Government of the People's Republic of Bangladesh
Roads and Highways Department
Bangladesh Road Safety Project

Terms of Reference
Consulting Services for (A) Road Infrastructure Assessment, (B) Design of Interventions, (C) Supervision of work (D)Environmental and Social Management and (E)Land acquisition and resettlement (LAR).

[SP-RHD-02]

1. BACKGROUND

Around 93% of the world's road fatalities occur in Low- and middle-income countries (LMICs), where South-East Asia region has shown the highest increase in road fatalities compared with other parts of the world[1]. Road crash-related deaths and serious injuries are a public health crisis in Bangladesh[2]wherethe road traffic fatality rate is 102.1 per 10,000 vehicles and 13.6 per 100,000 populations, and pedestrians are the largest single victim group, accounting for 65% of road accidents[3].

The success of applying the Safe system approach in High-income countries (HICs) and in some LMICs in reducing road traffic injuries is the key motivation in applying such safe system principles in the Bangladesh Road Safety Project (BRSP, the project where the consultant's services are being sought). The principles of the Safe system approach aredesignedto address the safety issues holisticallyacrossthe key five pillars such as safe users, safe roads, safe vehicles, safe speed and post-crash care. While the current consultancy role is mainly to aid safe users, roads and speed, the proposed interventions should be informed by the Safe system approach to prevent fatalities and injuries by reducing all the following contributors of crashes -exposure, crash risk and severity risk.

Literature indicates that pedestrians are particularly vulnerable in pedestrian and driver interactions, as drivers in developing countries, including Bangladesh, usually do not want to give the right of way to pedestrians crossing the road[4]. Road users' behavior in developing countries is different from developed countries, influenced by a variety of less understood contributing factors, leading to difficulty in modeling and predicting risk and, in turn, identifying effective safety measures[5]. Therefore, the transferability of the solutions of developed countries to a developing country is not straightforward as the variability in behavior, culture, knowledge, attitude, and norms exists in developed and developing countries. Ineffective road safety strategies contribute to the rising number of fatalities in these countries, including Bangladesh[6]. Pragmatic solutions are needed to

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[1]WHO. 2018. Global status report on road safety 2018.

[2]The World Bank. 2020. Delivering Road Safety in Bangladesh: Leadership Priorities and Initiatives to 2030.

[3]Ahmed, I., Ahmed, B. and Hainin, M.R. 2014. Road Traffic Accident Characteristics in Dhaka, Bangladesh. JurnalTeknologi. 71(3).

[4]Muley, D., Kharbeche, M., Alhajyaseen, W. and Al-Salem, M. 2017. Pedestrians' Crossing Behavior at Marked Crosswalks on Channelized Right-Turn Lanes at Intersections. Procedia computer science.

[5]Tulu, G.S., Washington, S., King, M.J. and Haque, M. 2013. Why are pedestrian crashes so different in developing countries? A review of relevant factors in relation to their impact in Ethiopia.

[6]Khan, M.M.I. and Rahman, M.H. 2016. A prediction model for pedestrian fatalities based on explanatory factors. IOSR Journal of Mechanical and Civil Engineerin.

improve pedestrian safety in Bangladesh, including addressing the unyielding behavior of drivers and pedestrian decision-making in complex interactions between drivers and pedestrians[7][8].

In Bangladesh, the national and regional highways are the highest road network category where traffic volume and speed is much higher than the rest of the network. Accident Research Institute (ARI) data from 2006 to 2015 revealed that pedestrian casualties in Bangladesh happen more while crossing (42%), followed by along the roadside/shoulder (29%), no activity or standing position (19%), and others (10%). In 2013, found that 97% of the major road network in Bangladesh has one or two-star safety standards for pedestrians, indicating inadequate pedestrian infrastructure. Certain land use types, such as educational, industrial, and commercial activities adjacent to roads, create the highest pedestrian road crossing flow, posing considerable risks to students and workers who primarily rely on walking as a mode of mobility to study or work in such areas. In 2018, RHD found 32 highway intersections in Bangladesh, where it shows that more than 70% of jaywalkers do not use the available infrastructure facilities for them.

To address the road safety issues, GOB has received financing from the World Bank to implement the BRSP led by the Roads and Highways Department (RHD) and jointly implemented with Bangladesh Road Transport Authority (BRTA), Bangladesh Police (BP), and Directorate General of Health Services (DGHS). The project development objective is to help GOB build its road safety management capacity and achieve a targeted reduction in the country's road traffic injuries over the coming decade.

The RHD-led infrastructure improvement activities in the Project mainly includes, (i)implementing a Mass Action Program on selected portions of the highway network (around 5400 km, comprising of national and regional highways), and (ii) National Highway Safe CorridorDemonstrationthrough engineering interventions, minor civil works, required road safety treatments and physical traffic calming measures(around 140 km total in two highways at 70 Km each from N4 and N6). Highway network segments for Mass Action Program and National Highway Safe Corridor Demonstration are jointly termed as 'project roads' in this ToR (detailed in Annex I). Full description of the project components (including non-RHD sub-components of National Highway Safe Corridor Demonstration is provided in Annex II).

An iRAP data-collection consultancy is currently underway to support the RHD led activities. Main outputs of this precursor consultancy are as follows: (i) iRAP survey of the strategic highway network ('project roads') and (ii) initial outline of treatments type and location of treatment for the entire network with risk assessment and recommendations.

2. OBJECTIVE

The primary objective of this assignment is to support the improvement of road safety performance in Bangladesh through infrastructure safety risk assessments, detailed design and supervision of the recommended treatments at the two multi-sectoral pilotlocations, and designated stretches of the highway network. The ultimate aim is to promote the Safe Systemsapproachthat protects all road users from death and serious injury across the entire RHD network under the project. Specific objectives of this assignmentare to:

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[7] Zafri, N.M., Tabassum, T., Himal, M.R.H., Sultana, R. and Debnath, A.K. 2022. Effect of pedestrian characteristics and their road crossing behaviors on driver yielding behavior at controlled intersections. Journal of safety research.

[8] Debnath, M., Hasanat-E-Rabbi, S., Hamim, O.F., Hoque, M.S., McIlroy, R.C., Plant, K.L. and Stanton, N.A. 2021. An investigation of urban pedestrian behaviour in Bangladesh using the Perceptual Cycle Model. Safety science.

- Provide precise infrastructure treatment scope, extent andlocation of both (i) Mass Action Program in different National and regional Highways and (ii) National Highway Safe Corridor Demonstration mentioned above (detailed in Annex II).
- Prepare detailed design, drawing, cost estimate, specificationandother documentation forRHDfor the implementation ofrecommendedsafetytreatments and provide related procurement support.
- Capacity building of RHD staff in the identification of hazardous road infrastructure, road safety audit, accident analysis and other proactive approaches such as behavioral data and model, prioritization, design, implementation, maintenance and evaluation of improved infrastructure safety from the mass action program.
- Support the preparation of a national program for the evaluation of the effects of the mass action treatments on the infrastructure.
- Provide construction supervision supportto RHD to help implement the workscomponent,ensuring full compliance with the design, specification and civil works contract document(s).
- Ensure compliance to the World Bank's Environmental and Social standards for the works through design and monitoring of implementation activities carried out by the contractors.
- Assist RHD for preparing**Land acquisition, and Resettlement Plan**withan implementationsupportto (a) Land acquisition process; and (b) Resettlement and rehabilitation of project affected persons.

3. SCOPE OF WORK

The Consultant is expected to guide and support the RHD to deliver outputs that are best suited to deliver outcomes under the BRSP. The Consultant's duties and responsibilities will include, but not be limited to, the following scope:

Phase 1: Prepare detailed design and bid documents for the works in Mass Action Program and Highway Safe Corridor Demonstration

3.1 Task 1:Literature review:

The consultants will undertake a comprehensive literature review to:

- Familiarize itself with the road safety context in Bangladesh, specifically road designfeatures,land use pattern (and commercial activity) around the highways, driving rules, user behavior, fleet composition using the highway system etc.
- Familiarize itself with the project literature, primarily the data collected through the precursor iRAP data collection consultancy mentioned above.

3.2Task 2:Verify the safety recommendations on selected roads

As the precursor assignmentrelated to iRAPdata-collection and infrastructure inspection assessment would be at a broad level (see figure below), the consultant needs to recommend project interventions with their precise location, treatment extent, relative advantage over other potential locations (through economic viability) and simplicity to ensure completion of the works during project period.

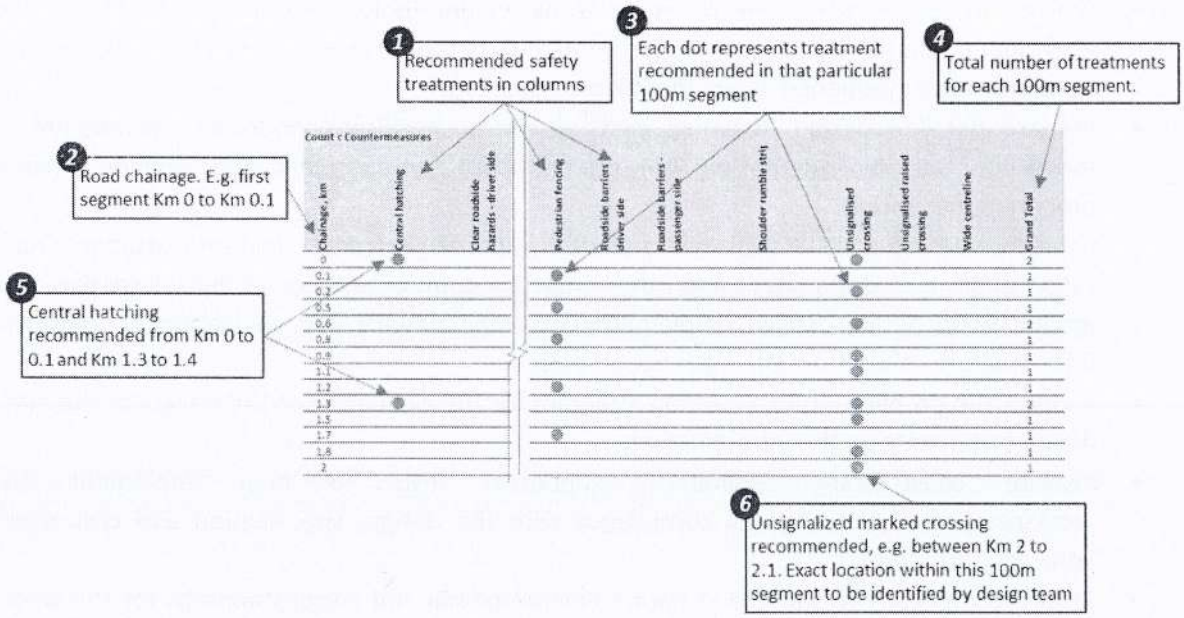

Figure 1: Sample output from iRAP assessment with proposed treatments

The consultant will undertake the following:

Sub-Task 2.1:Undertakesite visits and data collections hazardous locations.

- The consultant shall determine critical/hazardous locations that warrant site visits and surveys necessary to convert the risk assessment and recommendations from the iRAP consultancy (bellow 3 star of iRAP safety ratings for all classes of road users) into design documentation. For these locations and road stretches, the consultant will conduct total station survey for preparing topographical map covering at least 100 meters of each identified location. The consultant will collect historical crash dataandother minimum data(such as crash data, vehicle speed or other behavioralobservations and/orsurveys for attitudinal data as needed) for the site that would benecessaryto convert the assessment to designs of appropriate safety interventions. The data collection must adhere to the international road safety diagnosis guidelines such as the PIARC safety diagnosis checklist as stipulated in the PIARC road safety manual.
- A condition diagram is generally prepared in order to present, on a single sheet, a graphic summary of the main physical characteristics of the site under study. Notes should be made directly on this diagram to highlight identified safety deficiencies. Placed beside the collision diagram, the condition diagram will often help in revealing features that may explain a specific accident problem. Upon consultation and concurrence from RHD, the consultant shall carry out necessary site visit andsurveys(also any remaining data collection as needed and agreed upon. This may include a collection of multi-dimensional data (such as road and road-side features with condition diagrams, andvideo/picture of road users' behavioral observation, for conflict analysis and speed measurement) and road user perception surveys as described under Sub-Task 5.8.

Sub-Task 2.2:Assess the viability of proposed iRAPtreatments and propose detailed drawings of recommended treatments

- The Consultant shall thoroughly assess the proposed treatments at each site recommended by iRAPin terms of their technical viability, any upstream or downstream prerequisites for

the treatment, land acquisition required (if any), environmental and social impacts, community needs,and cost of the treatment.

- Considering the high percentage of crashes and fatalities involving vulnerable road users or other proactive surrogate approaches,theConsultant shall give due safety consideration in the designs for school zones, bazaar areas, hospital zones, railway crossings, industrial (such as garment factories), commercial and residential or any other areas with high pedestrian activityto minimize pedestrian/vehicle conflicts along the selected road stretches/locations.
- The consultant will prepare the detailed drawing for each type oftreatments(iRAP suggested or newly recommended) with analyzing the suitability to the site with justifying safety benefits (literature support following best practices such as PIARC guidelines, focusing the context of LMICs) and cost.

Sub-Task 2.3:Prepare detailed strip action plans

Based on the above tasks, the Consultant shall prepare detailed strip plan of the project roads showing primarily chainage, right-of-way, carriageway width, footpath width, median width, existing road safety features, land use type (school, bazaar, industry etc.), road side hazards (trees, electric/telephone poles, borewells etc.), and the precise locations with thesetofproposed treatmentstouching "4 E" system (Engineering such as civil works at intersection or mid-block section improvements, Enforcementsuch as traffic calming or any other cautionary/warning devices), and Education/Encouragement (safety educational or motivational messages in road-side/overhead billboard etc.). The consultant may include additional relevant information if needed, especially in stretches where treatments are proposed. The consultant may use AutoCAD or other suitable software and appropriate scale according to industry standards.

*Sub-Task 2.4:*Prioritize the recommended treatments and evaluation plan for the project roads

Finally, the consultant will prepare an action plan for each road that is realistic (taking account of financial constraints and other types of constraints), focusing on all key areas of road safety (the Safe System approach) and prioritized cost-effective measures. Then, the consultant will prepare a further prioritised action plan incorporating the sites that are most likely to be improved by engineering measures with higher safety rankings, in other words, higher iRAPstarratings for vulnerable road users. Each action plan should include the extent of treatment with drawing details, preliminary cost estimate (including rate analysis of items not in the RHD schedule of rates), preliminary specification of intervention items etc.The available budget and the predictive accident reduction necessarily govern the cut-off for the implementation of action plans.

The evaluation process could be regarded as comprising two types- monitoring by observation-based methods and accident-based evaluation.The most important form of evaluation of any safety measure is, of course, determining its effect on accidents. Abefore-and-after analysis is the technique usually used to monitor or measure the effect of a safety improvement. The consultant will design a detailed monitoring plan for the specific representative sites, mapping the collected pre-implementation data with the future data to be collected after the implementation of the interventions.

Sub Task 2.5: Conduct Workshop to present the findings, design approach and contracting sequence

- The consultant will conduct a stakeholder meeting/workshop to present their findings, and to collect reflections to modify or solidify any aspects of the treatments.
- The consultant will also present a timetable to complete procurement of the works packages(from publishing Request for Bid(RFB), evaluation, and contracting). It is assumed that the first two RFBs will be for National Highway Safe Corridor Demonstration at N4 and

N6. This will be followed by the three Mass Action Program Packages. The ultimate objective of this timetable is to ensure that the RFBs are published at the earliest (to ensure timely completion of the works) with adherence to high designstandards.

Deliverable(s):

- Report on validation/verification of recommended treatments with drawings, withrationale if suggested treatments need modification(with alternative measures, with precise location, technical viability, land requirements), environmental/social impacts, specification, estimated cost for each recommended treatment
- Detailed strip plans& recommended action plan for the project
- Prioritization methodology and safety treatments selection and evaluation method
- Workshop minutes/report
- Final technical report comprising the strip plans, RFB timetable, and modificationsincorporating feedback from the stakeholders received from the workshop.

3.3 Task 3: Prepare bid documentsfor works contracts

Sub-Task 3.1:Preparebidding documents (including detailed engineering design) for N4 and N6
Sub-Task3.2:Preparebidding documents (including detailed engineering design) for Mass Action Program packages (namely three packages- Northwest zone (Rajshahi, Rangpur), Central Zone (Dhaka, Mymensingh,) and Southwestern zone (Khulna, Gopalganj))
Sub-Tash 3.3: Prepare bidding document for District intervention to improve road safety in Bogura and Tangail.

- The Consultant shall prepare the Detailed Engineering Design, Engineering Design Drawing, specification, and cost estimate (to be finalized as Bill of Quantifies (BoQ)for execution of the safety improvement works which shall include design of all works, lighting, signage, and any miscellaneous ancillary works of the first package.
- Conduct detailed consultation meeting with the stakeholders to disseminate the design features to obtain feedback on the first package design, cost estimate (to be finalized as Bill of Quantifies (BoQ)), specifications etc.
- Finalize bidding documents for RHD to invite the bids for the first Mass Action Program package (following the World Bank Procurement Regulations).
- Follow similar steps to prepare bidding documents for all other packages as per agreed timetable.

For the above tasks, the following criteria will be followed:

- The designs shall be in accordance international best practice. The consultant needs to identify relevant manual (e.g. AASHTO GreenBookfor highways, PIARC Road Safety Manual, Traffic Calming ePrimer, Federal Highway Administration, NACTO design manual for urban roads etc.) and adapt considering Bangladesh context. All the design works must follow the requirements and standards acceptable to RHD, should be resilient and based on current proven and accepted practices. In the event of conflicts between standards, the decision of the RHD shall be final.
- The Consultant shall prepare the design drawings with sufficient detail for bidding purposesand also for the execution of the construction works in appropriate size, scale and format acceptable to RHD.

- Cost estimate will follow latest rate schedule published by RHD. In the event that new items need to be added in the BoQ, the consultant shall provide sufficient details and breakdown to justify the proposed rate, satisfactory to the client.
- Environmental, social and road safety measures are to be incorporated in the designs. The Environmental and social assessment and management planning process including development of Environmental and Social Impact Assessment (ESIA), Environmental and Social Management Plan (ESMP), Land Acquisition and Resettlement Action Plan (RAP), Gender and Inclusion Plan (GAIP)and any others as required under World Bank Environmental and Social Framework, 2018 and national legislation for the improvement works will be carried out in parallel.
- Before finalizing the design drawings the Consultant's team needs to agree the procedure with client and verify the survey details and the design drawings with proper verification in the field by checking the alignment.
- Conduct detailed consultation meetings with RHD to disseminate prioritization of recommended treatments and typical detailed designs for all mass action treatments to obtain feedback from RHD and their approval.

Deliverable(s):

- ❖ Draft and final detailed engineering design reportsfor N4 and N6.
- ❖ Final bid documents (including all typical components like engineering drawing, specifications, BoQ etc.) for N4 and N6.
- ❖ Draft and final detailed engineering design reports for Mass Action Program Packages (may be delivered in sequence as per timetable agreed in Task 2)
- ❖ Final bid documents(including all typical components like detailed engineering drawing, specifications, BoQ etc.) for Mass Action program packages
- ❖ Report on detailed consultation meetings held with RHD to finalize designs along withminutes

3.4Task 4: Additional support to RHD for publication of RFBs and procurement of works packages

The Consultant shall assist RHD to finalize the RFBs in a format and readiness to invite works bids.Prior to tender, the designs and sketches of all agreed countermeasures should undergo independent Road Safety Audits (RSA), to ensure that they prioritize the safety of community members and vulnerable road users. The consultant shall ensure that bid documents (BOQ, specifications, contract document, plan, design drawing) adequately and properly incorporate provisions/ requirements and subproject specific mitigations measures recommended by ESIA as well as any RAP and GAIP. The consultant will assist RHD with the procurement of the works contract by assisting with preparing queries from bidders and other relevant support during procurement as required.

3.5Task 5: Environmental and Social Impact Assessment,preparation of reports/plansandSupervision of implementation of various Environment and Social (ES) instruments

The Scope of service would include but not limited to the following:

- Support RHD and all the other implementing agencies (Bangladesh Police, Bangladesh Road Transport Authority, and Directorate General of Health) of project in complying with the ES obligations as laid out in various ES documents and Environmental and Social Commitment Plan (ESCP) and mentioned below.

- ES impact assessment of the various sub-projects/activities under the project following the GoB and WB rules, regulations and standards and prepare various ES risk management plan.And then support the PD and APDs in supervision and monitoring of implementation of various ES management instruments.

Sub-Task 5.1: Prepare, review and update various ES planningdocumentsprepared during project preparation phase

The consultant will review the already prepared ES documents i.e. Environmental and Social Management Framework (ESMF), Prepare Resettlement Policy Framework (RPF), Stakeholder Engagement Plan (SEP), Labor Management Procedure (LMP), Gender Strategy and Action Plan(GSAP), etc. (together "ES Planning Documents") and update the documents,if necessary, based on the change in the design of infrastructure following the ten ES standards of the new Environmental and Social Framework9 (ESF) of the World Bank.

Sub-Task 5.2: Site specific ES assessment and compliance monitoring

The consultant would conduct the site-specific ES screening, identify the potential impact of project activities, collect and consolidate the filed information, prepare ESIA and all the required ES plans/reportsfollowing the reviewed and updated ES Planning Documents and the relevant ES standards of the ESF of the World Bank and provide ES oversight on the project activities, provide support in the areas that require technical assistance by environmental, social and gender experts of NPIU and SPIUs. Overall, the consultant would be responsible for preparation of various site-specific ES instruments and overseeing and reporting the ES compliance during the implementation in the field for all the sub-projects to be implemented by various implementing agencies. The assignment includes the following specific tasks:

- Prepare site specific ES screening and site-specific ES assessments including ESMPs for various sub-projects following the guidelines provided in the approved ESMF of the project. Such ES assessments need to be carried outtaking into account the direct, indirect, induced and cumulative ES impacts.
- Prepare ES specification based on the site specific ESMPs to be included into the bidding documents. Periodically review the environmental specifications, standard clauses and rates in consultation with PD and assist PD and APDs in obtaining Environmental Clearances Certificates (ECC) of each sub-project.
- Review existing GRS of the PIU agencies and that proposed under the Project and develop a GRM and OHS/CHS manual for implementation.
- Review and recommend construction ESMP to the PD and where relevant to the APDs for sites by works packages.
- Ensure overall compliance of the works with GoB and World Bank's ES requirements. Carry out Environmental and Social Monitoring and reporting in accordance with the ESMPs and other ES plans (RAPs, GAIP) ensure compliance of various ES instruments.
- Prepare and submit monthly monitoring report (including incident reports, reports on labor induced GBV, OHS issues compliance of contractors on C-ESMP etc., among others) within two weeks of end of a calendar quarter.

Sub-Task 5.3Gender and Disability Inclusion and Management

The Scope of service would include but not limited to the following:

[9]WB ESF can be found here: http://pubdocs.worldbank.org/en/837721522762050108/Environmental-and-Social-Framework.pdf

- Review existing gender and disability assessments and the GSAP prepared for the project and identify actions to develop gender and disability inclusion strategy and feed gender and SEA/SH risks management related requirements into design of road safety infrastructure, policy interventions, design of crash data management system and any other issues relevant.
- Design and develop, in consultation with the PIUs, SEA/SH risks management actions including awareness campaign, training and sensitization on SEA/SH risks management.
- Assess impacts of the different project components on women and persons with special needs at the event of a road crash.
- Design and strong monitoring and evaluation system of gender and disability inclusion in infrastructure design and information management systems and monitor and report the gender disability strategy and action plan.

Sub-Task 5.4Assist the PIUs in management of contractual ES obligations

The Works' Requirements of the contract document include the environment and social (ES) requirements (including requirements relating to Sexual Exploitation and Abuse (SEA) and Sexual Harassment (SH) which are to be satisfied by the Contractor in executing the Works. The Consultant shall ensure that the Contractors comply with all the requirements mentioned in the ES specification and various ES issue related clauses mentioned in the contract document. They will review various ES documents submitted by the contractors before submitting those to PD/APDs for their approval.Such services would include but are not limited to:

- Review the Contractor's Environment and Social Management Plan (C-ESMP) prepared based on the ES specification for managing the ES risks and impacts of ongoing works including all updates and revisions;
- Ensure compliance of codes of conduct that should be provided to and signed by all workers, detailing measures to address environmental, social, health and safety risks, and the risks of sexual exploitation and abuse, sexual harassment and violence against children, all as applicable to such civil works commissioned or carried out pursuant to said contracts..
- Monitor various recommendations of the Labor Management Procedure prepared for the project and ensure its successful implementation.
- Monitor that Occupational Health and Safety (OHS) measures are being complied of.
- Apply effectively the GAD (Gender and Development) action plan of the government and encourage contractors to employ at least 25 percent women in pavement works especially for the PBMC contracts.
- Play an active role to ensure that the Contractors, Labor leaders, and laborers are made fully aware of the GRM and its objectives and functions, as well as the hearing and redress process. The Consultant will also ensure that Grievance Redress Committees (GRCs) are established at the work sites if mentioned in the ES specification.
- Review and consider the ES risks and impacts of any design change proposals and advise if there are implications for compliance with ESIA, ESMP, consent/permits and other relevant project requirements;
- Supervise regularly Contractor's compliance with ES requirements in accordance with the approved ES documents including its GBV/SEA obligations, with and without contractor and/or client relevant representatives, as necessary, but not less than once per month
- Undertake audits and inspections of Contractor's accident logs, community liaison records, monitoring findings and other ES related documentation, as necessary, to confirm the Contractor's compliance with ES requirements;

- Agree remedial action/s and their timeframe for implementation in the event of a noncompliance with the Contractor's ES obligations;
- Ensure appropriate representation at relevant meetings including site meetings, and progress meetings to discuss and agree appropriate actions to ensure compliance with ES obligations;
- Undertake liaison, from time to time and as necessary, with project stakeholders to identify and discuss any actual or potential ES issues;
- Ensure any GBV/SEA instances and complaints that come to the attention of the consultant are registered in the grievance redress mechanism.
- The consulting firm will report ES related non-compliance issues of contractors according to the project specific non-compliance rectification procedures and will assist for remedy action application.

Sub-Task 5.5 Capacity Building responsibilities

The consulting firm will develop training plans for various stakeholders such as PIU staff, contractors' personnel and staff of other relevant agencies. Apart from the road safety related topics other topics to be focused on include ESF, ESMP, OHS and CHS, GBV, resource efficiency and pollution management, waste management etc. which will be reviewed and approved by the PIU ES Consultants.

Sub-Task 5.6 Monitoring of Grievance Redress Mechanism

The consulting firm will be an important part of the grievance redress mechanism (GRM) of the project. The team will review the existing system and the project provision to develop a standalone GRM linked with the national centralized GRS and monitor the administration of grievances, assist PD/APDs towards resolving issues or coming to terms with complainants based on assessment of the problems, type of complaints, and gravity of the situation. The consultant will develop a GRM Manual

The consulting firm would assist PD/APDs to redress the grievance of the affected persons and other interested parties through structured Grievance Redress Mechanism. Also assist to settle the complains and suggestions from communities or any other stakeholders on procurement, contract management, corruption and fraud, financial management, social and environmental, workers GRM, SEA/SH related complaints, health safety and other issues through the GRM.

Sub-Task 5.7 Technical Advice to PIU field based Environmental and Social Consultants

When necessary and required by NPIU, the consulting firm will provide technical advice related to ES aspects to the PD/APDs.Such advice would include coordination with other relevant organizations/entities, formulation of strategies to address major issues and complaints, handling grievances, and enhancement of capacity of NPIU.

Sub-Task 5.8 Arrange and Conduct Public Consultations

Help PIUconduct consultations with the stakeholder groups/communities relevant to the project and provide systematic feedback from the stakeholders/communities on the selection, design and implementation and monitoring and evaluation of the improvements related to infrastructure design by using participatory approaches. The consulting firm will arrange and conduct consultation that will need to ensure that Project affected people and other stakeholders are informed about the Project activities and its possible impacts, as well as offered the opportunity to share their opinions and feedback to input into the ES assessments, planning and design studies and their implementation in accordance with the Stakeholder Engagement Plan (SEP). For meaningful

consultations with project-affected groups, communities, women of various age, persons with disabilities, elderly people, local NGOs and rights groups, all relevant documents must be provided in a timely manner prior to consultation and in a form and language that are understandable and accessible to the groups being consulted. They would document the consultation process, including stakeholder groups/communities consulted and participated, issues raised and discussed, decisions made about the project's social implications. All consultations should be inclusive of community groups, vulnerability and disadvantages.

Sub-Task 5.9 Report on Social & Environmental Compliances

The Consultant shall follow and provide the following Environment and Social (ES) reports:

- Monthly Monitoring Report: The consultant shall regularly supervise the compliance of various ES requirements as per various ES documents such as ESMPs, LMPs etc. and submit monthly report to PD/APDs.
- The Consultant shall provide immediate notification to the Client should any incident in the following categories occur while carrying out the Services. Full details of such incidents shall be provided to the Client within the timeframe agreed with the Client:
    - confirmed or likely violation of any provision of ESMP, LMP, ESMF and other safeguard documents, DoE Clearance conditions, law or international agreement;
    - any fatality or serious injury;
    - significant adverse effects or damage to private property (e.g. vehicle accident); or
    - any allegation of gender-based violence (GBV), sexual exploitation or abuse (SEA), sexual harassment or sexual misbehavior, rape, sexual assault, child abuse or defilement, or other violations involving children,
- Share with the Client in a timely manner the Contractor's ES progress reporting metrics, as required of the Contractor as part of the conditions of contract.

Phase 2: Land acquisition, resettlement and Construction Supervision Phase

3.6 Task 6: Support RHD on implementation and supervision of the safety works

The Consultant's shall support RHD on the implementation and supervision of the safety countermeasure works as finalized in the design (Task 2of Phase 1). The works will be executed under the World Bank Standard Procurement Document and Procurement Regulation for IPF Borrowers. The Employer, RHD will be represented by the Project Director and the Employer's representatives will be Additional Project Director (APD) and Project Managers stationed at site. The Consultant shall act as the "Engineer" for the execution of the contracts and supervise the execution and implementation of all works in accordance with the conditions of contract.

The Consultant shall assist the RHD and the contractor to incorporate the latest techniques and technological developments on road safety and climate resilience into the project roads. The technical supervision task will include but not limited to the following:

A) As the Engineer's representative, the Consultant's Team Leader will administer the civil work contracts and ensure that the works are constructed in accordance with its provisions. The Consultant will have all of those powers which are defined as being the Engineer under civil works contract, however the consultant shall seek and obtain the Employer's specific approval prior to undertaking the following:
    - Issuing variation orders which have financial implications or significant in quantities;
    - Issuing extensions of time for Completion of the Works;

- Approving any subcontracting of any part of the works; and
- Fixing rates or prices.
- Issuance of taking over Certificate
- Issuance of Performance Certificate
- Any other work as mentioned in the works Contract documents

B) The Consultant's responsibilities will include, but not necessarily be limited to, the following:

i. Reviewing, approving and monitoring the civil works contractor's work program, organizational arrangements, resource plan, method statements for quality assurance and sources of materials;

ii. Review the Contractor's Traffic Management Plan, Labor Management Plan and Working methodology of specific activities.

iii. Ensure that the Contractor works in strict compliance with the Contractor's quality management plan, work plan, and contract specification, including instruction issued as per contract and non-compliance notification; approve and issue working drawings;

iv. Carry out survey work (if required) to provide adequate control points and reference points to the contractor for setting out of the works to be executed. Reconfirm site specific environmental, safety and social issues/ conditions and provide data for preparing necessary site plans for mitigation works.

v. Check and approve the setting out of the works undertaken by the contractors on the basis of the control/reference points given by the consultants;

vi. Prepare suitable standard formats and establish effective and efficient documentation and reporting procedure for contract administration, monitoring of schedules and quality assurances of the construction works ;

vii. Prepare supervision procedures / Manual for supervision staff.

viii. Carryout and recommend necessary adjustments in the design/drawing required during construction due to site requirement considering value for money.

ix. Supervising the works, approving materials, equipment and workmanship to ensure that the civil works contracts are executed in accordance with the civil works contract documents;

x. Supervise the tests in field and in laboratory, analyze and justify the results; Undertake independent field and laboratory testing as may be required to verify.

xi. Prepare non-conformity reports and propose rectification work(s) or solution(s);

xii. Monitoring and checking the day-to-day quality control and quantity measurements of the works carried out under the civil works contracts;advise on measures to be taken to improve progress and quality;

xiii. Measure the completed works and keep detailed records of the measurements; Checking all quantity measurements and calculations required for payment purposes to ensure that all measurements and calculations are carried out in a manner and periodicity specified in the civil works contract documents;

xiv. Certification and acceptance of each part of work as completed upon the receipt of Request for Inspection (RFI) from the contractors.

xv. Checking and countersigning the interim payment certificates after having established that the quality of the works is satisfactory and the quantities are correct, and recommend to the Employer;during certification, completion of environmental and social mitigation works and Environmental Management Plan and Social Commitment Plan must also be checked.

xvi. Periodic checking of contract quantities and a constant check on the cost variation including a quarterly updating of monthly cash flow projections.

xvii. Inspecting all works to ensure conformity of the implemented works to the approved design requirements and solutions and compliance with the drawings and other civil works

contracts documents and identifying all possible deviations from the original design and urgently informing RHD;

xviii. Updating the original designs or proposing new solutions as necessary to reflect changed conditions on the field or to address the civil work Contractor's request for variationorders;

xix. In the event of variations to the works being required, prepare the necessary documents, negotiate these with contractor, determine rates of works, and prepare detailed recommendations for the variation orders for review and approval by RHD;

xx. Interpreting and applying various legal provisions of the civil works contracts documents and advising RHD on all matters relating to claims from the contractors, in particular with respect to claims for time extensions or extra payments and making recommendations thereon, including the possible recourses;

xxi. Maintaining a day-by-day civil works contract diary which shall record all events (including environmental, safety and social) pertaining to the administration of the civil works contracts, request forms and orders given to the Contractors, and any other information which may at a later date, be of assistance in resolving queries that may arise concerning execution of the works;

xxii. Prepare the Land acquisition and Resettlement Action Plan and implement based on the Bangladesh government's Acquisition and Requisition of Immovable Property Act 2017 (ARIPA) and the World Bank Environmental and Social Standard 5 (ESS5). The process consists (a) Supporting Land Acquisition Process through the preparation of land acquisition proposals and supporting Land Acquisition and Compensation Payment Processes; and (b) Resettlement and Rehabilitation of Project Affected Persons (PAPs) through LAR Assessment and Resettlement Planning and Implementation of Resettlement and Rehabilitation Plans.The details of activities are stated in the Annex-III.

xxiii. Follow-up on the Environmental and Social Management (E&SM) aspects attached to the civil works contracts and ensure that the contractor takes necessary actions to fulfil mitigation measures prescribed by the respective E&SM;these include: implementation of RAP, social and environmental monitoring in accordance with the recommendations of RAP, ESMP, Labor Management Plan, Stakeholder Engagement Plan, Gender Based Violence.

xxiv. Ensure compliance with the E&SM aspects as above, monitor the process of resettlement of people affected by the works, and provide information on those processes in the monthly progress report along with recommendations for remedial actions if required;

xxv. Supervising the civil works Contractors in all matters concerning work zone safety and care of the works and workers (including the erection of temporary signs at road works as per standards), traffic management plan and, if required, to instruct the Contractor to provide any necessary lights, guards, fencing, and security in accordance with the requirements of the civil works contracts;

xxvi. Inspecting and testing materials and works done by contractors to ensure compliance with the civil works contract specifications, and/or recommending RHD instructing the contractor to remove and substitute the improper materials and/or work as required to meet civil works contract specifications;

xxvii. Liaising with RHD and contractors and preparing and submitting relevant reports;

xxviii. Keeping a logbook throughout the construction period with daily records of work quantities, tests and other activities to serve as a basis for monthly reporting that necessarily contain information on:

- Workday start and end.
- Contractor's capability to execute works (availability of required equipment and labour force, technical condition, safety provision for works execution).
- Materials and structures brought to the construction site during the day (name, quantity, quality certificate or laboratory testing results)

- ❖ Works accomplished by the contractor during the day, i.e. name, place, volume, etc. (appropriate documents to be attached)
- ❖ Deviations from the design documents, appropriate measures undertaken
- ❖ Emergencies, accidents, unplanned suspension of works (indicating the reasons);

xxix. The Consultant shall make the proper record of contractor's equipment, material and manpower on a daily basis and get this jointly signed by the consultant team and Contractor's site representative and submit to the employer every month.

xxx. Prepare and issue monthly progress reports for the contracts and projects in a form acceptable to the employer. These reports will include details of the physical and financial status of each contract/project, details of delays and consequences' if any, comments and solution on the quality of works in accordance with the contract. They shall also include updated status Traffic Management, Safety, Labor Management and other social and environmental safeguard implementation activities.

xxxi. Explaining and/or recommending RHD to resolve/adjust any ambiguities, discrepancies or disputes in the civil works contracts;in case of disputes with contractor, assist the employer on preparation of documents, and their representation in any hearings. Recommend and Prepare Reponses regarding any appeal to Dispute Resolution Board, Adjudication, Arbitration or litigation related to the works;

xxxii. Compiling monthly reports on the civil works contracts supervision and checking monthly billings;

xxxiii. Controlling and appraising the progress of the works and recommending RHD to order suspension of works where necessary and to authorize extensions of the period for completion of the works;

xxxiv. Inspecting for approval all working drawings and as-built drawings prepared by the Contractor;

xxxv. Assisting RHD with the execution of the Taking Over from the contractor of each civil works contract, in particular by preparing lists of deficiencies which need to be corrected;

xxxvi. Conducting road safety audit both pre-opening once the road safety civil works have been completed, and when the road section is fully open to traffic. The Consultant will observe the traffic and identify road safety issues, including those that might have not been obvious during previous road safety audits. The Consultant will identify the list of road safety issues and provide recommendations to address them, submit them to RHD, for review and action, and subsequently check/monitor the implementation of recommendations as endorsed by RHD.

xxxvii. Review compliance of the contractor to the E&SM Plan at least every six months, and ensure that it is updated in a timely manner, as required, by the Contractor with measures appropriate to the activities to be undertaken. Review the updated E&SMP and advice RHD on its approval.

xxxviii. Determine any amounts to be withheld (as per contract provisions) if the Contractor fails to perform any ES obligations or work under the Contract until the work or obligation has been performed, and/or the cost of rectification or replacement, that may be withheld until rectification or replacement has been completed.

xxxix. Prepare and deliver all documents required for proper handover of the site to RHD;certify completion of part or all of the works and issue the Taking Over Certificate;

xl. Following the Taking Over by RHD, the Consultant shall, during their remaining Contract duration, inspect and approve the execution of the outstanding works (if any), as well as the rectification of any defects or damage;

xli. Assist RHD to carry out any other duties and responsibilities specified in the civil works contracts;

xlii. Comply with the audit requirements of the Government as well as the World Bank

xliii. Advise RHD and the World Bank on all matters relating to the execution of the works.

C) Completion of the construction works:The consultant's services on completion of the workshall be as detailed below and the services during this period shall be provided on the basis of intermittent input of the consultant's staff as follows:

xliv. The consultant, upon completion of the works, shall carry out an inspection of the completed section or sections and recommend to the Client the date or dates of completion. The inspection should also check satisfactory completion of environmental and social mitigation works.

xlv. Approve the final accounts for contracts and recommend for payments;

xlvi. At the completion of the works, undertake project monitoring and evaluation in the format acceptable by the Employer and the World Bank and assist in preparing a consolidated Project Completion Report. Consultant should mention the findings of Contracting approach and Operation and Maintenance system.

xlvii. Carrying out inspection of the completed works at appropriate interval to note down any defects and issue instructions to the contractor for the rectification of the defective works and ensuring that the contractors are carrying out their contractual obligations in respect of maintenance, repair and reconstruction of the works.

xlviii. Carryout socio-economic impact study on the road influence area based on the socio-economic baseline survey

xlix. Complete a final report highlighting any residual environmental impacts following the completion of construction work, and recommended actions, responsibilities and timeline to mitigate, manage or monitor these impacts.

l. Submission of "As-built" drawings showing details of changes from the original plans in construction details or materials etc. Checking and certifying precise and correct "As built "Drawings submitted by the contractor will be the responsibility of the consultant. The consultant shall make cost provision for the final print of the checked drawings. Six copies of the approved as built drawings and electronic soft copy shall be enclosed in the Project Completion Report and shall be supplied to the RHD PIU.

Deliverable(s):The Consultant will prepare and submit the following reports:

- Supervision Inception/Mobilization Report with information on the Consultant's mobilized staff and work plan;
- Supervision Monthly Progress Reports summarizing the work accomplished by each of the supervision teams for the preceding month/quarter, including the progress of the civil works contracts, status of payment of all contractors' monthly certificates, the status of contractors claims for cost or time extensions, if any, brief descriptions of problems encountered and recommended solutions, civil works contracts Variations and Change Orders, and other relevant information for the ongoing each civil works contract.
- Supervision Completion Reports for each civil works contractsummarizing the construction and the supervision performed, to be submitted immediately after the Taking Over by RHD.

4. TIMELINE AND LOCATION OF SERVICES

The duration of the services is expected to be **36 (thirty-six) months**. Design phase will be 8 months and supervision phase will be 28 months. Design phase contract will be lump-sum and supervision phase will be time-based.

This will include:

- 8 months for design and preparation of bid documents

- 28 months for the construction supervision phase. Supervision phase will commence from the mobilization of first work contract.

The consultant should note that quantum of work for detailed designs, engineering design drawings, specifications and bid documents/BoQs will be discussed and agreed upon with the RHD based on budgets and/or vulnerability risk assessment or other factors/GoB priorities as deemed appropriate by the RHD.

(i) The task of design and bid document preparation may be rendered from Dhaka, but it is recommended that the consultant have design teams at each of the three zones – Northwest zone (*Rajshahi, Rangpur), Central Zone (Dhaka, Mymensingh,) and Southwestern zone (Khulna, Gopalganj)*for efficient production of the designs. Supervision task will be at the works location. While the consultant should maintain an office in Dhaka, each contract should have adequate staff and expertise stationed on site to supervise each works contract. The consultant should agree on a breakdown of senior staff like Team Leader's stay at Dhaka and stay at the work locations.

(ii) The consultant will be required to make their own arrangements for office(s). Deployment arrangement to be made in consultation with the RHD.

(iii) On their part, RHD will attend to the following Client responsibilities:
- Provision of counterpart personnel to assist the consultant as required.
- Facilitating access to relevant documents/records/files to carry out the services.
- Assistance to the consultant in establishing essential contacts in concerned GOB areas and in gaining the cooperation of other GOB departments, agencies, and consultants as required.
- Vetting of the consultants' main outputs and deliverables.
- Conduct of review meetings as and when required.

5. KEY DELIVERABLES AND TIMELINE

The Consultant is expected to provide the following outputs/ deliverables:

#	Required Deliverable & /or Output	Due Timing (from contract signing)
	Design Phase	
1	Inception Report (IR)inclusive of all tasks with detailed work program (this will include a chapter on task 1 findings)	15 days
2	Comprehensive technical report. This will mainly cover task 2 on treatment confirmation, design approach and contracting sequencebutwill includetasks 5.1 and 5.3. This will at least include the following: • Validation/verification/modification of recommended treatments • Initial note on specification • Survey and data collection summary • Initial cost estimate for each treatmentgroupedunder the five packages • Detailed strip plans with action plans • Prioritization methodology and safety treatments selection and evaluation method • Summary of recommendations from the stakeholders and response matrix • RFB timetable with alternative analysis and recommendation of most advantageous approach	End of month 3

#	Required Deliverable & /or Output	Due Timing (from contract signing)
	And additional coverage on: • Initial assessment of environmental/social impacts and updated ES planning documents (task 5.1) • Initial plan for gender and disability inclusion and management (task 5.3)	
3	Task 3 complete bid documents. This will include the following and other necessary attachments to enable RHD to invite bids for each package: • Detailed Engineering Design • Engineering Design Drawing • Specification • Bill of Quantifies (BoQ)	To be determined by task 2 output (and acceptance by RHD) but designs of pilot corridors (N4, N6) to be delivered first and the last package must be delivered by month 6
4	Task 4: Support to RHD for RFB publication and procurement of works package contractors	Continuous starting from month 3
5	Prepare and submit land acquisition proposal and resettlement plan for the first package (N4, N6).	8th month
	Supervision Phase	
1	Task 5, Sub-task 5.2: Site-specific ES assessment report and compliance monitoring	Continuous starting with commencement of the assignment
2	Prepare and submit land acquisition proposal and resettlement plan	As required
3	Inception report for construction supervision activities	Within 1 month of commencement of supervision phase
4	Construction supervision of all safety works	Continuous starting with works commencement by contractor
5	Supervision Mobilization report and monthly progress reports	Continuous during implementation of works as detailed below
6	Completion/hand over report for each civil works contract	Upon take over by RHD
7	Final Completion Report along with as-built drawings	End of construction works
8	Land acquisition and resettlement interim and FinalReport	Continuous

6. REPORTING REQUIREMENTS

The Consultant is expected to carry out the assignment tasks as stipulated in the ToR, in very close co-ordination with the RHD. The consultant will report to the RHD, and all reports and other stipulated deliverables of this assignment will be placed for their review and subsequent approval. The consultant will also make presentations to the RHD and to the World Bank (WB), as needed/upon client request and during all WB supervision missions. Presence of at least 3-4 relevant key professionals of consultant along with Team Leader is a must during review meetings and presentations.

The following is a list of reports to be submitted by the consultant:

Category	Type of Report	Timing (from contract signing)	No. of Copies
Design Stage (For Tasks 1, 2 and 3)			
Progress reports	Monthly Progress Report	10th day of the first month of the succeeding month	6
Technical Reports	Inception Report	0.5 month	6
	Comprehensive technical report	3 months after commencement	6
	Final Detailed Engineering Design Reports with respective ESIA Review report for N4 and N6	to be determined by the consultant but not exceeding 8 months after commencement	6
	Design Reports with respective ESIA Review reports for Mass Action Program Packages 1-3	As per table of deliverables above	6
Implementation Stage (For Tasks5 and 6)			
Progress reports	Monthly report	By 10th of the succeeding month	6
Technical reports	Inception report (Construction supervision)	One month after start of works by contractor	6
	Land acquisition and Resettlement Report, Environmental and social monitoring reports (including incident reports, labor induced GBV, OHS issues compliance of contractor's on C-ESMP etc., among others).	Every month and every quarter (within two weeks of end of a calendar quarter)	6
	Environmental Social Health and Safety Evaluation Report	At the end of the Project	6
	Supervision completion reports	At the end of each contract	6
	Final Completion Report (along with As-built Drawings)	At the end of the Project	6
Other	Technical Report	As required or upon request	As required

The following sections indicate the contents to be included in the reports indicated in the Table above.

Additional details on the reports for Phase 1 – Design and preparation of bid documents

6.1 Inception Report

The report shall outline the work plan/ schedule, strategy, methodology and organization of preparation of designs and bid documents for all the roads selected under this assignment.

6.2 Monthly Progress Report

These reports shall describe concisely all activities and progress for the previous month by the 10th day of each month, as well as the work to be performed during the subsequent month. Problems encountered or anticipated will be clearly stated, together with actions to be taken or recommendations on remedial measures for correction. The Consultant shall concur with and agree upon the format of the report with RHD.

6.3Draft and Final Design Reports

These draft reports shall detail the design and ESIA review process carried out by the Consultant. The Consultant will have to make a presentation to RHD of these reports before finalizing them. On approval by RHD, the Consultant shall make the agreed improvements to the design and finalize them.

The final report shall detail the improvements made to the design following the design review process, and also include a suite of design drawings and cost estimates as required in the scope of works and agreed with RHD.

Additional details on reports for Phase 2 – Construction supervision of works

6.4Inception Report

This report shall outline the work plan/ schedule, strategy, methodology and organizationof carrying out the construction supervision, and implementation of the ESMPs to ensure successful construction of the road.

The Consultant will have to make a presentation of this report to RHD and agree on the strategy and methodology to be followed.

6.5Monthly Progress Reports

These reports shall describe concisely all activities and progress for the previous month. Problems encountered or anticipated will be clearly stated, together with actions to be taken or recommendations on remedial measures for correction. The report shall also indicate the work to be performed during the coming month, schedules of claims and variation orders, tabulated and graphical representations of physical and financial progress compared with the work program and cash flow forecasts, relevant photographs and details of impediment to the works and proposals for overcoming them. The reports should also include information on contractor's plant, equipment and staffing, weather conditions, accidents on site and any other relevant details.

In addition, they should contain brief but comprehensive information about supervision activities on site, problems encountered or anticipated, together with actions to be taken or recommendations on remedial measures for correction, construction supervision staff, visitors to site, and Quality Assurance and Control among others.Monthly Report should address environmental, social, gender etc issues of the project sites.

Monthly report on Land acquisition and resettlement must include detailed plan andimplementation statuson the progress of various activities underLand acquisition and resettlement process.

6.6 technical report on Environmental Social Health and Safety Monitoring, and Land acquisition and resettlement

To be submitted every quarter after the commencement of the construction supervision phase, presenting the environmental impacts and implementation of environmental mitigation measures during and after the construction stage. Environmental monitoring forms shall be completed and attached to the report.

This report shall be submitted at the end of the consulting services, presenting a concise summary of the issues resulting from the implementation of the ESMP, and RAP on the project, level of compliance, and generally how environmental and social issues were managed on the project.

6.7 Quality Control Reports

These reports will make use of the information previously reported monthly, but suitably modified to include, a summary and conclusions on all pertinent issues concerning the works contract. In addition, they will summarize the Consultant's activities, with solutions adopted, financial statements with the Consultancy Agreement and any other relevant information considered necessary in respect of the delivery of services.

7. Final Completion Report

This report will address all aspects of the project implementation, including financial summaries, suggestions and recommendations for future design and construction methods, technical specifications, changes in Special Conditions of Contract and in road maintenance practices. A set of "as built" drawings and CDs containing all the information in the substantial completion report will be presented to the Client.

The report will be submittedwithin four weeks after the end of the Defects Liability Period for the works contract and shall include the following:

(i) Executive Summary
(ii) Mobilisation/ Demobilisation Details
(iii) Description of the Project
(iv) Project Implementation Summary
(v) Financial information, Final Accounts, identification of cost increases / decreases and reasons
(vi) Technical information, summary of work executed, techniques employed, materials used and sources of material comprising among others;
- Horizontal and vertical alignment
- Cross sections
- Pavement layer thicknesses and materials for each road section and their extent where they differ along the road, material test results and field books
- IRI and FWD data as determined by the Contractor prior to handover
- Location, elevation and size of all structures
- Principal survey reference points
- All utilities and services such as electrical, water and telephone
- Contract changes and variations
- Construction Records
- As-Built Drawings of all structures and facilities completed

(vii) Critical assessment of important technical problems and lessons Learned
(viii) Assessment of how Environmental Social Health and Safety Requirements were met and lessons learnt
(ix) Comments on Consultant's TOR, works Technical Specifications and Conditions of Contract
(x) Assessment of the Contractor's performance
(xi) Conclusions and Recommendations

The "as built" drawings shall consist of one original set certified by the Resident Engineer/Consultant's Representative to be submitted with the final report. The Consultant shall provide all required services for certification of the project. In addition, the As-Built drawings shall be produced in electronic format compatible with DWG format produced by most CAD programmes.

The consultant will submit a separate final report on LAR.

8. EXPERTS REQUIRED

The Consultant shall name the Team Leader and key team members to participate in specific roles within the Project Team and provide full curricula vitae and any other information considered relevant by the Consultant. The Consultant shall provide an assurance that all members of the proposed team will be made available as specified in the proposal, if selected. The Consultant is expected to make full use, where possible, of appropriately qualified local staff.

The available time of both the Team Leader and the other team members on the ground shall be carefully phased to match the work program which will be designed around the client's views of priorities, absorptive capacity and any other GOB factors on sequencing of targets and activities, and finalized during the inception stage of these services.

Adequate person months of professional/technical/support staff inputs shall be provided by the personnel to be mobilized by the selected Consultant. Key Personnel inputs should be available during the entire assignment period and should be supported by adequate technical support staff (CAD operators, works supervisors, surveyors, computer operators, office assistants, accountants etc.) person months.

The Key International and National Experts and their estimated person months required for this project are listed below. Consultants shall have their own estimate commensurate with key staffdeployment and overall responsive work and deliverable plan.

a. Experts Input:

Design Phase - Key-experts

SL	Position	Person-month	No of Experts	Total PM
1	Team Leader / Road Safety Infrastructure Specialist(International)	8	1	8
2	Highway Design Engineer(International)	6	1	6
3	Road Safety Auditors(International)	6	2	12
4	National Road Engineering Specialist/Deputy Team Leader	8	1	8
5	Senior Highway Engineer	6	1	6
6	Land Acquisition Expert	6	1	6
	Total Design Phase Key-expert Person-month		**7**	**46**

Design Phase - Non Key-experts

SL	Position	Person-month	No of Experts	Total PM
1	iRAP Data Collection and Analysis Specialist (International)	6	1	6
2	Road Design Engineers (International)	6	1	6
3	National Data Analyst	6	1	6
4	Data Collection Specialists	6	2	12
5	Stakeholder Engagement and Communication Specialist	6	1	6
6	GIS Specialist	6	2	12
	Design Phase non-key expert Person-month		8	48

Supervision Phase - Key-experts

SL	Position	Person-month	No of Experts	Total PM
1	Team Leader / Road Safety Infrastructure Specialist(International)	28	1	28
2	Highway Design Engineer(International)	6	1	6
3	National Road Engineering Specialist/Deputy Team Leader	28	1	28
4	Resident Supervision Engineers	28	3	84
5	Senior Highway Engineer	12	1	12
6	Land Acquisition Expert	18	1	18
7	Resettlement Expert	18	1	18
	Total Supervision Phase Key-expert Person-month		**9**	**194**

Supervision Phase - Non Key-experts

SL	Position	Person-month	No of Experts	Total PM
1	Road Design Engineers (International)	6	1	6
2	Supervision Engineers	28	6	168
3	National Data Analyst	6	1	6
4	Materials Engineer	28	1	28
5	Junior Supervision Engineers	28	6	168
6	Senior Environmental Specialist	28	1	28
7	Senior Social Development Specialist	28	1	28
8	Occupational Health and Safety(OHS) Specialist	28	1	28
9	Gender and Disability Expert	28	1	28
10	Stakeholder Engagement and Communication Specialist	24	1	24
11	Labour Management Specialist	24	1	24
12	GIS Specialist	24	2	48
	Total Supervision Phase non-key expert Person-month			584

Total minimum key-expert input: 46+194= 240 person-month.
Consultant may propose additional experts and support staff, as required.

b. Qualification of Key-Experts

Sl. No	Experts Position	Qualifications	Experience
01	Team Leader / Road Safety Infrastructure Specialist (***International)***	Graduation in Civil Engineering or related field. Master's degree in relevant field, additional accreditation and training on road safety preferred. Fluency in English (written & spoken). Preferably overall professional experience: 20 years	• Substantial experience of highway project design (at least five years) and supervision (at least five years) leading the consultancy team in two or more countries. • At least two road projects with high emphasis on geometric design and construction of road safety features. • Preferably8years of international experience working with HICs and LMICs, of which at least 3 years in LMICs. • He/she should have experiences in monitoring and evaluation of the Safe System based road safety programme. • Have excellent knowledge on recent trends and concepts in road safety and be able to demonstrate an understanding of iRAP and safe system approaches in the developed and developing country context. • Excellent written and verbal communication skills in English. • Must be a permanent employee of the firm for at least 1 year
02	Highway Design Engineer (***International)***	Graduation in Civil Engineering with Master's in Highway/ TransportationEngineering. Fluency in English (written & spoken). Preferably overall professional experience: 15 years	• Preferably 10 years ofdesign and supervision experience in road sector is required. He/She should have at least 8 years' experience in design of highway projectsin two or more countries outside home country. • Should have extensive experience in highway designs of at least 5 highway projects and fully familiar with international 'best practices' such as PIARC guideline. • Should have completed at least two major highway assignments with road safety interventions in similarcapacity in developed and developing counties each.
03	Road Safety Auditors (***International)***	Graduation in Civil Engineering and certification in road safety audit. Fluency in English (written & spoken). Preferablyoverall professional experience: 12 years	• Preferably 5 years of experience undertaking road safety audits, with the last 3 years project outside home country experience in LMICs. • One of them must have experience in traffic engineering. • Have a solid understanding of the Safe System approach including its principles and application.
04	National Road Engineering Specialist/Deputy Team Leader	Graduation in Civil Engineering withMaster's degree in Transportation Engineering/Highway Engineering/relevant field. Fluency in English (written & spoken). Preferably overall professional experience: 15 years	• Experience of road safety audit, black-spot analysis and the development and implementation of evidence-based highway interventions. • At least one road project design and one road project supervision (at least resident engineer level for at least three years) experience • Excellent knowledge on recent trends and concepts in road safety as they relate to Bangladesh. • Experience of working with government agencies in Bangladesh to improve road safety.

Sl. No	Experts Position	Qualifications	Experience
			• Experience in institutionalizing road safety policies, strategies and activities, as well as securing road safety investment in Bangladesh.
05	Resident Supervision Engineers	Graduation in Civil Engineering. Master's in Highway/TransportationEngineering or relevant fields of Engineering will be preferred. Fluency in English (written & spoken). Preferably overall professional experience: 15 years	• Preferably 10 years of professional experience in the design and/or construction and/or supervision of construction of highways in accordance with national road construction and safety norms. • Preferably 5 years of professional experience on similar position in road construction and/or supervision projects with IFIs funding in the region. • Internationally recognized specialists with practical experience in road supervision.
06	Senior Highway Engineer	Graduation in Civil Engineering.Master'sinTransportation/Highway Engineering is preferable. Fluency in English (written & spoken). Preferably overall professional experience: 15 years	• Preferably 10 years of experience in highway designwith at least five years of experiences in LMICs. • Experience of providing capacity-buildingor any other technical assistance in the formulation/updating of design manualis preferable.
07	Land Acquisition Expert	GraduationinCivil Engineering, or related fieldwithMaster's degree in any discipline. Fluency in English (written & spoken) and proficiency in Computer is a must. Preferably overall professional experience: 12 years	• Preferably 7years of experiencein land acquisition with a focus on project management and leadership roles. Demonstrated experience in developing and implementing land acquisition plansin Bangladesh is preferred. • Experience working with international organizations, government agencies, or development projects is preferred. • Certifications in project management or conflict resolution will be an added advantage.
08	Resettlement Expert	Graduation in Civil Engineering, or related field with Master's degree in any discipline. Fluency in English (written & spoken) and proficiency in Computer is a must. Preferably overall professional experience: 12 years	• Preferably 7years of experience in resettlementof project affected persons (PAPs), with a focus on project management and leadership roles. Demonstrated experience in developing and implementing resettlement plans in Bangladesh is preferred. • Experience working with international organizations, government agencies, or development projects is preferred. • Certifications in project management or conflict resolution will be an added advantage.

c. Qualification of Non-KeyExperts

Sl. No	Experts Position	Qualifications	Experience
01	iRAP Data Collection and Analysis Specialist (***International)***	Graduation in Civil Engineering, and Master'sinTransportation Engineering/Statistics/Data Science, or related field. Fluency in English (written & spoken).Preferably overall Preferably overall professional experience: 10 years	• Preferably 5 years of international experience in conducting iRAP road safety assessments with iRAP assessment carried out in at least two LMICs. • Certification/ accreditation from the iRAP institute or equivalent training in road safety data analysis, preferably with specific courses or workshops focused on iRAP assessments, coding and methodologies.
02	Road Design Engineers	Graduation in Civil Engineering.Master'sin Highway/ Transportation Engineering is preferable. Fluency in English (written & spoken). Preferably overall professional experience: 10 years	• Preferably 7 years of relevant professional experience in designing roads; • Proficiency of road design software • Proficiency of using large datasets to use for road design • Preferably 5 years of relevant professional experience in road design in LMICs.
03	Supervision Engineers	Graduation in Civil Engineering. Fluency in English (written&spoken)and proficiency in Computer is a must. Preferably overall professional experience: 10 years	• At least 7 years of professional experience in the design and/or construction and/or supervision of construction of roads in accordance with national road construction and safety norms; • At least 3 years of professional experience on similar position in road construction and/or supervision projects with IFIs funding in the region.
04	National Data Analyst	Graduation in Management/Computer Science/Statistics/ relevant fieldwith adequate knowledge of data analysis. Fluency in English (written & spoken) and proficiency in Computer is a must. Preferably overall professional experience: 10 years	• Preferably 5 years of data collection and analysis experience with multiple datasets, preferably working in Bangladesh and, and in subsequent design and implementation of road safety programs. • Extensive experience in applying modern data management and analysis tools to road safety, with geo-referencing. • Completion of at least two major comparable assignment in any developing countries.
05	Data Collection Specialists	Graduation in Civil Engineering or related field. Fluency in English (written & spoken) and proficiency in Computer is a must. Preferably overall professional experience: 10 years	• Preferably 5 years of data collection and analysis experience, preferably in LMICs. • Adequate knowledge on data collection methods.
06	Materials Engineer	Graduationin Civil Engineering. Fluency in English (written & spoken) and proficiency in Computer is a must.	• Preferably 7years experiences in quality control testing of civil works and materials in roads and building works. • Knowledge of road safety infrastructure, road

Sl. No	Experts Position	Qualifications	Experience
		Preferably overall professional experience: 10 years	furniture and relevant materials
07	Junior Supervision Engineers	Graduate in Civil Engineering or relevant field. Fluency in English (written & spoken) and proficiency in Computer is a must.	• Overall professional experience of five years in supervising road works • At least one project supervision experience with road safety focus
08	Senior Environmental Specialist	Master's degree in Environmental Engineering/Environmental Science. Fluency in English (written & spoken) and proficiency in Computer is a must. Preferably overall professional experience: 15 years	• Preferably 8 years of experience as Environmental Specialist. • Experience of preparing Environmental Impact Assessments (EIAs) and Environmental Management Plans (EMPs)/Environmental Management Frameworks (EMFs). • Experience in World Bank, ADB and JICA funded project as Environmental Specialist will be an added advantage.
09	Senior Social Development Specialist	Master's degree in Social Sciences. Fluency in English (written & spoken) and proficiency in Computer is a must. Preferably overall professional experience: 12 years	• Preferably 8 years of experience as Social Specialist. • Experience of preparing Social Impact Assessments (SIAs) and Social Management Plans (SMPs)/Social Management Frameworks (SMFs). • Experience in World Bank, ADB and JICA funded project as Social Specialist will be an added advantage.
10	Occupational Health and Safety(OHS) Specialist	Graduation in a related field.	• 3 years of experience as OHSSpecialist. • Experience in World Bank, ADB and JICA funded project as Social Specialist will be an added advantage.
11	Gender and Disability Expert	Master's degree inAnthropology/Sociology/Social welfare/Development studies. Fluency in English (written & spoken) and proficiency in Computer is a must. Preferably overall professional experience: 10 years	• 5 years of experience as gender and disability Specialist in World Bank, ADB and JICA funded projects • Experience of assessment and analysis of gender disability issues in infrastructure projects will be preferred.
12	Stakeholder Engagement and Communication Specialist	Master's degree in Mass communication/Social Sciences/Anthropology/ related field. Fluency in English (written & spoken) and proficiency in Computer is a must. Preferably overall professional experience: 10 years	• Preferably of 5 years of experience in communication, stakeholder engagement and gender mainstreaming in the formulation of policies and programmes, particularly in the context of urban and rural transport management.

Sl. No	Experts Position	Qualifications	Experience
13	Labour Management Specialist	Graduation in Management / Sociology/ related field. Master's degree preferred.	• Strong understanding of labour laws, negotiations, and conflict resolution. Proficiency in HRIS and communication. • Preferably 5 years in labour management, including negotiations and policy development. • Preferred certifications such as Certified Labour Relations Professional (CLRP) or Professional in Human Resources (PHR).
14	GIS Specialist	Graduation in Civil Engineering/ Geography/ Geology/ Environmental Science/ related field. Master's is preferable Fluency in English (written & spoken) and proficiency in Computer is a must. Preferably overall professional experience: 10 years	• Experience of working as GIS specialist for at least five years • GIS data use in road sector or comparable sector is required • Expert level user of GIS software • Proficiency with AutoCAD is preferred

Annex I

Project Roads

(for Mass Action Program and National Highway Safe Corridor demonstration)

SN	Road Number	Name of the Road	Total Road Length (Km)	Project Road Length (Km)	Chainage From	Chainage To	Road with Median (Km)
National Highway							
1	N1	Dhaka (Jatrabari)-Cumilla (Mainamati)-Chattogram-Teknaf Road	462.25	39.00	0.00	39.00	38.04
2	N130	(Demra-Kaliganj-Rupganj Link) - Beldi-Agla-Bartul Road	8.00	8.00	0.00	8.00	0.00
3	N3	Dhaka (Banani)-Joydebpur-Mymensingh Road	111.58	111.58	0.00	111.58	111.58
4	N302	Tongi-Ashulia-Zerabo-EPZ Road	17.56	17.56	0.00	17.56	0.00
5	N309	Mymensingh Town By-Pass Road	13.30	13.30	0.00	13.30	0.00
6	N4	Joydebpur-Tangail-Jamalpur Road	146.31	146.31	0.00	146.31	124.49
7	N401	Madhupur-Mymensingh Road	46.98	46.98	0.00	46.98	0.00
8	N402	Nakla-Nalitabari-Nakugaon Road	28.00	28.00	0.00	28.00	0.60
9	N403	Mirzapur Town old Section Road	3.73	3.73	0.00	3.73	0.10
10	N404	Tangail Old Section (Nagarjalpai-Baila) Road	6.49	6.49	0.00	6.49	0.00
11	N406	Kaliakoir Town Old Section	3.04	3.04	0.00	3.04	0.00
12	N407	Korotia-Bangra Road	2.21	2.21	0.00	2.21	0.00
13	N408	Korotia Bazar Portion Road	3.53	3.53	0.00	3.53	0.00
14	N5	Dhaka (Mirpur)-Utholi-Paturia-Natakhola-Kashinathpur- Bogra-Rangpur-Beldanga- Banglabandh Road	526.03	165.31	0.00	165.31	35.59
				191.33	334.70	526.03	1.70
15	N501	Mirpur Bridge-Dhour Road	11.94	11.94	0.00	11.94	0.00
16	N502	Bogra (Jahangirabad)-Natore Road	63.29	63.29	0.00	63.29	0.15
17	N504	Nagarbari (Pratappur)-Kashinathpur Road	6.653	6.65	0.00	6.65	0.50
18	N506	Rangpur-Barobari-Kurigram Road	50.02	50.02	0.00	50.02	0.30
19	N507	Hatikamrul-Banpara Road	51.26	51.26	0.00	51.26	0.00
20	N508	Beldanga-Dinajpur Road	15.98	15.98	0.00	15.98	0.00
21	N509	Barabari-Lalmonirhat-Burimary Road	104.69	104.69	0.00	104.69	0.80
22	N510	Bogra Station Road	2.78	2.78	0.00	2.78	2.78
23	N511	Mirpur (Birulia)-Ashulia (Yearpur) Road	9.46	9.46	0.00	9.46	0.00
24	N512	Kurigram-Nageswari-Bhurungamari-SonahatLandport Road	50.75	50.75	0.00	50.75	0.00

SN	Road Number	Name of the Road	Total Road Length (Km)	Project Road Length (Km)	Chainage From	Chainage To	Road with Median (Km)
25	N513	Baderhat-Khayerchar Road	11.88	11.88	0.00	11.88	0.00
26	N514	Bogra (Banani)-Matidali Road	8.67	8.67	0.00	8.67	8.67
27	N515	Bogra 2nd Town By-Pass Road	16.00	16.00	0.00	16.00	0.00
28	N517	Rangpur Town Old Section (Modern More-Medical More) Road	8.210	8.21	0.00	8.21	8.21
29	N518	Sayedpur Town Old Section (Sutkir More-Sonapukur)	4.160	4.16	0.00	4.16	0.10
30	N519	ShahidZiaur Rahman Medical College Connecting Road	2.64	2.64	0.00	2.64	0.00
31	N520	Ullapara Town Link Road	2.601	2.60	0.00	2.60	0.03
32	N521	Hili-Dugdugi-Ghoraghat Road	28.50	28.50	0.00	28.50	0.00
33	N530	Gabtali-Swarighat (Babu Bazar Bridge) Road	11.64	11.64	0.00	11.64	0.00
34	N532	Postagola-Chasara Road	10.642	10.64	0.00	10.64	0.00
35	N540	Nabinagar-EPZ-Kaliakoir (Chandra) Road	16.01	16.01	0.00	16.01	0.15
36	N6	Kashinathpur-Dasuria-Natore-Rajshahi-Nawabganj-Kansat-Sona Masjid-Baliadighi Border Road	232.24	232.24	0.00	232.24	13.72
37	N602	Natore Town Old Section Road	5.640	5.64	0.00	5.64	5.64
38	N603	Rajshahi Town By-Pass Road	21.03	21.03	0.00	21.03	0.00
39	N604	Pabna Town Old Section (Bus Stand-Gachpara) Road	7.83	7.83	0.00	7.83	7.20
40	N605	Rajshahi Greater Road	2.960	2.96	0.00	2.96	2.96
41	N7	Dauladia-Faridpur (Goalchamot)-Magura-Jhenaidah-Jessore-Khulna-Mongla (Digraj) Road	249.67	99.40	0.00	99.40	7.28
				101.76	147.90	249.66	2.90
42	N702	Jessore (Daratana More)-Magura (Vaina More) Road	43.75	43.75	0.00	43.75	0.00
43	N703	Jhenaidah Town Old Section	3.49	3.49	0.00	3.49	0.00
44	N704	Jhenaidah-Kushtia-Paksey Ferry-Dasuria Road	81.54	81.54	0.00	81.54	9.25
45	N705	Paksey (Ruppur)-Iswardi-Dasuria Old Section	9.453	9.45	0.00	9.45	0.00
46	N706	Jessore (Daratana More)-Benapole Road	38.20	38.20	0.00	38.20	3.00
47	N707	Jessore Town Old Section (Palbari-Daratana-Monihar-Murali)	6.490	6.49	0.00	6.49	3.20
48	N708	Jessore Town Old Section alternate Road (Palbari-Board office-Monihar)	4.750	4.75	0.00	4.75	0.00
49	N709	Khulna City By-Pass Road	26.57	26.57	0.00	26.57	10.00

SN	Road Number	Name of the Road	Total Road Length (Km)	Project Road Length (Km)	Chainage From	Chainage To	Road with Median (Km)
50	N711	Benapole Town Old Section	3.580	3.58	0.00	3.58	0.00
51	N712	Jhenaidaha bus terminal-Arappur intersection-Alherabusstand	6.15	6.15	0.00	6.15	1.00
52	N713	Kushtia Town Bypass Road	6.60	6.60	0.00	6.60	0.00
53	N715	Alipur - BhomraLandport Connecting Road	9.23	9.23	0.00	9.23	1.00
54	N802	2nd Buriganga Bridge Approach Road to National Highway N8	4.55	4.55	0.00	4.55	1.48
55	N803	Faridpur Town Old Section (Alipur-Faridpur-SS Ghat) Road	6.13	6.13	0.00	6.13	4.00
56	N804	Bhanga-Faridpur (Goalchamot) Road	32.06	32.06	0.00	32.06	4.02
57	N805	Bhanga-Bhatiapara-Mollahhat-Fakirhat-Noapara Road	110.63	110.63	0.00	110.63	1.30
58	N806	Bhatiapara-Kalna-Lohagara-Narail-Jessore Road	55.17	20.55	34.62	55.17	3.84
59	N808	Faridpur Town By-Pass	5.30	5.30	0.00	5.30	5.30
Total National Highway Length=			2,377.55	2164.03			
Regional Highway							
1	R110	Jatrabari-Demra-Shimrail-Narayanganj (Chasara) Road	18.926	18.93	0.00	18.93	9.52
2	R111	Signboard at 6th km of N1Road-Narayanganj Road	8.105	8.11	0.00	8.11	8.11
3	R113	Madanpur-Madanganj-Sayedpur Road	12.119	12.12	0.00	12.12	0.00
4	R114	Nayapur-Araihazar-Narsingdi-Raipura Road	46.436	46.44	0.00	46.44	0.00
5	R115	Chashara-Khanpur-Haziganj-Godnail-Adamje EPZ Road	6.200	6.20	0.00	6.20	0.00
6	R202	Bhulta-Rupganj-Kayetpara-Rampura Road	23.000	23.00	0.00	23.00	0.00
7	R203	Bhulta-Araihazar-Bancharampur-Nabinagar-Shibpur-Radhika Road	76.197	76.20	0.00	76.20	0.00
8	R211	Itakhola-Motkhola-Kotiadi Road	45.114	45.11	0.00	45.11	0.05
9	R212	Akdaria (C&B Bazar)-Shekher Bazar-Puradia-Agarpur Road	23.409	23.41	0.00	23.41	0.00
10	R301	Tongi-Kaliganj-Gorashal-Pachdona Road	33.037	33.04	0.00	33.04	0.00
11	R304	Palas-Gorashal Road	12.156	12.16	0.00	12.16	0.00
12	R305	Panchdona (Asmandir Char)-Charsindur (Dulalpur) Road	18.770	18.77	0.00	18.77	0.00
13	R310	Joydebpur-Gazipur-Azmatpur-Itakhola Road	37.339	37.34	0.00	37.34	0.00
14	R312	RajendrapurChourasta-Kapasia-	43.028	43.03	0.00	43.03	0.00

SN	Road Number	Name of the Road	Total Road Length (Km)	Project Road Length (Km)	Chainage From	Chainage To	Road with Median (Km)
		Toke-Motkhola Road					
15	R313	Mawna-Sripur-Gusinga-Kapasia-Aral-Sammania-Hitirdia-Monohardi (Hetemdi) Road	42.352	42.35	0.00	42.35	0.00
16	R314	Mawna-Bormi-Gafargaon Road	43.410	43.41	0.00	43.41	0.00
17	R315	Mawna-Fulbaria-Kaliakoir-Dhamrai-Nabinagar (Dulivita) Road	51.985	51.99	0.00	51.99	0.00
18	R360	Mymensingh (Raghurampur)-Kishoreganj (Battali)-Bhairab (Bazar) Road	116.385	116.39	0.00	116.39	0.25
19	R370	Mymensingh (D.C Office)-Raghurampur-Netrokona-Mohonganj-Jamalganj-Sunamganj Road	131.000	131.00	0.00	131.00	3.50
20	R371	Mymensingh (Raghurampur)-Phulpur-Nakla-Sherpur Road	65.170	65.17	0.00	65.17	0.00
21	R451	Nalka-Sirajganj Road	14.440	14.44	0.00	14.44	0.00
22	R460	Jamalpur-Sherpur-Bangaon Road	32.875	32.88	0.00	32.88	0.00
23	R461	Jamalpur-Madarganj Road	28.500	28.50	0.00	28.50	0.00
24	R462	Jamalpur-Chchua-Muktagachha	37.700	37.70	0.00	37.70	0.00
25	R464	Jamalpur (Nandibazar)-DhanuaKamalpur-Raumari-Datbhanga Road	86.920	86.92	0.00	86.92	0.00
26	R465	Jamalpur-Islampur-Dewanganj-BahadurabadGhat Road	43.625	43.63	0.00	43.63	0.00
27	R480	Elenga-Bhuanpur (Char Gabsara) Road	22.402	22.40	0.00	22.40	0.00
28	R503	Kalampur Bus Stand-Kawalipara-Balia-Warsi-Mirzapur Road	29.583	29.58	0.00	29.58	0.00
29	R504	Hemayetpur - Singair - Manikgonj	33.907	33.91	0.00	33.91	4.01
30	R506	Aricha (Barangail)-Ghior-Daulatpur-Tangail Road	53.733	53.73	0.00	53.73	0.00
31	R542	Naogaon Town By-Pass Road	8.000	8.00	0.00	8.00	0.40
32	R544	Santahar-Atrai Road	25.700	25.70	0.00	25.70	0.00
33	R545	Bogra-Naogaon-Mohadebpur-Patnitala-Dhamoirhat-Joypurhat Road	120.930	120.93	0.00	120.93	3.80
34	R547	Naogaon-Badalgachhi-Patnitala-Shapahar-Porsha-Rohonpur Road	100.985	100.99	0.00	100.99	2.00
35	R548	Naogaon-Atrai-Natore Road	53.321	53.32	0.00	53.32	0.00
36	R550	Mokamtala-Kalai-Joypurhat Road	36.840	36.84	0.00	36.84	0.80
37	R554	Rangpur-Badarganj-Parbatipur-Dinajpur Road	66.126	66.13	0.00	66.13	0.00

SN	Road Number	Name of the Road	Total Road Length (Km)	Project Road Length (Km)	Chainage From	Chainage To	Road with Median (Km)
38	R555	Palashbari-Gaibandah Road	21.015	21.02	0.00	21.02	2.50
39	R556	Mithapukur-Shahebganj-Maddahpara-Fulbaria Road	35.131	35.13	0.00	35.13	0.00
40	R560	Paglapir-Dalia-Tista Barrage Road	57.130	57.13	0.00	57.13	0.00
41	R585	Gobindagnj-Goraghat-Birampur-Fulbari-Dinajpur Road	106.730	106.73	0.00	106.73	0.00
42	R601	Pabna-Sujanagar-Natakhola Ferry Ghat (Baderhat) Road	52.435	52.44	0.00	52.44	0.00
43	R603	Pabna-PakseyNadi Bandar (EPZ) Road	25.795	25.80	0.00	25.80	0.00
44	R604	Tebunia-Chatmohor-Handial-Hamkuria Road	40.580	40.58	0.00	40.58	0.10
45	R605	Sujangar-Lalan Shah Bridge Approach Road	42.650	42.65	0.00	42.65	0.00
46	R606	Baneswar-Sarda-Charghat-Bagha-Lalpur-Ishwardi Road	53.362	53.36	0.00	53.36	1.50
47	R685	Rajshahi (Bindur More)-Nawhata-Chowmasia Road	66.420	66.42	0.00	66.42	14.15
48	R710	Ahaladipur-Rajbari-Pangsha-Kumarkhali-Kushtia (Chourhash) Road	73.110	73.11	0.00	73.11	5.50
49	R720	Magura-Narail Road	47.010	47.01	0.00	47.01	0.00
50	R745	Kushtia (Trimohoni)-Maherpur-Chuadanga-Jhenaidah Road	116.818	116.82	0.00	116.82	0.80
51	R747	Kustia(Bottoli)-Poradah-AlamDanga-Chuadanga Road	43.468	43.47	0.00	43.47	0.10
52	R748	Chuadanga-Darsana-Jibannagar-Kotchchandpur-Kaliganj Road	65.882	65.88	0.00	65.88	0.00
53	R749	Darsana-Mujibnagar Road	28.445	28.45	0.00	28.45	0.00
54	R755	Jessore (Rajarhat)-Monirampur-Keshabpur-Chuknagar Road	38.265	38.27	0.00	38.27	0.00
55	R760	Khulna-Chuknagar-Satkhira Road	58.500	58.50	0.00	58.50	5.00
56	R765	Navaran-Illishpur- Satkhira road	42.943	42.94	0.00	42.94	0.00
57	R771	Rupsha-Fakirhat-Bagerhat Road	31.180	31.18	0.00	31.18	0.00
58	R773	Signboard-Morelganj-Sharankhola-Rainda-Bogi Road	52.039	52.04	0.00	52.04	0.00
59	R812	Fatullah (Panchaboti)-Munshiganj (Muktarpur)-Lohajang-Mawa Road	42.285	42.29	0.00	42.29	0.00
60	R820	Zinzira-Keraniganj-Nawabganj-Dohar-Srinagar Road	72.052	72.05	0.00	72.05	0.00
61	R850	Tekerhat-Gopalganj (Haridashpur Bridge)-Mollahhat (Gonapara) Road	44.830	44.83	0.00	44.83	0.00
62	R852	Gouranadi-Paisarhat-Kotalipara-	46.242	29.40	16.84	46.24	0.00

SN	Road Number	Name of the Road	Total Road Length (Km)	Project Road Length (Km)	Chainage From	Chainage To	Road with Median (Km)
		Gopalganj Road					
63	R860	Mostafapur-Madaripur-Shariatpur (Monohar Bazar)-Ibrahimpur-Harina-Chandpur (Bhatialpur) Road	74.634	74.63	0.00	74.63	7.50
64	R862	Pacchar-Sibchar-Madaripur Road	34.100	34.10	0.00	34.10	0.00
65	R863	Shariatpur-Janjira-Kawrakandi (Kathalbari) Road	28.646	28.65	0.00	28.65	0.00
Total Regional Highway Length=			3,091.42	3074.58			
Total Road Length (National Highway+ Regional Highway)=			5,468.97	5238.61			490.47

Annex II

Component Description – Bangladesh Road Safety Project

1. **Component 1: Multi-sectoral road safety pilot projects:** Safe-system based road safety pilot projects are designed to demonstrate the effectiveness of multi-sectoral interventions, coordinated and supervised under the aegis of a dedicated institutional body, on a high-risk, high-visible section of the network, for the targeted reduction in road deaths over the project period. These aim to enhance coordination between the road agencies (RHD, LGED, District authorities), Highway and Metropolitan Police, health agencies, and civil society. These measures will be independently monitored over the project period to determine the change in road safety outcomes, so that they can be replicated over the wider-geographical area through greater coordination between all stakeholders, and eventually scaled up country-wide. These measures will allow reducing disaster-related accidents in vulnerable zones to be reduced through safer and resilient design features and support the enhancement of emergency services enhancement with post-crash care (including for disaster-related emergency events). The traffic calming measures and road safety civil works will have a positive impact on congestion reduction and will facilitate NMT travel patterns. Three distinct pilot projects will be undertaken.

(a) National Highway Safe Corridor Demonstration Project: This activity aims to enhance coordination between RHD, Police, health agencies, and NGOs such as Traumalink on national highway safety. Based on a comprehensive road safety assessment of the highway network[10], two corridors that are representative of about 90 percent of the country's national highways - N4 from Gazipur to Elenga (70 km), and N6 from Natore to Nawabganj (70 km) - have been selected for this pilot for multi-sectoral interventions over the project period. N4 is a two-lane highway with a width of 7.3 m, average daily traffic (ADT) of 15,286, and six major intersections that are currently being upgraded to a 4-lane highway[11]; N6 is also a two-lane highway with a width of 7.3m, ADT of 9747 and six major intersections; both these highways are high-risk with fatality rates of 0.24 deaths/km and 0.08 deaths/km. Support for three sets of interventions are envisaged in these pilots: (i) engineering interventions including minor civil works, required road safety treatments (including provisions for parking and repair of vehicles) and physical traffic calming measures; (ii) targeted enforcement programs including equipment to modernize the capacity of the Traffic Police and highway patrol to manage speeding, axle-load control and to deter risky road user behavior through a combination of automated enforcement systems (surveillance cameras and control room, and electronic messaging) and physical (traffic calming, weigh stations) measures; formulation and execution of complementary targeted communication programs to enhance driver/user awareness on the selected sections as applicable in the vicinity of the selected highway corridor; (iii) deployment of free, on-call basic life support ambulances manned by trained personnel to provide pre-hospital care to crash victims and transport them to the nearest healthcare facility; improved spot bystander care to crash victims in collaboration with local NGOs and augmentation of emergency care in district hospitals or medical colleges along N4 and N6 corridors. This would include augmenting physical resources such as infrastructure, equipment, and supplies and updating knowledge and skills of doctors and nurses as per standards laid out in WHO essential trauma care guidelines.

(b) Urban road safety pilot project: This activity aims to enhance post-crash care (including for victims of disaster-related road accidents) and enforcement/awareness in the

[11] Under the SASEC Road Connectivity Project

Dhaka Metropolitan Area. Key stakeholders for this pilot would be city health agencies, BRTA, and the Dhaka Metropolitan Police (DMP). As GOB is already implementing some urban improvement projects and bus route rationalization studies in the selected areas, the project will support iRAP assessments in these areas (together with the assessments under Mass Action programs under Component 2). As such these pilots will complement GOB's engineering improvements with post-crash care and targeted communication measures as under:

i. **Motorcycle ambulances.** Given the traffic congestion in Dhaka city and the delayed ambulance response time, motor-cycle ambulances will be deployed at selected locations in Dhaka to provide medical support within minutes of the crash. These motor-cycle ambulances will be manned by trained emergency medical technicians and equipped with kits to stabilize crash victims till ambulances reach the crash spot. Basic Life Support (BLS) ambulances with trained personnel will be deployed to transport RTC victims to the nearest trauma care facility. Both the motorcycle ambulance and BLS ambulance services will be provided free of cost and will be accessible through a toll-free hotline linked to a call center. Exclusive ambulance lanes may be earmarked on major roads of the demonstration area for rapid movement of ambulances. The emergency department of the Mugda Medical College Hospital in Dhaka will be strengthened using GoB counterpart funding.

ii. **Targeted Preventative Enforcement Programs and Communication Programs.** This activitywould finance the development and implementation of targeted proactive deterrence enforcement plans, through the use of the equipment and patrol vehicles (purchased under Component 2 below), in combination with communication/awareness programs (under Component 2) to foster improved road user compliance in the pilot sites.

(c) District Road Safety Initiatives: This pilot is aimed at district-level ownership and implementation of road safety interventions that are often difficult to manage at the central level. Based on prioritization criteria, four districts namely Tangail, Bogura, Cumilla, and Jhenaidhah representing the divisions of Dhaka, Chottagram, Rajshahi, and Khulna were assessed. The districts of Tangail and Bogura that have the highest fatality rates have been selected for intensive road safety treatments. These two districts also have high motorization rates, high rates of economic development, and witness a high percentage of freight traffic. Tangail has a population density of 1056/sq.km and more than half of the population is female. N4 (selected in the NH pilot), which connects Dhaka to north Bangladesh passes through Tangail. Being home to the Jamuna Bridge connecting east and west Bangladesh, it experiences heavy traffic including freight movement. Bogura is a major connecting point for traffic movements to points north in Bangladesh. It is connected to Dhaka by N5 and Rajshahi by N502, both of which experience heavy traffic volumes. It has two hospitals – Bogura Medical College Hospital (with 500 beds) and Bogura Mohammad Ali Hospital (with 250 beds).

A combination of treatments listed above including corridor enhancements, local area safety improvements and NMT improvements, improved bystander care, and training in essentials of trauma care for hospital staff would be undertaken in these two districts. The capacity of District Road Safety Committees would also be developed to enable them to identify, prioritize and implement effective and evidence-based road safety interventions in their jurisdictions.

2. **Component 2: Priority Road Safety Investments:** This component seeks to support the expedited implementation of some stand-alone priority activities as per the provisions of the recently enacted Road Transport Act. The idea is to demonstrate quick wins that can be had under

infrastructure, vehicle and user safety, and post-crash care, and help establish best-in-class systems. These infrastructure improvements, along with improved systems/facilities and templates would likely then provide the means to replicate the pilot projects to more corridors, urban areas, and districts. The proposed activities will help reduce disaster-related accidents in vulnerable zones with safer and resilient design features, support the enhancement of emergency services enhancement and better assess vulnerabilities (with an improved crash data system). The proposed activities will also have a positive impact on reducing congestion reduction and will promote NMT use. Key activities include:

(a) Mass Action Programs to improve infrastructure safety (RHD): This activity would include: (i) systematic road safety surveys and assessments (using iRAP) of the national highway (NH) and regional highway (RH) networks, (in five divisions of Bangladesh – Dhaka, Khulna, Rajshahi, Rangpur, and Mymensingh), totaling about 5,000 km, and selected roads under the urban area pilots in Component 1, selected based on an analysis of existing crash data; and (ii) mass action treatments (based on iRAP and other assessments) including (a) junction improvements for intersections identified as high-risk and high-volume, and (b) minor civil works and installation of road furniture, signage, and markings, especially on high-risk corridors and access roads connecting to these highways, at railway crossings, and bazaar areas. Specifically, at least 70 high-risk junctions of minor roads with national and regional highways that comprise around 10 percent of all the intersections on the national and regional highway network (with a benefit-cost ratio greater than two and involving minimal land acquisition[12]) will be initially improved under the project. These are based on a recent comprehensive RHD study that assessed road safety hazards at 693 intersections, interchanges, flyovers, and side roads through road safety audits, traffic and speed studies, traffic violation data, and video data.[13] More junctions fulfilling the set criteria may be selected for improvements based on the effectiveness of the measures undertaken. Efforts will be made to ensure that gender issues are suitably integrated into the road safety infrastructure activities. The design will also consider 32 customized conceptual and detailed designs with safety countermeasures already prepared to specifically enhance the safety of vulnerable road users.

(b) Crash Data Systems (Bangladesh Police): A national crash database system will be developed to replace the current Microcomputer Accident Analysis Package System (MAAP). This system will be primarily be used by the local police to enter crash data on-site, will pull and integrate data from other sources such as the District Health Information System 2 and the Open Medical Record System of the DHIS as well as road infrastructure, licensing, and vehicle registration database systems, provide analytical tools that respond to government needs and will facilitate the sharing of data among agencies and other stakeholders. Bangladesh police will enter into MOU for crash data sharing with the stakeholders to ensure that the agencies can make data-driven decisions to enhance road safety. This will be done based on a comprehensive study of current operating procedures/processes/MIS to identify software/ hardware/ apps and other resource requirements initially for piloting in the national, urban area, and district pilots and eventually for country-wide rollout. In addition, it would support GOB to standardize definitions, and methods for collecting data (including collecting and reporting data on weather and disaster-related road accidents which are increasing and must be assessed for better planning of road safety/emergency interventions), and to design a crash data format that responds to the capacities and needs of ministries, and to provide training. Data systems can also support the driver licensing

[12] Less than US$1.3 million per junction

[13] *Study on Road Safety Hazards including Design of Countermeasures at Intersections on National and Regional Highways of Bangladesh* - Final Report of DevConsultants Limited submitted to Road Design and Safety Circle, RHD, GOB, May, 2019

database on the violation, where a violation is defined to include sexual harassment offenses.

(c) Integrated Traffic Management and Incident Detection System (ITMIDS, Bangladesh Police): The ITMIDS will be undertaken along with the National Highway Safe Corridor Demonstration Project Sites (N4 and N6) with CCTV, video, and audio feeds, Automatic Number Plate Recognition (ANPR) technology to detect speed and traffic violations and enable traffic flow analysis and real-time monitoring will be replicated along some of the highway corridor pilots.

(d) Strengthening Highway and Metropolitan Police: The activity would finance patrol vehicles, crash scene clearing equipment to extricate victims, radio communication equipment, chemical/alcohol detection kits, and enforcement-related training to the Highway Police to enhance proactive highway policing.RHD shall sign a Memorandum of Understanding ("MoU") with the Bangladesh Police, which shall set forth the terms and conditions related to the use of vehicles and equipment for the implementation of activities.

(e) Integration of Standalone Management Information Systems (BRTA): This activity would seek to integrate BRTA's existing information systems/databases of vehicle registration, driver licensing, and payments to streamline its operations and improve efficiency, based on a comprehensive study on the As-Is systems, the To-Be architecture, the gaps, timeline, and implementation arrangements. It will also be linked to the proposed crash database system.

(f) Road awareness and communication campaigns (BRTA): These overarching objectives of the awareness campaign are to establish safer road behavior and raise awareness on sexual harassment prevention and response.The campaign will be rooted in social norms and will be tailored for male and female users. This activity will seek to: (i) deliver customized awareness and communication campaigns along the pilot corridors and areas to enhance user awareness of road safety features and foster enhanced road user compliance; (ii) establish an annual program of campaigns focusing on the core risk factors, using quantitative and qualitative data to influence themes and messages; and (iii) awareness-raising on sexual harassment prevention and response.

(g) A comprehensive commercial driver's training Program (BRTA): The activity would involve reviewing the current driver training regime for commercial drivers and establishing a sustainable system including institutional mechanisms, the role of private sector/civil society, the development of training modules, driving license training of trainers, further school training of US$0.15 million commercial drivers per year for three years following modified manuals by the trainers. Driving training will include modules on sexual harassment prevention and response.

(h) Trauma Registry and Trauma Quality Improvement (DGHS): This component will implement trauma registries and trauma system improvement programs (TSIP) in district hospitals in the districts with high road crash fatality based on the WHO Injury Surveillance and Trauma Quality Improvement guidelines. This intervention will be implemented in an integrated manner using existing human resources. This component aims to improve injury surveillance and enhance the quality of hospital-based trauma care.

(i) Training of Medical Providers on Essentials of Trauma Care (DGHS): Doctors, nurses, and sub-assistant community medical officers (SACMO) staffing emergency room in all UHCs, District Hospitals and Medical Colleges along National Highways N4 and N6 and in high-crash-risk districts will be trained on Advanced Trauma Life Support (ATLS) and Basic Trauma Life Support (BTLS).

3. **Component 3: Technical Assistance.** This component will focus on technical capacity building and tools for all departments and implementing agencies to enable them to formulate a robust National Road Safety Program with a targeted vision and concrete investment plans in the short, medium, and long term. It would include:

(a) **Technical Assistance to BRTA** – This activity would finance services and goods required for; (i) strengthening the NRSC secretariat housed in BRTA; (ii) development of a blueprint to establish a National Road Safety Authority, including its vision, mission, organizational structure, the draft Act and regulations; (iii) preparation of a National Road Safety Strategy and Investment Plan - consolidation of the current fragmented NRSC action plan into a coherent national strategy and develop investment plans for a prioritized set of actions for each of the implementation agencies. The strategy will mainstream gender and disability considerations and contain specific recommendations to improve road safety for women, girls, and persons with disabilities. The investment plan will provide an environmental and social management approach for the sustainability of any investment in infrastructure; (iv) review of the existing commercial driver training regime and develop a comprehensive driver training program; (v) development of various technical manuals, e.g., traffic signs, vehicle inspection, crash investigation, driver testing, vehicle design manual prioritizing women, the elderly and people with disabilities; (vi) developing rules/sub-national legislation for the Transport Act of 2018; (vii) the development of standard design and specification guidelines for the setting up of new Vehicle Inspection Centers; (viii) developing and operationalizing hazard maps that integrate both climate and safety risk vulnerability maps for better planning of road infrastructure maintenance or investments, and for improved emergency planning; (ix) the review of existing mechanisms to respond to sexual harassment in public transport to plan for its strengthening, and to assess the socioeconomic impacts of road injuries and deaths of men on women in the household; and (x) a comprehensive training and capacity building program for BRTA staff at HQ and in the field.

(b) **Support to RHD:** The activity would finance the setting up a system of Road Safety Audit (RSA) accreditation/certification; development of pre-construction, construction-stage, and post-construction RSA manuals; updates to design standards and the development of technical manuals, incorporating safer and climate-resilient features; and training and capacity building of RHD's road safety unit as well as other RHD staff based in HQ and the field.

(c) **Support to the Highway Police:** The project will support the construction of a Training Center complete with a training ground and demonstration road for practical training in Shibchar and Madaripur within land already identified by the Police. Training will include modules on modern road safety enforcement and strengthening the response to reports of sexual harassment.

(d) **Support to the Directorate General of Health Services (DGHS):** The project will develop standards and protocols and operational policies for all aspects of pre-hospital and hospital-based emergency care services to set up a formal emergency medical service in the country in line with international standards as well as provide training and capacity building on road safety aspects and specific emergency measures during weather and disaster-related road accidents.

(e) **Training programs for all implementing agencies** – This activity would finance technical, fiduciary, and safeguard experts, training and capacity building; goods, and consulting services for the Program Implementation Unit (PIU) as well as to all the implementation agencies to ensure smooth implementation of the project.

Annex III

TOR of LAR consultancy

The exact location of the land requirements will be identified with the detailed engineering design for intersection improvement, geometric correction of selected highway sections and provisions for bus bays, parking areas, and traffic calming measures.

Potential land acquisition and resettlement (LAR) impacts those may arise during detailed engineer design at the implementation stage are anticipated as (i) physical displacement (relocation, loss of residential land or loss of shelter), (ii) economic displacement (loss of land, assets, or access to assets, leading to loss of income sources or other means of livelihood), or both physical and economic displacement.

LAR Consultancy is tasked in two main areas:

A. Supporting Land Acquisition Process

Services for land acquisition for project purpose will be required for (1) preparation of land acquisition proposals and (2) supporting land acquisition and compensation payment process.

A.1 Preparation of land acquisition proposals

(i) Identification of locations (mauza names) and requirements of land acquisition (land plots in the mauza maps with quantity) for project sites (highway sections, junctions and other construction sites;

(ii) Collection and digitization of mauza maps, geo-referencing and superimposing infrastructure layouts on the digitalized mauza maps demarcating boundaries of proposed acquisition of land;

(iii) Carry out land survey for identification of acquisition boundaries on the ground and marking in the digitalized mauza maps;

(iv) Video imaging proposed right of way land using appropriate imaging technology with GIS coordinates of each physical property on proposed lands;

(v) Field truthing and consultation with community on the purpose, quantity and location of land proposed for acquisition;

(vi) Preparation of land plans, land schedule and plot index;

(vii) Collection of khatians and ownership information of land proposed for acquisition and furnish Cha Form for each proposal;

(viii) AssistRHD in getting administrative clearanceon land acquisition from controlling ministry;

(ix) Help RHDorganizing environmental clearance certificate on land acquisition for each district.

(x) Complete and confirm LA proposal for each site acceptable to DC office and help RHD in submitting the LA proposals.

A.2 Supporting Land Acquisition and Compensation Payment Processes

(i) Engage with respective Deputy Commissioner's offices, concern AC (land) office, district public works department (PWD) and divisional forest office (DFO) and assess the institutional capacity in delivering services for acquisition of land for the Project and identify requirements of project support to bridge any shortfall or gaps.

(ii) Collect, with appropriate authorization, initial information on units of ownership of land

proposed for acquisition from the Upazila and Union land offices. The basic information includes: (1) Plot number, (2) khatian number, (3) land classification(s), and (4) names and addresses of landowners from the latest land records.

(iii) Based on the information on the ownership of units of land, work with the AC (Land) office and union land office to extract additional data from the available land records including: (i) Names and addresses of the owners according to the mutation khatian; (ii) Quantity of land and mutation case number; (iii) Names of buyers for whom mutation has not been initiated; (iv) Names and addresses of successors of deceased owners from the mutation or survey khatian.

(iv) Design and carry out title review of the likely affected land owners based on information furnished in the Cha Forms and identify needs of the land owners in updating their titles for claiming compensation under law.

(v) Prepare LA support plan (LASP) for the project in response to the requirements of the key acquiring authority (DC office/LA Section), and the valuation authorities (PWD and DFO among others), and the project affected land owners.

(vi) On submission of LA proposal, engage with the concern DC office, PWD and DFO to prepare LA processing plan (LAPP) and agree with them a timeline with requisition support from the project as per LASP prepared for the projects land acquisition, overall.

(vii) Support the acquiring authority and valuation authorities in their process including first feasibility, notifications (u/s 4, 7 & 8), video filming of right of way, joint listing of property to be acquired with their legal owners in possession, preparation of LA Case, valuation, and preparation of awards, and organizing field work for assessment and valuation of property and identification of awardees.

(viii) Develop a protocol in consultation with the LA Section of concern DC office, AC (land) office and union land office, and verify the persons standing to lose land on the basis of available ownership records.

(ix) Motivate and educate the identified landowners to be prepared to establish their uncontested ownership of the land.Establish and operate union-based counselling booths that presumptive landowners can access.

(x) Design and carry out a disclosure and outreach campaign to encourage all presumptive landowners to get their ownership documents ready to establish uncontested ownership of the land proposed for acquisition.Establish and operate union-based counselling booths that presumptive landowners can access.

(xi) Depending on the availability of records and the merit of their claims, the land losing persons (LLP) will be placed under four different preparedness groups, to receive the requisite support: (i) Landowners with complete ownership records; (ii) landowners with ownership records to be completed with additional documents; (iii) legal owners to complete land transfer and partition by mutation and succession certification; and (iv) landowners with contested claims of ownership.

(xii) Sub-group the landowners into two broad categories: (i) those who are sufficiently aware about land records and the compensation procedure can proceed on their own. This group may not need additional support. (ii) Landowners who are not sufficiently aware and are hesitant to present their claims to the DC offices or have inadequate knowledge about land records and compensation procedures need additional support to establish their uncontested ownership of the land under acquisition.

(xiii) Design advocacy and support services for the affected land owners and upon notification u/s 4(1), undertake mobilizing them on updating record of rights through the following

steps:

1. Collection of names of recorded owners per latest available record with the AC (land) office and union land office and complete ownership information up to date.
2. Listing out the current users and owners in possession of land parallelly with joint listing of persons interested along with their property proposed for acquisition.
3. Verify titles of property (land) reviewing available record of rights with the affected land owners in current possession of enjoyment. Reaching out to all absentee persons (male/female) having an interest to the land in question, verify and get acknowledged by the co-owners/successors.
4. Having ascertained of the legal title (legal or legalizable), review the completeness of record of rights available with the owner and identify which records are missing to establish exclusive legal title to land and where and how to collect those.
5. Screening out units of property with contested ownership and status of settlement (can mutually be settled, mutual settlement attempted but failed, litigation pending with the court of law).
6. Support and follow up individual land owners in their effort of collecting missing records of rights and help them attend hearing at the DC office upon notification u/s 7.
7. Ascertain the number of land parcels with contested ownership and develop an action plan of settling the disputes with a timebound actions.

(xiv) Verify the mutation records, the buyers of land in whose favor the records have not been mutated, and the successors of uncontested owners on record who are deceased. The title search activity will be announced to the landowners and adjoining communities once joint verification is completed to identify (i) buyers who did not initiate mutation of the records of ownership of the land they purchased; (ii) owners on record who died leaving successors; and (iii) the successors.

(xv) Help individual landowners (who are interested or vulnerable) through reviewing the ownership documents in their possession and recommending further action to obtain complete and up-to-date land records in support of their uncontested ownership of the land.

B. Resettlement and Rehabilitation of Project Affected Persons

Services for resettlement and rehabilitation of project affected persons will be required for (1) LAR assessment and resettlement planning and (2) implementation of Resettlement of Plans for works packages.

B.1 LAR Assessmentand Resettlement Planning

The project impacts for acquisition of private and public land and repossession of public land from private uses and baseline socio-economic profile of affected persons will be assessed based on inventory of affected property, site specific census of affected persons, household socio-economic survey and consultation. The detailed measurement survey (DMS) will be done for inventory of affected property for each affected household, which will include details of potentially affected land, structures, trees, crops, businesses, and industry. The survey will also include inventory of businesses/commercial structures as well as public and community structure on the Project right-of-way. Table 1 below presents the methodology of resettlement impacts assessment for preparation of the Resettlement Plans.

Table 1: Project Impact and Baseline Assessment Methodology

Identify affected persons and their losses	Census of affected households Assessment of business and industry Livelihood impact assessment Gender and vulnerability analysis Communications needs assessment Assessment of elements of complaints and grievances Individual and hot spot consultations
Identify affected community	Inventory of affected community/social institutions/structures Village profiles for livelihood impact assessment Community and stakeholder consultation Consultation with vulnerable groups
Engage with acquiring authorities	Meeting with Divisional Commissioner Meeting with DC Office and respective LA Sections Consultation with AC (land)/Upazila land offices Meetings with PWD and Divisional Forest Offices
Prepare Resettlement Plans	Review identified impacts with policy principles, guidelines and entitlement matrixes with the RF Develop site specific compensation and entitlement matrixes Development implementation approach and budget Design and help establish Grievance Redress Mechanism (GRM), property assessment and valuation bodies, and information and communication plan as per the RF. Develop Resettlement Plan by works packages acceptable to the PIUs, the affected persons and the World Bank. Disclose Summary of Resettlement Plans in local language accessible to the communities, affected persons and other stakeholders.

B.2 Implementation of Resettlement and Rehabilitation Plans

The LAR Consultant will support the National PIU at RHD in the process of implementation of resettlement and rehabilitation plans agreed with the community and the World Bank. The consultant will develop a system of collecting, collating and retrieving land acquisition and resettlement data and information using an automated, networked and computerizedland acquisition and resettlement management and tracking system (LAR MTS). The LAR MTS will enable

the PIU identifying affected persons eligible for compensation, resettlement, and rehabilitation assistance, preparing instruments for accumulating recognized losses and the relevant compensation and assistance measures. The LAR-MTS will be an automated and networked Data Bank to be updated with the commencement and progress of land acquisition compensation payments and resettlement and rehabilitation of the affected persons, titled and non-titled. The specific activities relevant to implementation of works package-based resettlement and rehabilitation plans will be, but not limited to, the following:

1) Design and operate dissemination and communication program and instruments for educating the affected persons and their community on the provision and process of resettlement and rehabilitation of the affected persons for physical and economic displacement.

2) Authentic data and information on involuntary physical and economic displacement of people for acquisition of new land and repossession of existing land through detailed measurement survey, census of affected persons and socioeconomic survey and update LAR Data Bank.

3) Analyze data and information on displacement of people to assess severity of impacts on the and their vulnerability for identifying measures for resettlement and rehabilitation through compensation and assistance as per the Resettlement Plans.

4) Identify affected persons and group them by village or settlement areas as appropriate for better communication and accessibility for regular contacts, information sharing, consultation and feedback.

5) Collect award information from the respective DC offices as per protocol established by the National PIU at RHD and computerize them to develop Data Bank for retrieving and analyzing data in the process of determining entitlements of compensation and resettlement support.

6) Identify individual titled affected persons confirmed by the Deputy Commissioner (DC) in the process of payment of compensation and the titled and non-titled affected persons identified through Census upon verification of losses by officially constituted body, and issue resettlement ID card. The verification would consider existing photo ID cards, preferably the national ID card of affected persons recognized by a socially acceptable reputed persons in respective locality or as per protocol established by the National PIU.

7) Prepare instruments for delivery of resettlement and rehabilitation cash assistance to individual affected persons– eligible under the Resettlement Plans – likeStatement of Affected Property and Income (SAPI) or Entitled Person's Loss File (EP File) and the corresponding Statement of Awards and Entitlements (SAE) or Entitlements Card (EC).

8) Design, develop and operate LAR MTS coupling with following up payment of compensation under law and resettlement of project affected persons.The MTS will used to develop LAR data bank and to determine and making payment of entitlements to the eligible affected persons,and monitoring payments by DCs and RHD.

9) Help establish Project Grievance Redress Mechanism (GRM) including grievance redress committees (GRCs) at sites level for resettlement management synchronized with the Government's Centralized GRS. Build rapport with the affected persons and ensure that they are fully aware of the grievance redress procedure and the process of bringing their complaints to the GRCsand focal persons. Assist GRC in settling the dispute and prepare minutes of the GRC meetings and communicate the decisions to the parties involved.

10) Form focused groups of affected people based on homogeneity and or cluster and hold focused group sessions on fortnightly or at least monthly basis to disseminate information,

collecting/updating necessary documents, dispute resolution, etc.

11) Prepare Compensation statements for individual titled affected persons as per their types of losses and the amount of compensation due for each type of losses based on DC's award to facilitate preparation of entitled persons loss file and entitlements card.

12) Process payment of "top up" based on the replacement cost rates approved by RHD following recommendation of property assessment and valuation committees (PAVC) and ensure that cash for compensation, relocation and livelihood restoration is paid to all eligible affected persons irrespective of their title as recognized in the Resettlement Plans.

13) Guide affected households in physical relocation, where applicable and investing the cash for compensation and resettlement assistance in an appropriate manner. The LAR Consultant will provide support the efforts of the displaced households find alternative land for relocation.

Other activities will be defined in the LASPs and RPs following the RF including disclosure and consultation, grievance response, data collection, processing and reconciliation, design, develop and operation automated system, identification of affected persons eligible for compensation and resettlement assistance, making payment of compensation and resettlement assistance, supervision, internal monitoring, documentation and reporting.