a)	Draft Inception Report	10	Deliverables have to duly approved by the Competent Authority
	Inception Report	15	
b)	Draft Feasibility Study Report with related all reports/ documents	10	
	Feasibility Study Report with related all reports/ documents	20	
	i. GOB/OWN Funded Project ii. PPP Project		
c)	Draft Preliminary Design	10	
	Design, Drawing, Specifications with Relevant all Reports including Design Calculation	10	
d)	Draft Cost Estimate and all other reports following ToR & BoQ and as per BBA requirement.	10	
	Cost Estimate, DPP, PPP ToR & RFP Documents and all other reports as per BBA requirement following the ToR	10	
e)	Draft Final Report	10	
	Final Report	15	

15. Proposed Personnel Man-month (Indicative)

The consultants are free to propose a staffing schedule necessary to meet the objectives and scope of the services but not exceeding total fifteen staff-months for each Consultant. List of the required (indicative) professionals is appended hereunder:

Sl. No.	Designation	Office	Indicative Total (man-month)
1	Part A: International Key Person		
1.1	Team Leader	Field	15.00
1.2	Transport Planner/Modeler	Field	12.00
1.3	Transport Economist	Field	10.00
1.4	Bridge Engineer	Field	15.00
1.5	Highway/ Elevated Expressway Engineer	Field	15.00
1.6	Structural Engineer (Substructure)	Field	14.00
1.7	Structural Engineer (Superstructure)	Field	14.00
1.8	Public Private Partnership (PPP) Expert	Field	10.00
2	Part B: Local Key Person		
2.1	Deputy Team leader	Field	15.00
2.2	Transport Modeler	Field	14.00
2.3	Financial Analyst	Field	12.00
2.4	Transport Economist	Field	12.00
2.5	Traffic Engineer	Field	12.00
2.6	Urban Planner	Field	14.00
2.7	Highway/ Elevated Expressway Engineer	Field	15.00
2.8	Pavement Engineer	Field	15.00
2.9	Geotechnical/Foundation Engineer	Field	15.00
2.10	Bridge Engineer	Field	15.00
2.11	River Training Engineer	Field	12.00
2.12	Civil Engineer	Field	15.00
2.13	Electro-Mechanical Engineer	Field	8.00
2.14	Environment Engineer	Field	14.00
2.15	Hydrologist	Field	8.00
2.16	Flood Modeler	Field	12.00
2.17	Water Resources Expert	Field	10.00

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Sl. No.	Designation	Office	Indicative Total (man-month)
2.18	River Morphologist	Field	12.00
2.19	Safeguard Expert	Field	12.00
2.20	Statistician/ Data Analyst	Field	10.00
2.21	Material Engineer	Field	6.00
2.22	Cost Engineer	Field	12.00
2.23	Construction Expert	Field	6.00
2.24	Operation & Maintenance (O&M) Engineer	Field	8.00
2.25	GIS & RS Expert	Field	12.00
2.26	Sociologist	Field	14.00
2.27	Resettlement Expert	Field	12.00
2.28	Land Acquisition Planner	Field	12.00
2.29	Utility Shifting Planner	Field	8.00
2.30	Contract/ Procurement Expert	Field	8.00
2.31	Survey Expert (2 Nos)	Field	24.00
2.32	Toll Expert	Field	10.00
2.33	Road Safety Expert	Field	8.00
2.34	Risk Management Expert	Field	12.00
2.35	Public Private Partnership (PPP) Expert	Field	14.00
2.36	Financial Modeler for PPP mode	Field	8.00
2.37	Institutional Expert	Field	6.00
3	(Non-Key Personnel/ Supporting Staff- National)		
3.1	Junior Engineer- Survey (8 Nos.)	Field	120.00
3.2	Junior Engineer- Geotech (4 Nos.)	Field	60.00
3.3	Junior Expert- Transportation (8 Nos.)	Field	120.00
3.4	Junior Engineer- Electrical (2 Nos.)	Field	30.00
3.5	Junior Engineer- Structure/ Bridge/ Elevated Expressway (12 Nos.)	Field	180.00
3.6	Junior Engineer- Civil/ Estimator (8 Nos.)	Field	120.00
3.7	Junior Engineer- Water Resources/ Morphology/ River/ Hydrology (4 Nos.)	Field	60.00

16. Personnel's Educational & Professional Experience Requirement

Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
(Key Expert- International)				
1.1	Team Leader	M.Sc. in Civil/ Transportation Engineering.	20 years	<p>Preferably having 15 years' (similar type position) experience of 50m or above span length (of min. 1.50 km length) bridge/ grade separated pass planning with design, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to:</p> <p>Lead the team in all activities following ToR Conduct feasibility study and preliminary design with related all other activities. Prepare reports, presentations and attend meetings as per Client's requirement. Provide draft Contract Document to be signed Provide construction material options with design criteria and specifications. Provide construction methodology, Quality Assurance (QA) & Quality Control (QC) documents. Provide Procurement Plan for works, goods and services to be procured for construction of Dhaka</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
				Chattogram elevated expressway as a project proposal.
1.2	Transportation Planner/Modeler	B.Sc. in Civil/ Transportation Engineering/ Urban Planning.	15 years	Preferably 07 years' experience as transport modeler/ planner for road transport project, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to: Engage in traffic survey and studies to develop model and plan for uninterrupted traffic flow following the best suitable alignment Suggest best structural option/ types to meet the national/ sectoral demand as per Provide training plan for operators and officials
1.3	Transport Economist	Bachelor in Economics or equivalent subject.	15 years	Preferably 07 years' experience in transport project as Economist/Financial Analyst during feasibility/ planning. Key tasks for the Consultant will not be limited to: Conduct detailed economic and financial analysis (EIRR, FIRR, EBCR, FBCR, ENPV, FNPV & B/C ratio) for different options
1.4	Bridge Engineer	B.Sc. in Civil/ Structural Engineering.	15 years	Preferably 05 years' experience in bridge, elevated expressway/ flyover/ grade separated passes design of length minimum 1.0 km. Set engineering design criteria for the structure. Provide preliminary design of all sub-structure and superstructure components with specifications and initial costing. Provide Construction methodology, O&M Plan/ manual. Preliminary design of Toll Plaza, Office Building, Staff Accommodation Building. Provide training plan for capacity development of operators and officials
1.5	Highway/Elevated Expressway Engineer	B.Sc. in Civil/ Transportation Engineering.	15 years	Preferably 05 years' experience as Project Engineer/ Highway Engineer/ Elevated Expressway Engineer in (of length 1km or more) bridge/ grade separated pass or 05 km road project's planning, design and construction supervision. Planning and preliminary design of pavement/ structure considering highway geometrics/ international design criteria. Assist in traffic survey and related other investigation. Liaise and co-ordinate with other local authorities as per requirement. Provide traffic sign signal design with safety provision for the structure.
1.6	Structural Engineer (Substructure)	B.Sc. in Civil Engineering.	15 years	Preferably 07 years' experience in large-scale structural design, particularly in transport infrastructure. should be strong foundation in structural mechanics, familiarity with relevant international standards, and experience with complex materials and construction methods. Key Criteria: Seismic Design: Familiarity with BNBC (Bangladesh National Building Code) and AASHTO standards for earthquake loads. Foundation Depth: Experience with Deep Bored Piling in soft alluvial soil.

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
1.7	Structural Engineer (Superstructure)	B.Sc. in Civil Engineering.	15 years	<p>Preferably 07 years' experience in design, particularly in transport infrastructure.</p> <p>Core Technical Skills</p> <p>Segmental Construction: Expertise in Pre-Stressed Concrete (PSC) and segmental box girder launches.</p> <p>Drawing Interpretation: They must be able to read and cross-check complex structural, architectural, and MEP drawings instantly to detect errors before concrete is poured.</p> <p>Quality Control (QC) Mastery: Experience in supervising Concrete Slump Tests, Cube/Cylinder Tests, and checking the Bar Bending Schedule (BBS).</p> <p>Formwork & Alignment: Precision in checking the verticality and stability of piers (columns) and the alignment of the elevated segments.</p> <p>Surveying Knowledge: Ability to use or verify data from Total Stations/GPS to ensure the expressway follows the exact geographic coordinates.</p>
1.8	Public Private Partnership (PPP) Expert	Master's in Finance, Economics, MBA (Finance)	15 years	<p>Preferably having 07 years' experience in PPP project completion as a PPP expert</p> <p>Core Technical Criteria</p> <p>Transaction Advisory: Experience in managing the "Financial Close"—the point where all project and financing agreements are signed and all conditions for first disbursement are met.</p> <p>Concession Agreement (CA) Management: Expert-level knowledge of drafting and monitoring CAs, which define the relationship between the Bangladesh Bridge Authority (BBA) and private investors.</p> <p>Financial Modeling: Ability to review complex models involving toll revenue projections, Debt-to-Equity ratios (usually around 70:30 for these projects), and internal rates of return (IRR).</p> <p>Risk Allocation: Mastery in identifying and assigning risks (e.g., land acquisition risk, traffic demand risk, and political risk) between the government and the private partner.</p>
2	(Key Expert- National)			

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
2.1	Deputy Team Leader	B.Sc. in Civil/ Transportation Engineering. M. Sc. Engineering Degree in relevant field is also required.	15 years	<p>Preferably having 10 years' (similar type position) experience of 40m or above span length (of min. 1km) bridge/ grade separated pass planning with design, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to:</p> <p>Lead the team in all activities following ToR</p> <p>Conduct feasibility study and preliminary design with related all other activities.</p> <p>Prepare reports, presentations and attend meetings as per Client's requirement.</p> <p>Provide draft Contract Document to be signed.</p> <p>Provide construction material options with design criteria and specifications.</p> <p>Provide construction methodology, Quality Assurance (QA) & Quality Control (QC) documents</p> <p>Provide Procurement Plan for works, goods and services to be procured for construction of Dhaka chattogram elevated expressway as a project proposal.</p>
2.2	Transportation Modeler	B.Sc. in Civil/ Transportation Engineering/ Urban Planning. M. Sc. Engineering Degree in relevant field is also required.	10 years	<p>Preferably 07 years' experience as transport modeler/ planner for road transport project, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to:</p> <p>Engage in traffic survey and studies to develop model and plan for uninterrupted traffic flow following the best suitable alignment</p> <p>Suggest best structural option/ types to meet the national/ sectoral demand as per</p> <p>Provide training plan for operators and officials</p>
2.3	Financial Analyst	Bachelor in Finance, Economics, Accounting and Masters in relevant field or B.Sc. in Civil Engineering with a subsequent MBA in Finance.	10 years	<p>Preferably having 07 years' experience as a Financial Analyst for road transport project, which should be related to the under mentioned tasks.</p> <p>Professional Experience</p> <p>Project Length: Typically, a minimum of 05 years of experience in financial consulting or commercial banking.</p> <p>PPP Specialization: At least 5-7 years specifically handling PPP transactions, including financial modeling and achieving "Financial Close" for large-scale transport projects.</p> <p>Sector Expertise: Specific experience in toll-based road infrastructure or bridges is often mandatory to understand revenue leakage, traffic forecasting, and O&M (Operations & Maintenance) costs.</p> <p>Key Technical Skills</p> <p>Financial Modeling: Mastery of complex Excel-based models to project Internal Rate of Return (IRR), Debt Service Coverage Ratio (DSCR), and Net Present Value (NPV).</p> <p>Risk Allocation: Ability to draft and negotiate "Risk Matrices" (e.g., determining whether the government or the private investor bears the risk of traffic shortfalls).</p> <p>Viability Gap Funding (VGF): Expertise in calculating the required government subsidy to</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
				make a project commercially viable for private investors. Procurement Law: Deep knowledge of the PPP Act 2015 and Procurement Guidelines for PPP Projects, 2011 in Bangladesh.
2.4	Transport Economist	Bachelor in Economics or equivalent subject and Masters in relevant subject.	10 years	Preferably 07 years' experience in transport project as Economist/Financial Analyst during feasibility/planning. Key tasks for the Consultant will not be limited to: Conduct detailed economic and financial analysis (EIRR, FIRR, EBCR, FBCR, ENPV, FNPV & B/C ratio) for different options.
2.5	Traffic Engineer	B.Sc. in Civil Engineering/Tra nsportation Engineering/ Traffic Engineering and Masters in relevant subject.	10 years	Preferably 10years experience in highway or expressway project as a senior Traffic Engineering. 2. Professional Experience Senior Traffic Engineer: 10years of experience in highway or expressway projects. Relevant Project History: Proven track record in conducting Traffic Impact Assessments (TIA) for elevated structures, flyovers, or controlled-access toll roads. International Standards: Experience working with AASHTO (American Association of State Highway and Transportation Officials) or equivalent British/European standards for geometric design. 3. Technical & Software Proficiency A qualified candidate must be proficient in advanced traffic simulation and modeling software to predict congestion and toll revenue accurately: Micro-simulation: Mastery of VISSIM, Aimsun, or Paramics for modeling vehicle behavior at interchanges and toll plazas. Macro-modeling: Experience with VISUM or CUBE for regional traffic forecasting between Dhaka and Chattogram. Geometric Design: Proficiency in AutoCAD Civil 3D or Bentley OpenRoads for designing ramps, merging lanes, and sight distances. 4. Specialized Skill Sets for the Expressway Mixed Traffic Analysis: Specific expertise in modeling "Heterogeneous Traffic"—analyzing how buses, private cars, and freight trucks interact in the Bangladeshi context. Toll Plaza Design: Ability to design Electronic Toll Collection (ETC) lanes and calculate the "Queueing Theory" to prevent bottlenecks at entry/exit points. Intelligent Transport Systems (ITS): Knowledge of implementing CCTV monitoring, Variable Message Signs (VMS), and incident detection systems. Road Safety Auditing: Certified experience in performing safety audits to identify "black spots" or hazardous design elements before construction.

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
2.6	Urban Planner	Bachelor in Urban or Regional Planning and Masters in Relevant subject.	10 years	<p>Preferably 07 years' experience as Urban Planner for road transport project, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to:</p> <p>Strategic Master planning: Developing long-term plans for land use, infrastructure, and community facilities.</p> <p>Feasibility & Compliance: Reviewing developer site plans against local zoning laws, building codes, and environmental regulations.</p> <p>Stakeholder Engagement: Leading public hearings and collaborating with government officials, environmental groups, and residents to ensure projects meet community needs.</p> <p>Data-Driven Analysis: Using GIS (Geographic Information Systems) and statistical software to analyze population density, traffic patterns, and economic trends.</p> <p>Digital Twins & 3D Modeling: Planners now use real-time digital replicas of cities to simulate the impact of new projects (like elevated expressways or bridge widening) on traffic and air quality before a single brick is laid.</p> <p>Responsible AI (GeoAI): AI agents are increasingly used to automate the permitting process and perform complex spatial analysis, though human oversight remains critical for ethical decision-making.</p> <p>Place keeping over Placemaking: Instead of just building "new" things, the focus has shifted to preserving the cultural and historical memory of a space while modernizing its utility.</p> <p>Climate Resilience: Designing "fire-smart" landscapes and infrastructure that can withstand extreme weather events and natural disasters</p>
2.7	Highway/Elevated Expressway Engineer	B.Sc. in Civil/ Transportation/ Structure Engineering and Masters in relevant subject.	10 years	<p>Preferably 05 years' experience as Project Engineer/ Highway Engineer/levated Expressway Engineer in (of length 1km or more) bridge/ grade separated pass or 05 km road project's planning, design and construction supervision.</p> <p>Planning and preliminary design of pavement/ structure considering highway geometrics/ international design criteria.</p> <p>Assist in traffic survey and related other investigation. Liaise and co-ordinate with other local authorities as per requirement.</p> <p>Provide traffic sign signal design with safety provision for the structure.</p>
2.8	Pavement Engineer	B.Sc. in Civil/ Transportation Engineering and Masters in relevant subject.	10 years	<p>Preferably having 07 years as a Road Safety Expert in major Infrastructure Projects.</p> <p>Pavement Engineer must be an expert in the specific materials used for elevated structures, which often differ from standard asphalt.</p> <p>Pavement Design Software: Proficiency in mechanistic-empirical design tools like AASHTO Pavement Mix Design or Kenpave.</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
				<p>Specialized Materials: Deep knowledge of Polymer Modified Bitumen (PMB), Stone Matrix Asphalt.</p> <p>Waterproofing Systems: Expertise in selecting and supervising the installation of waterproofing membranes between the concrete deck and the asphalt layer to prevent rebar corrosion.</p> <p>Testing & QA/QC: Experience with Falling Weight Deflectometer (FWD) testing, Marshall mix design, and Superpave specifications.</p> <p>Structural-Pavement Integration</p> <p>Expansion Joint Integration: Ensuring the pavement transition at expansion joints is smooth to prevent "impact loading" that damages the structure.</p> <p>Dynamic Loading: Understanding how heavy vehicle vibrations affect pavement fatigue on a flexible elevated span versus a rigid ground foundation.</p> <p>Thermal Stresses: Managing how the pavement expands and contracts at a different rate than the concrete or steel deck underneath.</p> <p>4. Maintenance & Asset Management</p> <p>Pavement Management Systems (PMS): Ability to use data to predict when a "thin overlay" or "milling and recapping" is needed before the structural deck is compromised.</p> <p>Skid Resistance: Knowledge of British Pendulum Testing or Grip Tester data to ensure safety, especially in wet conditions on elevated curves.</p> <p>Recycling Technologies: Familiarity with Reclaimed Asphalt Pavement (RAP) or cold-in-place recycling to meet sustainability goals.</p> <p>Construction Supervision Skills</p> <p>Temperature Control: On elevated structures, the wind cools asphalt faster than on the ground. The engineer must be strict about laydown temperatures and compaction windows.</p> <p>Adhesion Management: Ensuring the "tack coat" or bonding agent is applied perfectly so the pavement doesn't "shove" or slide under heavy braking.</p>
2.9	Geotechnical/Foundation Engineer	B.Sc. in Civil/Geotechnical/Foundation Engineering and Masters in relevant subject.	10 years	<p>Preferably having 05 years' experience in geotechnical investigation for 40m or above span length bridge/ grade separated pass planning with detailed design, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to:</p> <p>Conduct all types of geotechnical investigation to find out the suitable alignment for the structure.</p> <p>Set engineering design criteria for the structure</p> <p>Propose foundation type and assist in preliminary design of the structure.</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
2.10	Bridge Engineer	B.Sc. in Civil/ Structure/Transportation Engineering and Masters in relevant subject.	10 years	<p>Preferably 07 years' experience in bridge, elevated expressway/ flyover/ grade separated passes design of length minimum 1.0 km.</p> <p>Set engineering design criteria for the structure.</p> <p>Provide preliminary design of all sub- structure and superstructure components with specifications and initial costing.</p> <p>Provide Construction methodology, O&M Plan/manual.</p> <p>Preliminary design of Toll Plaza, Office Building, Staff Accommodation Building.</p> <p>Provide training plan for capacity development of operators and officials</p>
2.11	River Training Engineer	B.Sc. in Civil/ Structure/ Reiver Engineering and Masters in relevant subject.	10 years	<p>Preferably 07 years' experience in river training and hydraulic engineering, preferably on similar, large-scale projects</p> <p>Look for those with proven success in designing and implementing solutions for complex waterways.</p> <p>Key Criteria:</p> <p>Hydraulic Modeling: Proficiency in software like MIKE 21, HEC-RAS, or Delft3D to predict flow and erosion.</p> <p>Material Expertise: Deep knowledge of Geo-bags, CC blocks, and Dredging techniques specific to the Padma/Meghna basins.</p> <p>Scour Analysis: Ability to calculate and design protection against bridge pier scouring.</p>
2.12	Civil Engineer	B.Sc. in Civil Engineering and Masters in relevant subject.	10 years	<p>Preferably 07 years' experience in design, particularly in transport infrastructure.</p> <p>Core Technical Skills</p> <p>Drawing Interpretation: They must be able to read and cross-check complex structural, architectural, and MEP drawings instantly to detect errors before concrete is poured.</p> <p>Quality Control (QC) Mastery: Experience in supervising Concrete Slump Tests, Cube/Cylinder Tests, and checking the Bar Bending Schedule (BBS).</p> <p>Formwork & Alignment: Precision in checking the verticality and stability of piers (columns) and the alignment of the elevated segments.</p> <p>Surveying Knowledge: Ability to use or verify data from Total Stations/GPS to ensure the expressway follows the exact geographic coordinates.</p>
2.13	Electro-Mechanical Engineer	B.Sc. in Electrical/ Mechanical Engineering and Masters in relevant subject.	10 years	<p>Preferably having 05 years' experience in designing of electro-mechanical components for bridge/grade separated pass with toll plaza, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to:</p> <p>Planning & preliminary Design of various Electro-mechanical components for the structure.</p> <p>Design of power connections, internet connections and other electric-mechanical utilities to local network and substation requirements.</p>
2.14	Environment Engineer	B.Sc. in Civil/ Environment	10 years	<p>Preferably 05 years' experience as Environment Expert in road transport project, which should be</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
		Engineering and Masters in relevant subject.		related to the under mentioned tasks. Key tasks for the Consultant will not be limited to: Conduct IEE and EIA with EMP and the cost for EMP implementation Address Climate Change issue during project planning and design
2.15	Hydrologist	B.Sc. in Civil/ Water Resources Engineering/ Hydrology and Masters in relevant subject.	10 years	Preferably 07 years' experience as Hydrologist/ Flood Modeler in road transport project, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to: Considering geo-hydrology data, suggest best structural option with design criteria Assist in preparation of FSR along with other technical reports and planning of the project.
2.16	Flood Modeler	Bachelor in Civil/ Water Resources Engineering or Hydrology/ Flood Management and Masters in relevant subject.	10 years	Preferably 07 years' experience as Hydrologist/ Flood Modeler in road transport project, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to: Proficiency in hydrologic and hydraulic modeling (e.g., rainfall-runoff models, river hydraulics). Knowledge of numerical methods, GIS, and remote sensing for flood risk mapping. Familiarity with forecasting systems and hydrometeorological data analysis. Hands-on experience with flood modeling software (e.g., HEC-RAS, MIKE FLOOD, SWMM). Fieldwork in hydrological data collection and risk assessment projects. Participation in interdisciplinary teams for disaster management and climate adaptation.
2.17	Water Resources Expert	B.Sc. in Civil/ Water Resources Engineering and Masters in relevant subject.	10 years	Preferably having 07 years as a Water Resources Expert in major Infrastructure Projects. Water Resources Expert must be able to simulate how water moves around and off the structure. Hydrologic & Hydraulic (H&H) Modeling: Proficiency in industry-standard software such as HEC-RAS, HEC-HMS, SWMM (Storm Water Management Model), or MIKE Urban. Stormwater Management: Expertise in designing Scupper Systems, downspouts, and collection networks that move water from the elevated deck to the ground-level drainage without eroding the pier foundations. Environmental & Regulatory Knowledge Water management is heavily regulated to prevent pollution. Water Quality Standards: Knowledge of Best Management Practices (BMPs) for treating "first flush" runoff, which often contains oils, heavy metals, and tire particles from the expressway. NPDES/Regulatory Compliance: Familiarity with National Pollutant Discharge Elimination System permits or local environmental agency requirements regarding construction-site runoff and permanent drainage outfalls. Sustainability: Experience in designing Low Impact Development (LID) solutions, such as bioswales or

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
				<p>detention ponds, at the base of the expressway ramps.</p> <p>Hydroplaning Prevention: Collaborating with pavement engineers to ensure the cross-slope and drainage inlet spacing are sufficient to prevent water film buildup on the road surface.</p> <p>Scour Analysis: For sections of the expressway crossing rivers or floodplains, the expert must perform Bridge Scour calculations to ensure that flowing water does not undermine the structural integrity of the piles and piers.</p> <p>Climate Resilience: The ability to incorporate "Climate Change Factors" (increased rainfall intensity and rising sea levels) into the 50 or 100-year design storms.</p> <p>Field & Managerial Skills</p> <p>Site Inspection: Experience in auditing drainage installations during construction to ensure they match the design specifications.</p> <p>Interdisciplinary Coordination: The ability to work closely with structural engineers (for pier placement) and utility engineers (to avoid underground water/sewer lines).</p> <p>Reporting: Skill in drafting comprehensive Hydrology and Drainage Reports for government approval and environmental clearances.</p>
2.18	River Morphologist	B.Sc. in Civil/ Water Resources/ River Engineering and Masters in relevant subject.	10 years	<p>Preferably having 07 years as a River Morphologist in major Infrastructure Projects.</p> <p>The expert must understand the "living" nature of the river to protect the project's structural integrity.</p> <p>*Sediment Transport Modeling: Deep knowledge of how the river carries sand and silt, and how the introduction of bridge piers will cause sediment to settle or erode in new patterns.</p> <p>Scour Analysis: Ability to calculate Local Scour (around piers) and Contraction Scour (due to bridge narrowing) to determine the required depth of the pile foundations.</p> <p>Bank Erosion & Stability: Experience in designing River Training Works (RTW) such as revetments, groynes, or spurs to prevent the river from bypassing the bridge.</p> <p>Planform Analysis: The skill to analyze historical satellite imagery and bathymetric surveys to predict the river's movement over the next 50 to 100 years.</p> <p>Impact of Piers: Analyzing how the physical presence of massive piers affects the flow velocity and direction, which could impact navigation or downstream villages.</p> <p>Climate Change Integration: Incorporating "Morphological Sensitivity" to extreme flood events caused by climate change.</p> <p>Field & Analytical Skills</p> <p>Bathymetric Survey Supervision: Experience in managing Echo-Sounder surveys and Sub-Bottom Profiling to understand the riverbed's composition (clay vs. sand).</p>

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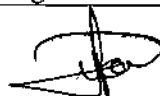
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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
				<p>Sieve Analysis Interpretation: The ability to analyze soil grain sizes to predict how "erodible" the riverbed is during a high-velocity flood.</p> <p>Data Integration: Successfully overlaying morphological predictions onto the structural engineering blueprints.</p> <p>Strategic & Managerial Criteria</p> <p>Regulatory Liaison: Ability to coordinate with water development boards or inland water transport authorities regarding clearance levels and navigation fairways.</p> <p>Risk Reporting: The capacity to produce Morphological Impact Assessments that clearly outline the "Probable Maximum Scour" and the risks of bank failure.</p>
2.19	Safeguard Expert	Bachelor in Civil Engineering or Sociology or equivalent degree and Masters in relevant subject.	10 years	<p>Preferably 05 years' experience as Safeguard Expert/ Sociologist in road transport project during FS and preparation of LAP, RAP and related other activities, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to:</p> <p>Consultations with local people and stakeholders related to the project area.</p> <p>Provide LAP, RAP with estimated cost considering latest mouza and structural rate.</p> <p>Arrange FGD, Workshop/ Seminar, Consultation Meeting, Training as per requirement</p>
2.20	Statistician/ Data Analyst	Bachelor in Statistics or equivalent degree in relevant field and Masters in relevant subject.	10 years	<p>Preferably 05 years international experience as data analyst in major Infrastructure Projects.</p> <p>The major Task & Responsibility of the expert will be Collect relevant data analyse for statistical purpose</p>
2.21	Material Engineer	B.Sc. in Civil Engineering and Masters in relevant subject.	10 years	<p>Preferably 05 years international experience as Material Engineer in major Infrastructure Projects. A proven track record of managing material procurement, quality assurance (QA/QC) programs, or overseeing the implementation of new material technologies in a production environment</p> <p>Material Engineer must understand the relationship between the structure of a material at the atomic scale and its macroscopic properties.</p> <p>Characterization Techniques: Proficiency in using tools such as Scanning Electron Microscopy (SEM), X-ray Diffraction (XRD), and Energy-Dispersive Spectroscopy (EDS).</p> <p>Testing Standards: Deep familiarity with international standards such as ASTM or ISO for mechanical testing (tensile, hardness, impact, and fatigue).</p> <p>Failure Analysis: The ability to perform root-cause analysis on fractured or degraded components to prevent future structural issues.</p> <p>Material Selection Software: Experience with selection tools like Ansys Granta MI or CAD-integrated materials databases.</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
2.22	Cost Engineer	B.Sc. in Civil Engineering and Masters in relevant subject.	10 years	Preferably 05 years' experience in Cost estimation and BOQ preparation for 1km or above length bridge/ grade separated pass or major road project during design/ planning phase, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to: Prepare cost estimate following GOB approved schedule of rates for each section/ component of the structure. Develop and prepare unit rates and costs for new items.
2.23	Construction Expert	B.Sc. in Civil Engineering and Masters in relevant subject.	10 years	Preferably 05years experience as preparing construction Method in major Bridge/Road/other transport infrastructure project.
2.24	Operation & Maintenance (O&M) Engineer	B.Sc. in Civil Engineering/Structural Engineering/Transportation Engineering and Masters in relevant subject.	10 years	Preferably 05 years international experience as Operation & Maintenance (O&M) Engineer in major Infrastructure Projects. Key tasks for the Consultant will not be limited to: Structural Health Monitoring (SHM) Bridge Maintenance: Experience in inspecting expansion joints, bearings, and drainage systems, which are critical to the longevity of elevated expressway. Operational & Managerial Criteria Resilience & Safety Management: The expert should be able to design and implement a Safety Management System that covers meteorological disasters, vehicle overloads, and emergency road protocols. Maintenance Strategy: Experience in balancing Preventive Maintenance (scheduled) with Corrective Maintenance (emergency repairs) to minimize lane closures and downtime. Contract Management: Ability to manage third-party vendors for specialized tasks like lighting, landscaping, or heavy structural repairs. Tolling Systems: Familiarity with Electronic Toll Collection (ETC) and automated financial reconciliation.
2.25	GIS & RS Expert	Bachelor in Civil Engineering/ GIS & RS and Masters in relevant subject.	10 years	Preferably 03 years' experience as GIS-RS Expert in transport project, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to: Assist in preparation of FSR along with other technical reports and planning of the project. Assist in traffic survey and studies Taking part in optimization of length, location & alignment of the structure to meet the national transport sector demand Review all available reports Layout presentation using GIS-RS
2.26	Sociologist	Bachelor in Sociology/ Social Science/ Anthropology	10 years	Preferably 07 years international experience as Sociologist in major Infrastructure Projects. The sociologist must be able to quantify and qualify how the project affects the people living and working around it.

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
		and Masters in relevant subject.		<p>Social Impact Assessment (SIA): Proficiency in conducting baseline surveys to identify "Project Affected Persons" (PAPs).</p> <p>Resettlement Action Plans (RAP): Deep knowledge of legal frameworks for land acquisition, compensation, and the physical relocation of residents or businesses.</p> <p>Livelihood Restoration: The ability to design programs that ensure affected people can maintain or improve their standard of living after the project is built.</p> <p>Grievance Redressal Mechanisms (GRM): Experience in setting up formal systems where local citizens can report issues (like noise, dust, or damage) and receive a structured response.</p> <p>Community Engagement & Communication This is the most visible part of the role. The candidate should demonstrate:</p> <p>Stakeholder Mapping: Identifying who the key influencers are in a community—from local leaders to marginalized groups.</p> <p>Public Consultation: Skill in organizing and moderating town hall meetings, focus groups, and interviews to gather public sentiment.</p> <p>Conflict Resolution: The ability to mediate between the engineering team's goals and the community's concerns to prevent project delays caused by protests or legal challenges.</p> <p>Analytical & Reporting Skills</p> <p>Qualitative & Quantitative Research: Proficiency in tools like SPSS or NVivo to analyze survey data and interview transcripts.</p> <p>Social Monitoring: The ability to produce regular "Social Monitoring Reports" that track the project's compliance with environmental and social management plans.</p> <p>Gender & Vulnerability Analysis: Ensuring the project design considers the specific safety and accessibility needs of women, children, the elderly, and people with disabilities.</p>
2.27	Resettlement Expert	Bachelor in Sociology/ Anthropology/ Urban Planning/ Development Studies and Masters in relevant subject.	10 years	<p>Preferably 07 years international experience as Resettlement Expert in major Infrastructure Projects.</p> <p>The expert must be proficient in the technical lifecycle of moving communities:</p> <p>Socio-Economic Surveys: Ability to design and oversee baseline surveys to identify every affected household, business, and vulnerable group.</p> <p>Resettlement Action Plan (RAP): Proven track record in drafting and implementing RAPs, including the "Entitlement Matrix"</p> <p>Valuation Methodology: Understanding how to calculate "Replacement Cost" for land, structures, and trees to ensure PAPs are not financially worse off after the move.</p> <p>GIS & Data Management: Proficiency in using GIS to map affected structures and management</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
				<p>information systems to track compensation payments.</p> <p>Legal & Regulatory Knowledge Land Acquisition Laws: Deep familiarity with local laws (e.g., the ARIPA 2017 in Bangladesh or similar national acts) regarding eminent domain and land transfer.</p> <p>Gap Analysis: The skill to identify "gaps" between local laws and international donor policies and develop strategies to bridge them.</p> <p>Grievance Redressal Mechanisms (GRM):— Experience in setting up and managing committees that resolve disputes regarding compensation or eligibility without going to court.</p>
2.28	Land Acquisition Planner	Bachelor in Urban & Regional Planning/ Civil Engineering and Masters in relevant subject.	10 years	<p>Preferably 07 years international experience as Land Acquisition Planner in major Infrastructure Projects.</p> <p>The planner must be a subject matter expert on the legal mechanisms for taking possession of land.</p> <p>Eminent Domain Knowledge: Deep understanding of the legal frameworks for compulsory land acquisition.</p> <p>Title & Ownership Verification: Expertise in reviewing Khatians, deeds, and mutations to ensure the government is paying the rightful owner and avoiding legal disputes.</p> <p>Joint Verification: Experience in leading joint-on-site inspections between the engineering team and the revenue department to finalize the "Schedule of Land."</p> <p>Technical Planning Skills Land Acquisition (LA) Maps: Proficiency in interpreting and creating LA Plans and Maps that align with the engineering "Right of Way" (RoW). GIS & Cadastral Mapping: Skill in using ArcGIS or specialized land management software to overlay project designs onto existing cadastral (mouza) maps.</p> <p>Demolition & Utility Mapping: The ability to identify all structures, trees, and utilities (gas, water, power) located within the acquired area that require removal or relocation.</p> <p>Administrative & Negotiation Competencies Liaison Capabilities: A proven ability to act as a bridge between the Project Authority, the Revenue Department, and the Survey Teams. Notification Management: Experience in managing the formal legal notice process (e.g., serving Section 4 and Section 7 notices to affected landowners). File Management: The meticulous ability to track thousands of individual land files, ensuring every compensation award is documented to prevent future audits or lawsuits.</p>
2.29	Utility Shifting Planner	B.Sc. in Civil Engineering	10 years	<p>Preferably 03years experience as Utility shifting engineer or equivalent post in road transport project, which should be related to the under</p>

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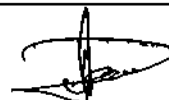
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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
		and Masters in relevant subject.		mentioned tasks. Key tasks for the Consultant will not be limited to: Consultations with the stakeholders to identify the utility location at-grade and grade separate levels of the project area and provide mapping of existing utility facilities. Provide utility shifting action plan with estimated cost for utility shifting of the alignment. Provide utility connection requirement with action plan and layout for the project
2.30	Contract/ Procurement Expert	B.Sc. in Civil Engineering or equivalent degree in relevant field and Masters in relevant subject.	10 years	Preferably 07years experience as Contract/ Procurement in major Infrastructure Projects. The expert must be fluent in the "language" of international construction to protect the project from litigation. FIDIC Expertise: Deep practical knowledge of FIDIC Rainbow Suite (Red, Yellow, and Silver Books). They must know which book is appropriate for the specific risk profile of an elevated expressway. PPP Knowledge: Understanding of Build-Operate-Transfer (BOT) or Build-Own-Operate-Transfer (BOOT) models, including concession period management and "Viability Gap Funding." Claim Management: The ability to handle "Variation Orders," "Extension of Time" (EOT) requests, and dispute resolution to prevent minor delays from turning into lawsuits. Procurement & Tendering Technical Skills Electronic Procurement (e-GP): Proficiency in managing Electronic Government Procurement portals for transparent bidding, document submission, and evaluation. Tender Document Preparation: Ability to draft complex Request for Proposals (RFPs), including Instructions to Bidders (ITB), Evaluation Criteria, and Technical Specifications. Bid Evaluation: Skill in conducting both Technical and Financial evaluations, ensuring the "Least Cost" or "Quality and Cost Based Selection" (QCBS) methods are followed rigorously. Vendor Management: Experience in pre-qualifying international contractors and managing high-value supply chains for specialized components like high-tensile steel or bearings. Strategic & Regulatory Competencies Legal Compliance: Knowledge of local procurement laws (e.g., PPR in Bangladesh or similar regional acts) and international anti-corruption standards. Negotiation Skills: The ability to negotiate favorable terms during "Best and Final Offer" (BAFO) stages without compromising technical quality.
2.31	Survey Expert (2 Nos)	B.Sc. in Civil Engineering or equivalent	10 years	Preferably 07 years' experience in road transport project as Survey Expert during feasibility/

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
		degree in relevant field and Masters in relevant subject.		planning. Key tasks for the Consultant will not be limited to: Traffic survey, highway, land, asset and other survey work including traffic modelling and traffic demand forecast.
2.32	Toll Expert	Bachelor in Finance/ Business Administration/ Transportation Planning/ Civil Engineering or equivalent degree in relevant field and Masters in relevant subject.	10 years	<p>Preferably 07years experience in Toll Road Operations or Revenue Management in major Infrastructure Projects.</p> <p>The expert must be proficient in the hardware and software that ensure revenue is captured accurately without disrupting traffic flow.</p> <p>Electronic Toll Collection (ETC): Deep knowledge of RFID-based systems, Dedicated Short-Range Communications (DSRC), and Automatic Vehicle Identification (AVI).</p> <p>Open Road Tolling (ORT): Experience with "barrier-free" systems that use overhead gantries to collect tolls at highway speeds, minimizing congestion on the elevated structure.</p> <p>Automatic Vehicle Classification (AVC): Expertise in laser, infrared, or weight-in-motion (WIM) sensors that categorize vehicles (e.g., car vs. multi-axle truck) to apply the correct tariff.</p> <p>Back-Office Systems (BOS): Proficiency in managing the clearinghouse for transactions, customer accounts, and violation processing.</p> <p>Revenue Leakage Prevention: The ability to audit systems for "leakage" (vehicles passing without paying) and implement strategies for debt recovery and violation enforcement.</p> <p>Traffic & Revenue (T&R) Analysis: Skill in interpreting traffic data to forecast revenue and suggesting dynamic pricing or peak-hour surcharges.</p> <p>Financial Reconciliation: Experience in daily financial settlements between the tolling hardware, banks, and the project's financial department.</p> <p>Contract Management: Ability to manage Service Level Agreements (SLAs) with technology vendors and maintenance contractors.</p> <p>Customer Experience (CX): Understanding of user interfaces for tolling apps, website payment portals, and customer service center operations.</p> <p>Interoperability: Experience in coordinating with other regional or national road authorities to ensure toll tags work across different networks.</p> <p>Expertise in integrating compact tolling equipment into narrow ramp designs or onto bridge structures without compromising structural integrity.</p> <p>Weight Management: Familiarity with integrating sensors that detect overloaded vehicles, which are particularly damaging to elevated deck slabs.</p>
2.33	Road Safety Expert	B. Sc. in Civil/ Transportation Engineering or equivalent degree in	10 years	<p>Preferably having 07 years as a Road Safety Expert in major Infrastructure Projects.</p> <p>Key tasks for the Consultant will not be limited to:</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
		relevant field and Masters in relevant subject.		<p>Road Safety Audits (RSA): Proven experience in conducting audits during the design, construction, and operational phases of a project.</p> <p>Crash Data Analysis: Proficiency in using statistical software to perform "Black Spot" analysis—identifying specific locations where accidents are frequent and determining root causes.</p> <p>Geometric Design: A deep understanding of how curves, sight distances, and lane widths impact driver behavior and safety.</p> <p>Safety Countermeasures: Knowledge of high-friction surfacing, crash cushions, median barriers (like New Jersey barriers), and energy-absorbing guardrails.</p> <p>Work Zone Safety: Expertise in managing traffic during maintenance to ensure the safety of both workers and drivers in the restricted space of an elevated deck.</p> <p>Signage & Markings: Strict adherence to international standards (like MUTCD) for reflectivity, placement, and clarity of road signs.</p> <p>ITS Integration: Collaboration with toll and O&M teams to use Incident Detection Systems and Variable Message Signs (VMS) to warn drivers of hazards ahead in real-time.</p>
2.34	Risk Management Expert	B. Sc. in Civil/ Transportation Engineering/Management/ Project/ Risk Management or equivalent degree in relevant field and Masters in relevant subject.	10 years	<p>Preferably having 07 years as a Risk Management Expert in major Infrastructure Projects.</p> <p>The expert must be proficient in both qualitative and quantitative risk assessment.</p> <p>Quantitative Risk Analysis (QRA): Proficiency in tools like @RISK or Crystal Ball to perform Monte Carlo simulations. They should be able to quantify the probability of delays and cost overruns.</p> <p>Risk Registers: Experience in developing and maintaining dynamic Risk Registers that track risks from the design phase through to operation and maintenance.</p> <p>Insurance & Indemnity: Deep understanding of Professional Indemnity (PI), Contractors' All Risks (CAR), and Business Interruption insurance specific to bridge and highway assets.</p> <p>Familiarity with FIDIC Contracts: Since most international infrastructure projects use FIDIC standards, the expert should understand the risk allocation between the "Employer" and the "Contractor."</p>
2.35	Public Private Partnership (PPP) Expert	Bachelor in Civil Engineering/ Finance/ Economics or equivalent degree in relevant field and Masters in relevant subject.	10 years	<p>Preferably having 07 years' experience in PPP project completion as a PPP expert</p> <p>Core Technical Criteria</p> <p>Transaction Advisory: Experience in managing the "Financial Close"—the point where all project and financing agreements are signed and all conditions for first disbursement are met.</p> <p>Concession Agreement (CA) Management: Expert-level knowledge of drafting and monitoring CAs, which define the relationship between the</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
				<p>Bangladesh Bridge Authority (BBA) and private investors.</p> <p>Financial Modeling: Ability to review complex models involving toll revenue projections, Debt-to-Equity ratios (usually around 70:30 for these projects), and internal rates of return (IRR).</p> <p>Risk Allocation: Mastery in identifying and assigning risks (e.g., land acquisition risk, traffic demand risk, and political risk) between the government and the private partner.</p>
2.36	Financial Modeler for PPP mode	Bachelor in Finance/ Economics/ Mathematics or equivalent degree in relevant field and Masters in relevant subject.	10 years	<p>Preferably having 07 years' experience in PPP project completion as a Financial Modeler or PPP Expert.</p> <p>Financial Modeler must be an "Expert" level Excel user, as PPP models are among the most complex financial tools.</p> <p>PPP-Specific Financial Knowledge</p> <p>WACC & IRR: Deep understanding of the Weighted Average Cost of Capital and the Equity Internal Rate of Return to ensure the project attracts private investors.</p> <p>Tax & Accounting: Knowledge of local tax laws, depreciation schedules, and IFRIC 12 (Service Concession Arrangements).</p> <p>VFM Analysis: Conducting Value for Money assessments to compare the PPP route against traditional public procurement.</p> <p>Viability Gap Funding (VGF): Determining the exact amount of government subsidy required to make an essential project financially attractive to the private sector.</p> <p>Tariff Indexation: Modeling how toll rates should increase over time based on CPI (Consumer Price Index) or exchange rate fluctuations.</p>
2.37	Institutional Expert	Bachelor in Public Policy/ Public Administration/ Law/ Organizational Development or equivalent degree in relevant field and Masters in relevant subject.	10 years	<p>Preferably having 07 years' experience as an Institutional Expert in major Infrastructure Projects.</p> <p>The expert must be able to design the Organizational for the project.</p> <p>Legal & Regulatory Analysis: The ability to review existing laws and propose amendments to ensure the Project Authority has the legal mandate to collect tolls, enforce traffic laws, and manage land.</p> <p>Inter-Agency Coordination: Proven track record in designing Memorandums of Understanding (MoUs) and coordination committees between conflicting bodies.</p> <p>Organizational Design: Experience in drafting Organograms, job descriptions, and Standard Operating Procedures (SOPs) for a newly formed Project Management Unit (PMU).</p> <p>Capacity Building & Human Resources</p> <p>Training Needs Assessment (TNA): Skill in identifying "knowledge gaps" in existing client staff and designing long-term training programs</p> <p>Performance Management: The ability to set up Key Performance Indicators (KPIs) for the</p>


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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
				<p>organization to measure its efficiency in project delivery.</p> <p>Technical Skills in Policy & Reform</p> <p>Policy Formulation: The ability to draft national or regional policies regarding road safety, tolling, or private sector participation.</p> <p>Integrity & Anti-Corruption: Experience in designing Corporate Governance frameworks that include internal audits, transparency protocols, and ethical guidelines.</p> <p>Digital Transformation: Knowledge of how to implement Integrated Management Information Systems (IMIS) to automate reporting between the contractor and the Client</p>
Non-Key Expert (Local/ National)				
3.1	Junior Engineer-Survey (8 Nos.)	B.Sc. in Civil Engineering or Survey or relevant equivalent degree or Diploma in Engineering.	08 years	<p>Preferably 03 years' experience in Traffic surveys, prepare traffic demand forecasts and related works.</p> <p>Assist Survey Experts to complete the task.</p> <p>Assist Utility Shifting Planner to prepare utility mapping with relocation action plan and costs.</p> <p>Assist Transportation Planner/Engineer to complete the assignment.</p>
3.2	Junior Engineer-Geotech (4 Nos.)	B.Sc. in Civil Engineering/ Geotechnical Engineering or relevant equivalent degree or Diploma in Engineering.	08 years	<p>Preferably having 03 years' experience in geotechnical investigation for major bridge/ grade separated pass project, which should be related to the under mentioned tasks. Key tasks for the Consultant will not be limited to:</p> <p>Assist in geotechnical investigation and propose foundation type for engineering design of the structure.</p>
3.3	Junior Expert-Transportation (8 Nos.)	B.Sc. in Civil/ Transportation Engineering or relevant equivalent degree or Diploma in Engineering.	08 years	<p>Preferably 03 years' experience Traffic survey for Major Bridge/ Road Projects.</p> <p>Assist Transportation Planner/Modeler to complete the assignment.</p>
3.4	Junior Engineer-Electrical (2 Nos.)	B.Sc. in Electrical Engineering or relevant equivalent degree or Diploma in Engineering.	08 years	<p>Preferably 03 years' experience in electrical works for Major Bridge/ Road Projects.</p> <p>Assist Electro-Mechanical Engineer to complete the assignment.</p>
3.5	Junior Engineer-Structure/ Bridge/ Elevated Expressway (12 Nos.)	B.Sc. in Civil/ Structural Engineering or relevant equivalent degree or Diploma in Engineering.	08 years	<p>Preferably 03 years' experience in bridge, elevated expressway/ flyover/ grade separated passes construction projects.</p> <p>Assist Structural Engineer (substructure & superstructure) to complete the assignment.</p> <p>Assist Bridget Engineer to complete the assignment.</p> <p>Assist Highway/ Elevated Expressway Engineer to complete the assignment.</p>

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Sl. No.	Personnel	Min. Edu. Qualification	Min. G. Exprnc	Specific Experience and Key Tasks to be Done
3.6	Junior Engineer-Civil/ Estimator (8 Nos.)	B.Sc. in Civil Engineering or relevant equivalent degree or Diploma in Engineering.	08 years	Preferably 03 years' experience in bridge, elevated expressway/ flyover/ grade separated passes construction projects. Assist Cost Engineer to complete the assignment. Assist in cost estimation
3.7	Junior Engineer-Water Resources/ Morphology/ River/ Hydrology (4 Nos.)	B.Sc. in Civil/ Water Resources/ River Engineering or relevant equivalent degree or Diploma in Engineering.	08 years	Preferably 03years experience in Water Resources/ River Morphology/river training and hydraulic engineering works, preferably on similar, large-scale projects. Assist Water Resources Expert to complete the assignment. Assist River Morphologist to complete the assignment. Assist Hydrologist to complete the assignment.

Note: Experts (Key and Non-Key both) will assist TL and DTL to complete the task following ToR and as per Client's requirement.

17. Consultancy Period, Contract Type, Period and Payment Method

Consultancy Period will be for 15 (fifteen) months and the type of Contract will be Lump-sum. Consultant will be entitled to get the payment based on (i) completion of agreed assignment/ delivery of deliverables, and (ii) reimbursable expenses shall be substantiated with documentary evidence and as per actual cost.

18. Mode of Payment (Applicable Only for Remuneration)

Sl. No.	Description	Percent of Remuneration	Comments
a)	Submission of draft inception report and workshop completion	5%	Bill has to be submitted with relevant reports and supporting documents (where required).
	Acceptance of the Inception report to the client	10%	
b)	Submission of the draft Feasibility Study Report	10%	
	Submission and acceptance of the Feasibility Study Report to the client and completion related stakeholder consultation meetings/ workshops/ trainings/ technology transfer program	20%	
c)	Submission of Draft of Preliminary Design	10%	
	Approval of Design and completion of local trainings and stakeholder consultation meetings and workshops	15%	
d)	Submission of draft Cost Estimate, DPP and all other documents as per ToR	7%	
	Acceptance of Cost Estimate, DPP and and all other documents as per ToR	13%	
e)	Successful Completion of all assignment and satisfactory completion of technology transfer program and handover of all documents, reports, software, assets and related others to the Client	10%	
Total =		100%	

Note: Payment will be made on deliverables' basis considering actual progress and following the above-mentioned table.

Reimbursable expenses will be paid as per actual cost with supporting documents.

BBA will deduct VAT and AIT/ Taxes at source following Government of Bangladesh's rules and will provide certificate to the Consultant.

Md. Atof
20.04.2026
Md. Atof Hossain
Assistant Engineer
Ministry of Road Transport & Bridges
Bangladesh Bridge Authority, Dhaka-1212

Arif Uddin
20.04.2026
Md. Arif Uddin
Executive Engineer (Design-2)
Bangladesh Bridge Authority
Ministry of Road Transport & Bridges

Arif Uddin
20/04/2026
Md. Abul Kalam Azad
Superintending Engineer (Monitoring)
Bangladesh Bridge Authority
Ministry of Road Transport & Bridges
Setu Bhaban, Banani, Dhaka-1212.