

Facility Administration Manual

Project Number: 48404-002
Loan No: xxxx-PAK
21 August 2017

Pakistan: Central Asia Regional Economic
Cooperation Corridor Development Investment
Program

ABBREVIATIONS

ADB	–	Asian Development Bank
CAREC	–	Central Asia Regional Economic Cooperation
DFID	–	Department for International Development
DMF	–	design and monitoring framework
EIA	–	environment impact assessment
EMP	–	environmental management plan
FAM	–	facility administration manual
GRM	–	grievance redress mechanism
ICB	–	International competitive bidding
ICS	–	individual consultants selection
IEE	–	initial environmental examination
LARP	–	land acquisition and resettlement plan
LCS	–	least-cost selection
MFF	–	Multitranches financing facility
NCB	–	national competitive bidding
NHA	–	National Highway Authority
NTCHIP	–	National Trade Corridor Highway Investment Program
OCR	–	ordinary capital resources
PPTA	–	Project preparatory technical assistance
QCBS	–	quality- and cost based selection
RRP	–	Report and Recommendation of the President to the Board
SPS	–	Safeguard Policy Statement
SSEMP	–	site specific environmental management plan
TOR	–	terms of reference

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Facility Administration Manual Purpose and Process

The facility administration manual (FAM) describes the essential administrative and management requirements to implement the project on time, within budget, and in accordance with the policies and procedures of the borrower and the Asian Development Bank (ADB). The FAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the FAM.

The National Highway Authority (NHA) is wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the borrower and ADB. ADB staff is responsible for supporting implementation including compliance by NHA of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

At loan negotiations, the borrower and ADB shall agree to the FAM and ensure consistency with the loan agreement. Such agreement shall be reflected in the minutes of the loan negotiations. In the event of any discrepancy or contradiction between the FAM and the loan agreement, the provisions of the loan agreement shall prevail.

After ADB Board approval of the project's report and recommendations of the President (RRP), changes in implementation arrangements are subject to agreement and approval pursuant to relevant borrower and ADB administrative procedures (including the Facility Administration Instructions) and upon such approval, they will be subsequently incorporated in the FAM.

I. PROJECT DESCRIPTION

1. The proposed multi tranche financing facility (MFF) will enhance regional connectivity and trade via the CAREC Corridors in Pakistan by improving the efficiency for road traffic along the CAREC Corridors. For the purpose, the proposed MFF will rehabilitate and upgrade the road network of 747 km constituting the CAREC Corridors mainly in Sindh, Punjab, and Khyber Pakhtunkhwa.

2. **Investment program.** The 12th CAREC Ministerial conference endorsed the CAREC Transport and Trade Facilitation Strategy 2020 (TTFS 2020) which set out operational priorities of the CAREC Program. Operational priorities are given to (i) development of multimodal corridor network focusing on road and rail network development, logistics center development, and border crossing points improvement; (ii) improvement of trade and border crossing services focusing on coordinated border management, customs modernization, integrated trade facilitation, and single window development; and (iii) improvement of operational and institutional effectiveness focusing on road maintenance, road safety, designated rail corridor, and policies and institutional development. The TTFS 2020 spelled out the priority investment projects for Pakistan covering 23 projects of \$7.7 billion. The government's Investment Program adopted the priority investment projects under the TTFS 2020.

3. **Nonphysical investment for capacity development.** In November 2015, ADB approved capacity development technical assistance of \$15.4 million for the Enabling Economic Corridors through Sustainable Transport Sector Development as part of the Government of the United Kingdom's assistance through the Pakistan Economic Corridors Program. The TA will deliver 4 outputs for capacity development for sustainable transport sector development in Pakistan: (i) national transport policy and master plan; (ii) multimodal transport facilitated within Pakistan and with its neighboring countries through (a) the effective implementation of the Transports Internationaux Routiers Convention and other international transport agreements to which Pakistan is a signatory; (b) preparing Pakistan for accession to other key agreements such as the Convention on the Contract for the International Carriage of Goods by Road; and (c) capacity building of relevant government staff and private sector stakeholders on international transport agreements; (iii) national road safety program implemented; and (iv) national road asset management system made functional by working on sustainable road investment and maintenance funding, upgrading NHA's RAMS, overloading, and cleaning up NHA's financial statements. Capacity development through the TA will cover the area of policy framework refinements, planning assistance, and institutional change management.

4. In addition, each tranche under the MFF will have components for (i) assistance with the implementation of a project approved under each tranche; and (ii) due diligence advisory services to help NHA prepare projects for subsequent tranches.

5. **Impact and outcome.** The MFF is aligned with the following impact: enhancement of regional connectivity and trade via the CAREC Corridors. The MFF will have the following outcome: efficiency for road traffic along the CAREC Corridors improved.

6. **Outputs. Output 1: CAREC Corridor along N55 improved.** 747 km of CAREC Corridor running along the Western side of the Indus River and passing Sindh, Punjab, and Khyber Pakhtunkhwa will be improved. Under the 1st tranche project, 66 km of Petaro–Sehwan road and 43 km of Ratodero–Shikarpur road will be improved by building a 2-lane new carriageway along the existing 2-lane carriageway road; and 34 km of existing 4-lane carriageway road of Dara Adamkhel–Peshawar will be rehabilitated. **Output 2: NHA capacity developed.** Capacity

development under both the MFF and the 1st tranche project will consist of (i) due diligence advisory services to help NHA prepare projects for subsequent tranches; and (ii) assistance with the implementation of a project approved under each tranche.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

Table 1: Project Readiness Activities

Indicative Activities	2017			2018				Responsible Unit
	Q2	Q3	Q4	Q1	Q2	Q3	Q4	
Advance contracting actions			✓					NHA, and ADB
Establish project implementation arrangements	✓							NHA and ADB
Approve and disclose safeguard documents		✓						NHA and ADB
Approve by ADB Board		✓						ADB
Sign Loan Agreement				✓				ADB and Borrower
Provide legal opinion					✓			Borrower
Declare loan effectiveness					✓			ADB

ADB = Asian Development Bank, NHA = National Highway Authority, Pakistan.
Sources: Asian Development Bank estimates.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

Table 4: Roles and Responsibilities

Project implementation organizations	Management Roles and Responsibilities
Project Steering Committee	<ul style="list-style-type: none"> ➤ Provide guidance on and oversight to the overall implementation and performance of the project. ➤ Resolve issues and conflicts that would compromise quality of results, investment cost or project completion time. ➤ Approve the annual activity plan. ➤ Review implementation progress and resolve issues. ➤ Depute/appoint staff for project implementation unit. ➤ Review performance of consultants and contractors. ➤ Convening meeting on quarterly basis or as and when required.
National Highway Authority (Executing Agency)	<ul style="list-style-type: none"> ➤ Overall project management; finalizing surveys, designs, bidding documents, and contract awards. ➤ Overall construction supervision with the consultants, quantity and quality validation of civil works. ➤ Ensuring timely agreed counterpart funds and approval of higher authorities for project activities. ➤ Monitoring and evaluating project activities and outputs, including periodic review, preparation of review and progress reports reflecting issues and time-bound actions taken (or to be taken), and their timely submission to ADB. ➤ Preparing regular periodic progress reports, monitoring and evaluation reports, and project completion report and their timely submission to ADB. ➤ Endorsing to ADB through EAD the authorized staff in EA with approved signatures for processing payments and maintaining the advance account(s). ➤ Establishing a sound financial management system, submitting timely withdrawal applications to ADB, conducting timely financial audits as per agreed timeframe, submitting audited project account reports, and taking recommended actions. ➤ Processing and submitting to ADB any request, when required, for reallocating the loan proceeds. ➤ Involving community villages along the project roads and civil society representatives in designing community facilitation centers and implementing them. ➤ Publicly disclosing project outputs and procurement results. ➤ Quality assurance of works, and services of consultants and counterpart staff. ➤ Ensuring compliance with all loan covenants and reporting to ADB. ➤ Preparing, implementing, and monitoring safeguards in accordance with the Environmental Assessment and Review Framework (EARF), IEE/EIA, and Environmental Management Plans (EMPs), Resettlement Plans, ADB's SPS (2009), and Loan and Project Agreements. ➤ Establishing a grievance redress mechanism with a dedicated grievance staff to address all subproject-related grievances. ➤ Ensuring projects' sustainability during post-implementation stage and reporting to ADB on the achieved development impacts.
ADB	<ul style="list-style-type: none"> ➤ Assisting NHA in providing timely guidance at each stage of the project implementation. ➤ Reviewing all the documents that require ADB approval. ➤ Reviewing and approving environmental assessment reports. ➤ Reviewing and disclosing on ADB website the periodic environmental monitoring reports. ➤ Conducting regular project review missions, a midterm review, and project completion mission. ➤ Conducting environmental safeguard review missions including site visits. ➤ Processing withdrawal applications and releasing eligible funds. ➤ Updating regularly the project performance review reports with the assistance of NHA. ➤ Updating and posting on ADB website the project information for public disclosure, and the safeguards documents in accordance with the ADB SPS (2009).

Project implementation organizations	Management Roles and Responsibilities
Ministry of Finance/Economic Affairs Division (EAD)	<ul style="list-style-type: none"> ➤ Monitoring the project implementation and providing respective coordination and facilitation. ➤ Budgeting, allocating and releasing counterpart funds. ➤ Endorsing to ADB the authorized staff with approved signatures for WAs processing. ➤ Processing and submitting to ADB any request, when required, for reallocating the loan proceeds.

ADB = Asian Development Bank; EA = executing agency; EIA = environmental impact assessment; IEE = Initial Environmental Examination; NHA = National Highway Authority; SPS = Safeguards Policy Statement; WA = withdrawal application.
Source: Asian Development Bank.

B. Key Persons Involved in Implementation

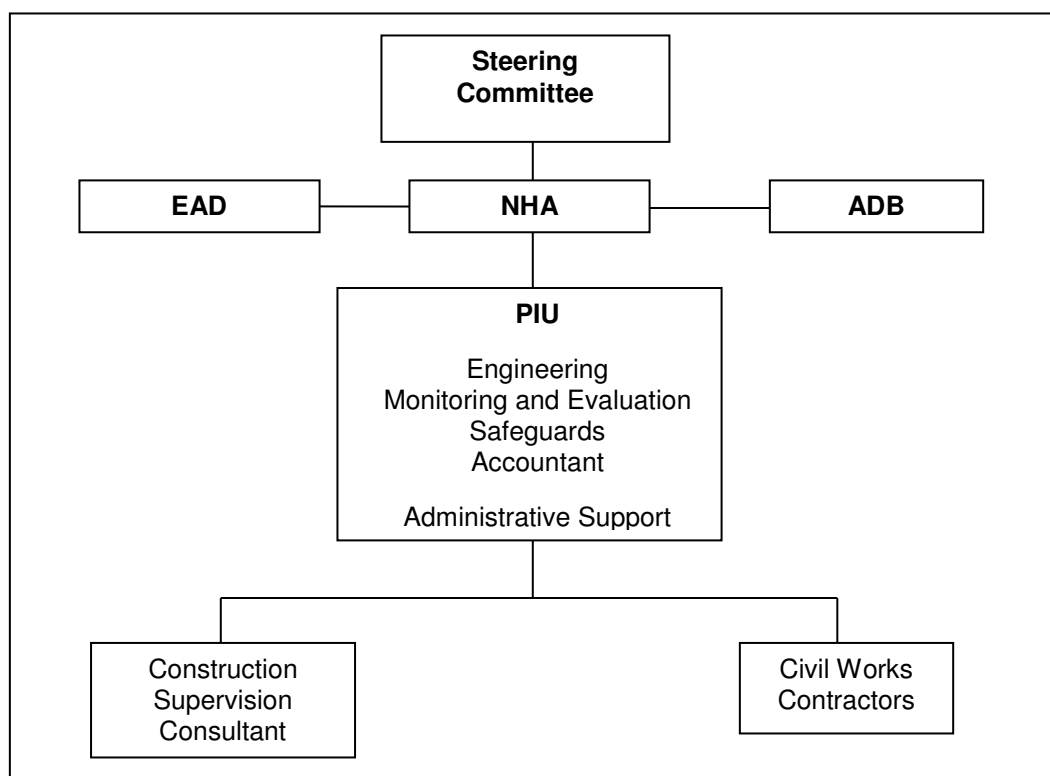
Executing Agency National Highway Authority (NHA)	Shahid Ashraf Tarar Chairman, National Highway Authority Telephone: +92 51 9260417 Email address: chairman@nha.gov.pk
Borrower and Oversight Agency Economic Affairs Division	Syed Mujtaba Hussain Joint Secretary, EAD Telephone: +92 51 9201520
ADB Transport & Communications Division (CWTC) Central and West Asia Department	Officer-in-Charge, CWTC OIC, CWTC Telephone No.: +63 2 632 6765 Email address: cwtc@adb.org
Mission Leader	Dong-Soo Pyo Lead Transport Specialist (Project Team Leader) Telephone No.: +63 2 632 6807 Email address: dspsy@adb.org Office Address: 6 ADB Avenue, Mandaluyong City, Manila, Philippines

C. Project Organization Structure

8. The project organization structure is as shown in the diagram below.

9. Figure 3.1 depicts the proposed organizational structure for implementation of the project. The steering committee constituted for the supervision of the MFF National Trade Corridor Highway Improvement Program will also act as the steering committee for the project playing the role spelled out in Section III-A.

10. NHA will be the executing agency (EA), which has the mandate for planning, designing and implementing transport projects for national highways as well as policy and regulatory authority over the sector. The Project Implementation Unit (PIU), headed by a general manager and suitably qualified staff including project directors, engineers, financial and safeguard specialists, will be responsible for overall implementation of construction including supervision of contractors and supervision consultants and day-to-day monitoring of project implementation in accordance with the provisions of the FAM and related legal agreements.

Figure 3.1: Organization Chart**IV. COSTS AND FINANCING**

11. The MFF is estimated to cost \$925 million.

Table 5: MFF Cost Estimates
(\$ million)

Items	Tranche 1	Tranche 2	Tranche 3	Total ^a
A. Base Cost^b				
1. CAREC Corridor Improvement	161.5	255.6	349.6	766.7
2. Capacity Development	8.0	8.0	3.0	19.0
Subtotal (A)	169.5	263.6	352.6	785.7
B. Contingencies^c	18.8	34.1	50.3	103.2
C. Financing Charges During Implementation^d	6.7	12.3	17.1	36.1
Total (A+B+C)	195.0	310.0	420.0	925.0

^a Includes taxes and duties of \$55.8 million to be financed from government cash contribution.

^b In March 2017 prices.

^c Physical contingencies computed at 10% for civil works. Price contingencies computed at 1.4%–1.5% on foreign exchange costs and 5.0%–5.5% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^d Includes interest and commitment charges. Interest during construction for ADB loans has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

12. Project roads planned under each tranche and their cost estimates are summarized in Table 6.

Table 6: CAREC Corridors Development Investment Program

	Project Road	Type of Works	Length (km)	Estimated Cost (\$ million)	Safeguard Category	
					IR	ENV
T1 (2017)	Petaro-Sehwan	Building additional 2-lane carriageway	66	86.4	A	B
	Ratodero-Shikarpur	Building additional 2-lane carriageway	43	60.0	A	B
	Dara Adamkhel-Peshawar	Rehabilitating existing 4-lane carriageway	34	40.3	C	B
	Subtotal		143	186.7		
T2 (2019)	Shikarpur-Rajanpur	Building additional 2-lane carriageway	224	302.0	A	B
T3 (2021)	DG Khan-DI Khan	Building additional 2-lane carriageway	207	290.0	A	B
	Petaro-Sehwan	Rehabilitating existing 2-lane carriageway	130	97.0	C	B
	Ratodero-Shikarpur	Rehabilitating existing 2-lane carriageway	43	30.0	C	B
	Subtotal		380	417.0		
	Total		747	905.7		

ENV = environmental, IR = involuntary resettlement.

13. The government has requested an MFF in an amount up to \$800 million from ADB's ordinary capital resources to help finance a part of the investment program. The MFF will consist of several tranches, subject to the government's submission of related periodic financing requests, execution of the related loan and project agreements for each tranche, and fulfillment of terms and conditions and undertakings set forth in the framework financing agreement. The first tranche of the MFF will have a 25-year term, including a grace period of 5 years, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility,¹ a commitment charge of 0.15% per year, (the interest and other charges during construction to be capitalized in the loan,) and such other terms and conditions set forth in the draft loan and project agreements.

14. The government will contribute \$125 million to finance expenditures related to land acquisition and resettlement, taxes and duties, and contingencies. The MFF financing plan is in Table 7.

Table 7: Summary Financing Plan

Source	Tranche 1 ^a		Tranche 2		Tranche 3		Total	
	Amount (\$ million)	Share (%)	Amount (\$ million)	Share (%)	Amount (\$ million)	Share (%)	Amount (\$ million)	Share (%)
ADB (OCR regular loan)	180.0	92	260.0	84	360.0	86	800.0	86
Government	15.0	8	50.0	16	60.0	14	125.0	14
Total	195.0	100	310.0	100	420.0	100	925.0	100

^a Includes taxes and duties of \$55.8 million to be financed from government cash contribution.

ADB = Asian Development Bank; OCR = ordinary capital resources.

Source: Asian Development Bank estimate.

15. **Tranche 1 Project (Project 1).** Project 1 will (i) build an additional 2-lane carriageway for 66 km of Petaro–Sehwan road and for 43 km of Ratodero–Shikarpur road; (ii) rehabilitate the existing 34 km 4-lane carriageway of Dara Adamkhel–Peshawar road; and (iii) develop NHA's capacity through due diligence advisory services and assistance with project implementation. Project 1 is estimated to cost \$195 million.

¹ The interest includes a maturity premium of 10 basis points. This is based on the above loan terms and the government's choice of repayment option and dates.

Table 8: Investment Plan (Project 1)
(\$ million)

Source	Amount
A. Base Cost^a	
1. Land Acquisition and Resettlement Cost	3.0
2. Civil Works	149.5
3. Construction Supervision Consultant	9.0
4. Capacity Development	8.0
Subtotal (A)	169.5
B. Contingencies^b	18.8
C. Financing Charges During Implementation^c	6.8
Total (A+B+C)	195.0

Notes: Numbers may not sum precisely because of rounding.

^a In March 2017 prices.

^b Physical contingencies computed at 10% for civil works. Price contingencies computed at 1.4%–1.5% on foreign exchange costs and 5.0%–5.5% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^c Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

Table 9: Financing Plan (Project 1)

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank		
Ordinary capital resources (loan)	180.00	92.3
Government	15.00	7.7
Total	195.00	100.0

Source: Asian Development Bank estimates.

Table 10: Cost Estimate and Financing Plan (Project 1)

Item	Total Cost	ADB Amount (\$ million)	Government Amount (\$ million)
A. Base Cost^a			
1. Land Acquisition and Resettlement Cost	3.0	0.0	3.0
2. Civil Works	149.5	137.5	12.0
3. Construction Supervision consultant	9.0	9.0	0.0
4. Capacity Development	8.0	8.0	0.0
a. Due Diligence Advisory Services	5.0	5.0	0.0
b. Assistance with Implementation	3.0	3.0	0.0
Total Base Cost (A)	169.5	154.5	15.0
B. Contingencies^b			
1. Physical	14.9	14.9	0.0
2. Price	3.8	3.8	0.0
Subtotal (B)	18.8	18.8	0.0
C. Financial Charges During Implementation^c			
1. Interest during implementation	6.2	6.2	0.0
2. Commitment charges	0.6	0.6	0.0
Subtotal (C)	6.8	6.8	0.0
Total Project Cost (A+B+C)	195.0	180.0	15.0
Financing Portion	100%	92.3%	7.7%

Notes: Numbers may not sum precisely because of rounding.

^a In March 2017 prices.

^b Physical contingencies computed at 10% for civil works. Price contingencies computed at 1.4%–1.5% on foreign exchange costs and 5.0%–5.5% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^c Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

16. The ADB loan will have a 25-year term, including a grace period of 5 years, straight-line repayment method, an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility, a commitment charge of 0.15% per year (the interest and other charges during construction to be capitalized in the loan), and such other terms and conditions set forth in the draft loan agreement. Based on this, the average loan maturity is 15.25 years, and the maturity premium payable to ADB is 0.1% per annum.

A. Cost Estimates Preparation and Revisions

17. The cost estimates were updated in March 2017 by the project design review consultant based on market prices for consulting services and civil works.

B. Key Assumptions

18. The following assumptions underpin the cost estimates and financing plan:

- (i) Exchange rate: PKR104.00 = \$1.00 (as of May 2017).
- (ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

Table 11: Escalation Rates for Price Contingency Calculation

Item	2018	2019	2020	2021	2022	Average
Foreign rate of price inflation	1.5%	1.5%	1.5%	1.5%	1.5%	1.5%
Domestic rate of price inflation	5.0%	5.2%	5.5%	5.5%	5.5%	5.3%

Sources: World Bank estimates (foreign rate); Asian Development Bank estimates (domestic rate).

C. Detailed Cost Estimates by Expenditure Category

Table 12: Detailed Cost Estimates by Expenditure Category (Project 1)
(\$ million)

Item	Foreign Exchange	Local Currency	Total	% of Total Base Cost
A. Base Cost^a				
1. Land Acquisition and Resettlement	0.0	3.0	3.0	1.8
2. Civil Works	27.5	110.0	137.5	81.1
3. Construction Supervision Consultant	4.1	5.0	9.0	5.3
4. Capacity Development	3.6	4.4	8.0	4.7
a. Due Diligence Advisory Services	2.3	2.8	5.0	
b. Assistance with Implementation	1.4	1.7	3.0	
5. Taxes and Duties	0.0	12.0	12.0	7.1
Total Base Cost (A)	35.2	134.3	169.5	100.0
B. Contingencies^b				
1. Physical	3.0	12.0	14.9	8.8
2. Price	0.2	3.6	3.8	2.2
Subtotal (B)	3.2	15.6	18.8	11.1
C. Financial Charges During Implementation^c				
1. Interest during implementation	6.2	0.0	6.2	3.6
2. Commitment charges	0.6	0.0	0.6	0.3
Subtotal (C)	6.8	0.0	6.8	4.0
Total Project Cost (A+B+C)	45.1	149.9	195.0	115.0

Notes: Numbers may not sum precisely because of rounding.

^a In March 2017 prices.

^b Physical contingencies computed at 10% for civil works. Price contingencies computed at 1.4%–1.5% on foreign exchange costs and 5.0%–5.5% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^c Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount. Source: Asian Development Bank estimates.

D. Allocation and Withdrawal of Loan Proceeds (Project 1)

ALLOCATION AND WITHDRAWAL OF LOAN PROCEEDS (PAK: Central Asia Regional Economic Corridor Development Investment Program)

No.	Item	Total Amount Allocated for ADB Financing (\$)		Basis for Withdrawal from the Loan Account
		Category	Subcategory	
1	Civil Works	137,500,000		92% of total expenditure claimed
2	Consulting Services and Capacity Development	17,000,000		100% of total expenditure claimed*
4	Interest and commitment charges	6,700,000		100% of total amount due
5	Unallocated	18,800,000		
	Total	180,000,000		

*Exclusive of taxes and duties imposed within the territory of the Borrower.

Note: Numbers may not sum precisely because of rounding.

19. Except as ADB may otherwise agree, the items of the civil works and consulting services categories shall be financed out of the proceeds of the loan on the basis of the percentages set forth in the table of allocation and withdrawal of loan proceeds. Except as ADB may otherwise agree, the loan proceeds for financing civil works, consulting services and other items shall be disbursed in accordance with ADB's Loan Disbursement Handbook (2017 as amended from time to time).

Item	Total Cost (\$ million)	Petaro–Sehwan		Ratodero–Shikarpur		Dara Adam Khel– Peshawar		Capacity Development	
		Amount (\$ million)	% of Cost Category	Amount (\$ million)	% of Cost Category	Amount (\$ million)	% of Cost Category	Amount (\$ million)	% of Cost Category
1. Interest during implementation	6.2	2.7	44.5	1.9	30.2	1.3	21.0	0.3	4.2
2. Commitment charges	0.6	0.3	44.5	0.2	30.2	0.1	21.0	0.0	4.2
Subtotal (C)	6.8	3.0	44.5	2.0	30.2	1.4	21.0	0.3	4.2
Total Project Cost (A+B+C)	195.0	86.4	44.3	60.0	30.8	40.3	20.7	8.3	4.2

Notes: Numbers may not sum precisely because of rounding.

^a In March 2017 prices.

^b Physical contingencies computed at 10% for civil works. Price contingencies computed at 1.4%–1.5% on foreign exchange costs and 5.0%–5.5% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^c Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

G. Detailed Cost Estimates by Year

Table 15: Detailed Cost Estimates by Year (Project 1)
(\$ million)

Item	Total Cost (\$ million)	2018	2019	2020	2021	2022
A. Base Cost^a						
1. Land Acquisition and Resettlement Cost	3.0	3.0	0.0	0.0	0.0	0.0
2. Civil Works	149.5	22.4	37.4	44.8	29.9	14.9
3. Construction Supervision Consultant	9.0	1.4	2.3	2.3	2.3	0.9
4. Capacity Development ^b	8.0	3.8	2.8	0.8	0.8	0.0
a. Due Diligence Advisory Services	5.0	3.0	2.0	0.0	0.0	0.0
b. Assistance with Implementation	3.0	0.8	0.8	0.8	0.8	0.0
Total Base Cost (A)	169.5	30.5	42.4	47.8	32.9	15.8
B. Contingencies^b						
1. Physical	14.9	0.0	0.0	0.0	0.0	14.9
2. Price	3.8	0.0	0.0	0.0	0.0	3.8
Subtotal (B)	18.8	0.0	0.0	0.0	0.0	18.8
C. Financial Charges During Implementation^c						
1. Interest during implementation	6.2	0.3	1.0	2.0	2.8	0.0
2. Commitment charges	0.6	0.2	0.2	0.1	0.1	0.0
Subtotal (C)	6.8	0.5	1.2	2.1	2.9	0.0
Total Project Cost (A+B+C)	195.0	31.1	43.6	50.0	35.8	34.6
% of Total Project Cost	100.0	15.9	22.4	25.6	18.4	17.7

Notes: Numbers may not sum precisely because of rounding.

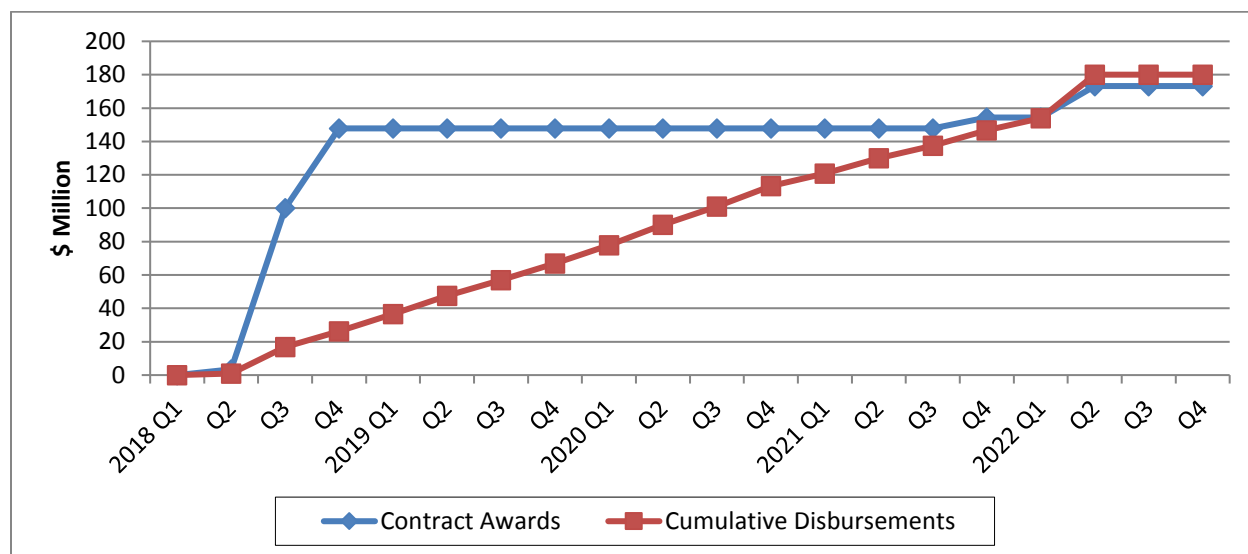
^a In March 2017 prices.

^b Physical contingencies computed at 10% for civil works. Price contingencies computed at 1.4%–1.5% on foreign exchange costs and 5.0%-5.5% on local currency costs; includes provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^c Includes interest and commitment charges. Interest during construction for ADB loan(s) has been computed at the 5-year forward London interbank offered rate plus a spread of 0.5%. Commitment charges for an ADB loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

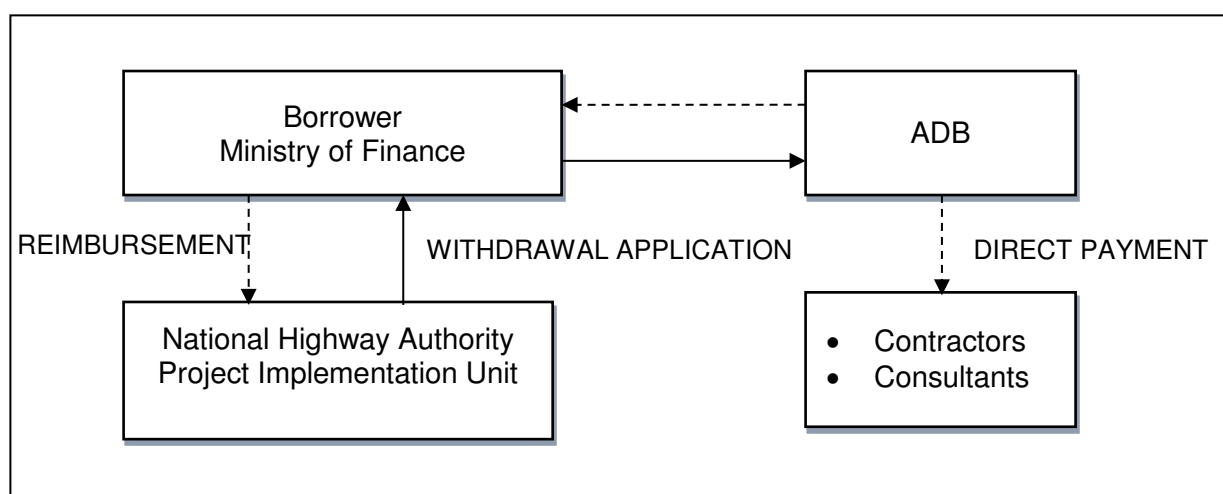
H. Contract and Disbursement S-Curve (Project 1)



Contract Awards						Disbursements					
Year	Q1	Q2	Q3	Q4	Total	Year	Q1	Q2	Q3	Q4	Total
2018	0.0	3.5	96.7	47.7	147.8	2018	0.0	0.9	16.0	9.4	26.3
2019	0.0	0.0	0.0	0.0	0.0	2019	10.3	11.0	9.3	10.0	40.6
2020	0.0	0.0	0.0	0.0	0.0	2020	11.1	12.1	11.1	12.1	46.4
2021	0.0	0.0	0.0	6.6	6.6	2021	7.6	9.1	7.6	9.1	33.4
2022	0.0	18.8	0.0	0.0	18.8	2022	7.3	26.1	0.0	0.0	33.4
					Total						Total
					173.20						180.0

Source: Asian Development Bank estimates.

I. Fund Flow Diagram



V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

20. The financial management assessment (FMA) was conducted in March 2017 in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects and Financial Due Diligence: a Methodology Note. The FMA considered the financial management capacity of the National Highway Authority (NHA) which included the funds-flow arrangements, staffing, accounting and financial reporting systems, internal and external auditing arrangements, and financial information systems. Based on the updated FMA, the overall project financial management pre-mitigation risk is moderate. The capacity of NHA in financial management is adequate to use SOE and advance fund procedure.

21. Key financial management assessment findings are as follows:

Table 16: Summary of the Financial Management Assessment

Particulars	Conclusions
A. Funds Flow Arrangements	Funds flow arrangements are adequate and provision of counterpart funds to NHA has improved through the years. NHA has enough capability and experience to efficiently operate under the ongoing project.
B. Staffing	NHA accounting and finance staff has experience and knowledge of ADB's financial management and disbursement procedures. The accounting and finance staff got training from ADB relating to ADB's disbursement and financial management.
C. Accounting Policies and Procedures	NHA's accounting policy is based on International Accounting Standards/International Financial Reporting Standards.
D. Internal and External Audits	NHA's internal audit department undertakes the required internal auditing of the project. NHA's Annual financial statement are audited by a commercial auditor while Audited Project Financial Statement (APFS) are audited by Auditor General of Pakistan on an annual basis in accordance with the ISA, which complies with the requirements of ADB.
E. Reporting and Monitoring	NHA comply with the reporting requirements of the MOF, and other government bodies. NHA requested the training for preparation of Initial IPSAS compliant APFS.

ADB = Asian Development Bank; IPSAS = International Public Sector Accounting Standards; ISA = International Standards on Auditing; NHA = National Highway Authority

22. **Risk Assessment and Risk Management Plan:** Significant risks and mitigating measures are summarized in Table 16 and the financial management action plan is provided in table 17. The risks are assessed as manageable by adopting mitigating measures, and the integrated benefits and impacts are expected to outweigh the costs of mitigation.

Table 17: Summary of Risks and Mitigating Measures

Risks	Mitigating Measures
Weak financing arrangements on development and management of the road network	The practice of providing loans to the NHA to finance its development program since the creation of the NHA in 1991 undermines the authority's financial standing. The ADB-administered capacity development technical assistance approved in November 2015 will help build capacity and carry out analytical work on NHA balance sheet restructuring. The government also intends to expand the toll base, rationalize tolls, and allocate more revenue to the road maintenance account of the NHA.

Risks	Mitigating Measures
Lack of counterpart funds	The government will accord transport infrastructure a top priority in the country's resource allocation. The NHA will expand PPP-based road construction to reduce the government subsidy and make more fiscal resources available for counterpart funding.
Delayed land acquisition and resettlement, and inadequate safeguard arrangements	The NHA has started consultation, land acquisition, and resettlement compensation for the affected people. A qualified and experienced external monitoring agency will verify the executing agency's monitoring reports, monitor LARP implementation, identify issues, and recommend corrective measures as needed. The NHA assisted by the construction supervision consultant will supervise the implementation of the environmental management plan, monitor the implementation process, and regularly submit to ADB their safeguard monitoring reports.
Noneconomic consideration of contractor or consultant selection	The new government is strongly committed to eradicating corrupt practices. The National Accountability Bureau is fully empowered to enforce the National Anticorruption Ordinance to prevent, detect, investigate, and prosecute cases involving corruption, corrupt practices, misuse or abuse of power, misappropriation of property, kickbacks, and commissions. The National Accountability Bureau plays its role properly.

ADB = Asian Development Bank, LARP = land acquisition and resettlement plan, NHA = National Highway Authority
Source: Asian Development Bank estimates.

Table 18: Financial Management Action Plan

Key Risk	Action Plan	Responsibility	Timing
Unavailability or delay in the release of counterpart funds for the project	Agree with EAD/MOF for smooth counterpart funding for effective project implementation.	NHA, ADB	Before and during project implementation, as necessary
Need for further training to prepare IPSAS compliant financial reports	ADB provides assistance for capacity development of NHA's accounting staff to prepare IPSAS compliant project financial statement.	NHA, ADB	During project implementation
Limited capacity of internal audit department	Approval of internal audit manual, internal audit plan and capacity building of internal audit department	NHA	During project implementation

B. Disbursement

1. Disbursement Arrangement

23. Online training for project staff on disbursement policies and procedures is available at http://wpgr4.adb.org/disbursement_elearning. Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control.

24. The Loan proceeds will be disbursed in accordance with ADB's Loan Disbursement Handbook (2017, as amended from time to time), and detailed arrangements agreed between the government and ADB.²

² Available at: http://www.adb.org/Documents/Handbooks/Loan_Disbursement/loan-disbursement-final.pdf.

25. NHA will be responsible for (i) preparing disbursement projections, (ii) requesting budgetary allocations for counterpart funds, (iii) collecting supporting documents, and (iv) preparing and sending withdrawal applications to ADB. Before the submission of the first withdrawal application, the government shall submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the borrower, together with the authenticated specimen signatures of each authorized person. The minimum value per withdrawal application is set in accordance with the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below this amount should be paid by NHA and subsequently claimed to ADB through reimbursement, unless otherwise accepted by ADB.

26. **Advance fund procedure.** Separate advance accounts should be established and maintained for each funding source. The currency of the advance accounts is {the US dollar}. The advance accounts are to be used exclusively for ADB's share of eligible expenditures. The government who administers the advance account is accountable and responsible for proper use of advances to the advance account. The total outstanding balance to the respective advance account will not at any time exceed the estimated ADB financed expenditures to be paid from the respective advance account for the forthcoming six months. The request for initial and additional advances to the respective advance account should be based on Estimate of Expenditure Sheet setting out the estimated expenditures for the forthcoming six months of project implementation. Supporting documents should be submitted to ADB or by the borrower in accordance with ADB's Loan Disbursement Handbook (2017, as amended from time to time) when liquidating or replenishing the advance account.

27. **Statement of expenditure procedure.** The SOE procedure may be used for reimbursement of eligible expenditures or liquidation of advances to the advance account(s). Supporting documents and records for the expenditures claimed under the SOE should be maintained and made readily available for review by ADB's disbursement and review missions, upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.

28. For direct payments, the contractors and consultants will submit their invoices or interim payment certificates as appropriate to NHA who will process them and send with the required withdrawal applications to ADB.

C. Accounting

29. NHA will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project. NHA will prepare project financial statements in accordance with the government's accounting laws and regulations which are consistent with international accounting principles and practices.

D. Auditing and Public Disclosure

30. NHA will cause the detailed project financial statements to be audited in accordance with International Standards on Auditing and with the Government's audit regulations, by an independent auditor acceptable to ADB. The audited project financial statements will be submitted in the English language to ADB within six months of the end of the fiscal year by NHA.

31. NHA will also cause the entity-level financial statements to be audited in accordance with International Standards on Auditing and with the Government's audit regulations, by an independent auditor acceptable to ADB. The audited entity-level financial statements, together

with the auditors' report and management letter, will be submitted in the English language to ADB within one month after their approval by the competent authority.

32. The annual audit report for the project accounts will include an audit management letter and audit opinions which cover (i) whether the project financial statements present a true and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting framework; (ii) whether loan proceeds were used only for the purposes of the project or not; (iii) the level of compliance for each financial covenant contained in the legal agreements for the project.

33. Compliance with financial reporting and auditing requirements will be monitored by review missions and during normal program supervision, and followed up regularly with all concerned, including the external auditor.

34. The Government and NHA have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.³ ADB reserves the right to require a change in the auditor (in a manner consistent with the constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed. ADB reserves the right to verify the project's financial accounts to confirm that ADB's financing share is used in accordance with ADB's policies and procedures.

35. Public disclosure of the project financial statements, including the audit report on the project financial statements, will be guided by ADB's Public Communications Policy (2011)⁴.

36. After review, ADB will disclose the project financial statements for the project and the opinion of the auditors on the financial statements within 14 days of the date of their receipt by posting them on ADB's website. The Audit Management Letter will not be disclosed.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

37. Advance action to initiate the procurement and/or recruitment of consultants before signing the related loan agreement should be undertaken in conformity with procurement procedures, including advertising, in accordance with ADB's *Procurement Guidelines* (2015, as amended from time to time) and the recruitment procedures, including advertising, in accordance with ADB's *Guidelines on the Use of Consultants* (2013, as amended from time to time). ADB should review the borrower's process; the borrower undertakes such advance contracting at its

³ ADB approach and procedures regarding delayed submission of audited project financial statements:

- When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (i) the audit documents are overdue; and (ii) if they are not received within the next six months, requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- When audited project financial statements have not been received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters. ADB will (i) inform the executing agency of ADB's actions; and (ii) advise that the loan may be suspended if the audit documents are not received within the next six months.
- When audited project financial statements have not been received within 12 months after the due date, ADB may suspend the loan.

⁴ Available from <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>

own risk; and any concurrence by ADB with the procedures, documentation, or proposal for award does not commit ADB to finance the project in question.

38. Retroactive financing is specifically agreed by ADB and the borrower in the loan agreement and only pursuant to the terms of the relevant agreement. The adequacy of the borrower's capacity to carry out related contracting and/or disbursement will be assessed. The maximum amount of eligible expenditures for retroactive financing of goods, civil works and consulting services will be up to 20% of the total ADB loan, incurred before loan effectiveness, but not earlier than 12 months before the signing of the loan agreements. The submission of the audited project financial statements and the audit report will be from the date when expenditures that were approved for retroactive financing were incurred.

B. Procurement of Goods, Works, and Consulting Services

39. Procurement of goods, civil works and related services financed under the project will be done in accordance with ADB's Guidelines for Procurement (2015, as amended from time to time). Consulting services will be required for reviewing designs and supervising construction. Consultants will be recruited in accordance with ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).⁵

40. A procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages is in Appendix 1.

41. International competitive bidding procedures will be used for civil works contracts estimated to cost \$15 million or more. There are three civil works packages expected under Project 1. There will be no procurement of goods.

42. An estimated 413 person-months of consulting services (67 international, and 346 national) are required for construction supervision. The supervision consultant will also help NHA in review of detailed design and carry out contract administration. The consulting firm will be engaged using the quality- and cost-based selection method with a standard quality–cost ratio of 90:10. The terms of reference for the consulting services are detailed in Appendix 2.

VII. SAFEGUARDS

A. Environment

43. NHA will ensure (a) that the design, construction, operation and maintenance of the projects' facilities are carried out in accordance with ADB's Safeguard Policy Statement (2009)⁶ and the national and relevant provincial environmental laws and regulations; and (b) potential adverse environmental impacts arising from the subprojects under tranches are minimized by implementing all mitigation and monitoring measures as presented in the EMP.

44. NHA will ensure that:

⁵ Checklists for actions required to recruit consultants under different method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation/>

⁶ Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>.

- (a) For projects that are to be selected under future tranches, the selection criteria given in Section V 'Environmental Assessment for Subprojects and/or Components' of the EARF are to be followed;
- (b) In accordance with the ADB's Safeguard Policy Statement (2009) environmental assessment reports and environmental management plans will be prepared and submitted to ADB during processing of the subsequent project's tranches;
- (c) The site-specific EMPs will be submitted to the NHA for approval at least 10 days before taking possession of any work site. No access to the site will be allowed until the site-specific EMPs will be approved by the NHA;
- (d) Sufficient resources are made available to implement, monitor, and record the implementation of the EMPs;
- (e) Semi-annual environmental monitoring reports are prepared and submitted to ADB within one (1) month of the end of each period covered until the project completion report is issued;
- (f) The environmental monitoring reports include, inter alia, a review of progress made on the implementation of the EMPs, problems encountered and remedial measures taken;
- (g) The detailed engineering design and the works contracts under the Project will incorporate applicable environmental measures identified in the IEEs and the EMPs;
- (h) In case of a change in design, the IEE/EIA and EMP must be reviewed to ensure that additional impacts (if any) are incorporated and addressed;
- (i) Contractors are supervised to ensure compliance with the requirements of the IEEs and the EMPs;
- (j) In event of unanticipated environmental impacts occurring, a Corrective Action Plan (CAP) is prepared and implemented; and
- (k) A Grievance Redress Mechanism (GRM) to address environmental related complaints is established and fully functional. The GRM is described in the environment assessment reports of all projects.

B. Land Acquisition and Resettlement

45. The Tranche 1 project is categorized as A for Involuntary Resettlement safeguards. Land acquisition and rehabilitation of income and productive assets of displaced persons will follow the requirements in the ADB's Safeguard Policy Statement (SPS) 2009, Pakistan's Land Acquisition Act 1894 (LAA) and provincial regulations related to land acquisition and resettlement. In case of conflict, the provisions under ADB SPS, will be followed. Under Tranche 1, draft land acquisition and resettlement plans (LARPs), based on preliminary design have been prepared for Petaro-Sehwan and Ratodero-Shkarpur road sections. Following the detailed design, these LARPs will be updated and fully implemented before the start of civil works in these subprojects. A social due diligence report (DDR) was prepared for Dara Adamkhel-Peshawar section where activities do not have IR impacts. The LARF, draft LARPs and DDR will be disclosed following ADB approval and NHA endorsement.

46. NHA will ensure that:

- (a) LARPs for each subproject are updated and submitted to ADB for review following the detailed design. Such updated LARPs will be uploaded to the project and ADB

website for disclosure. These LARPs will be summarized in a brochure in Urdu which will be disseminated to the displaced persons;

- (b) for Dara Adamkhel-Peshawar section which is assessed as having not IR impacts, a social due diligence review will again be conducted following detailed design to confirm the earlier assessment. In case impacts are identified, a resettlement plan will be prepared to address such impacts prior to works contract award;
- (c) no works contract will be awarded for a Subproject involving involuntary resettlement impacts until NHA has prepared and submitted to ADB the final LARP for such Subproject based on the detailed design, and obtained ADB's clearance of such LARP.
- (d) all land and rights of way required by the project shall be cleared and made available in a timely manner (in accordance with the schedule as agreed in the relevant civil works contract);
- (e) the activities of the civil works contractor for the project road are in compliance with the approved LARPs. and no physical displacement or economic displacement shall occur and no road section or part of a road section is handed over to the civil works contractor until: (a) compensation at full replacement cost has been paid to all displaced persons in accordance with the updated and finalized LARP for relevant sections that are ready to be constructed; (b) other entitlements listed in the updated and finalized LARPs have been provided to displaced persons; and (c) LARP implementation report is submitted to ADB and determined as satisfactory.
- (f) semi-annual internal monitoring reports will be submitted by the supervision consultant to NHA, and ADB. An external monitor will be engaged and external monitoring and compliance reports will be submitted to NHA, and ADB. ADB shall post the monitoring reports to its website for disclosure. ADB no-objection to the commencement of civil works for sub projects with IR impacts is conditional to ADB's review of the LARP monitoring reports confirming completion of the compensation activities;
- (g) any unanticipated IR impacts encountered during implementation of the project will be dealt in accordance with the ADB approved LARP and ADB's SPS 2009 requirements. Any new IR-related impacts will require a new LARP which should be submitted to ADB for its approval. No construction activities shall commence in the sections with new/additional LAR impacts before full implementation of ADB approved LARP is confirmed and cleared by ADB;
- (h) Its Environment, Afforestation, Land and Social (EALS) wing will perform oversight role in the preparation, implementation and monitoring of LARPs and provide timely advice and support to projects under the MFF on emerging issues during preparation and implementation;
- (i) an efficient grievance redress mechanisms are in place and functional prior starting LARP implementation and contractor's mobilization to assist affected persons resolve queries and complaints, if any, in a timely manner; all complaints are registered, investigated and resolved in a manner consistent with the provisions of the grievance redress mechanism as agreed in ADB approved LARF and LARPs; the complainants/aggrieved persons are kept informed about status of their grievances and remedies available to them; and adequate staff and resources are available for supervising and monitoring the implementation progress of the LARP; and,

- (j) No land will be acquired using the Pakistan's LAA's emergency acquisition procedures for any project under the MFF.

C. Indigenous Peoples

47. The project is screened as category C project for Indigenous peoples planning requirement under SPS 2009 and the NHA shall ensure that projects and sub-projects financed under the MFF do not have any indigenous peoples' impacts within the meaning of the Safeguard Policy Statement (2009). And if during design review or implementation, any change to the scope, location or alignment of road with prior approval of ADB, causes to have any such impacts, NHA shall take all steps required to ensure that the Project complies with the applicable laws and regulations of Pakistan and the ADB's Safeguard Policy Statement 2009.

D. Execution of Contracts for Works

48. NHA will ensure that, subsequent to award of a works contract, no notice to proceed is issued to the contractor until the applicable provisions of the LARP (including timely payment of compensations to affected persons), has been complied with. Furthermore, the final environmental assessment report (IEE/EIA) and the EMP are to be incorporated in the bidding and contract documents. The EA will ensure that any unanticipated impact during civil works will be addressed by the contractor in accordance with ADB's SPS 2009.

49. **Prohibited investment activities.** Pursuant to ADB's Safeguard Policy Statement (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009). The borrower shall ensure that no proceeds of the loan are used to finance any activity that is included in the list of prohibited investment activities provided in the said appendix of ADB's SPS.

VIII. GENDER AND SOCIAL DIMENSIONS

50. The main works during civil works will be implemented with use of heavy machinery, with limited use of unskilled labor. However, employment and business opportunities for local communities will be generated during execution of civil works. During implementation NHA will incorporate provisions in bidding documents and civil work contracts that contractors shall (i) comply with Pakistan's applicable labor laws and related international treaty obligations and not employ child labor; (ii) provide safe work conditions and separate sanitation facilities for male and female workers; (iii) provide equal wage to male and female workers for work of equal value; (iv) provide employment opportunities for women; and (v) carry out programs of preventing HIV/AIDS, illicit drugs and human trafficking at workers' campsites. Furthermore, NHA with the support of the construction supervision consultants and contractors shall conduct awareness raising campaign for public and workers about health safety and social issues, preventive measures on HIV/AIDS and sexually transmitted diseases, illicit drugs and human trafficking etc.

51. Although the bidding document will include clauses ensuring gender equalities in wages, it is unlikely for women to participate in project civil works or road side business due to established socio-cultural practices in the province and along the project road.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

DESIGN AND MONITORING FRAMEWORK FOR THE INVESTMENT PROGRAM

Impact the Investment Program is Aligned with			
Regional connectivity and trade in CAREC corridors enhanced (CAREC Transport and Trade Facilitation Strategy 2020) ⁷			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
Outcome Efficiency for road traffic along the CAREC Corridors improved	By 2027: a. Average daily vehicle-km of project roads increased to 6.62 million (2016 baseline: 4.26 million) b. Average travel time on project roads reduced to 7.0 hours (2016 baseline: 9.8 hours)	a–b. NHA compiled statistics on the asset management system and performance monitoring report a–b. Facility and project completion reports	Weak financing arrangements on development and management of the road network jeopardizes network sustainability. Political instability and deteriorating security discourages development assistance.
Outputs 1. Corridor along N55 constructed or rehabilitated 2. NHA capacity strengthened	1a. 747 km of CAREC corridor along N55 improved by 2027 with international roughness index no higher than 2.0 m/km (2016 baseline: not applicable for new carriageways and 3.25 m/km for existing carriageways to be rehabilitated) 2a. Due diligence works for subsequent tranches completed as planned and subsequent tranche projects prepared in compliance with ADB Safeguard Policy Statement (2009) and categorized as procurement- and design-ready.	1a–2a. NHA compiled statistics on the asset management system 1a–2a. Facility and project completion reports	Unfavorable political interference affects the implementation capacity of NHA. Shifting government priorities causes insufficient budget allocation.
Key Activities with Milestones 1. Corridor along N55 constructed or rehabilitated 1.1 Sign financing framework agreement by August 2017. 1.2. Submit and approve periodic financing request for project 1 in Q4 2017. 1.3. Complete due diligence works for project 2 by March 2019. 1.4. Submit periodic financing request for project 2 in May 2019 and approve it in September 2019.			

⁷ ADB. 2014. *CAREC Transport and Trade Facilitation Strategy 2020*. Manila.

Key Activities with Milestones
1.5. Completed due diligence works for project 3 by March 2021. 1.6. Submit periodic financing request for project 3 in May 2021 and approve it in September 2021. 1.7. Implement and complete all civil works by 2027. 2. NHA capacity strengthened 2.1 Mobilize due diligence advisory services for project 2 by September 2018 and project 3 by September 2020. 2.2 Prepare due diligence reports including feasibility assessment, detailed design, and safeguard-related review and assessment for project 2 by March 2019 and project 3 by March 2021. 2.3 Prepare terms of reference for assistance for project implementation as needed and recruit consultants following the project implementation schedule.
Inputs
ADB: \$800 million (regular ordinary capital resources loan) Government: \$125 million
Assumptions for Partner Financing
Not Applicable

ADB = Asian Development Bank; CAREC = Central Asia Regional Economic Cooperation; NHA = National Highway Authority.

Source: Asian Development Bank.

DESIGN AND MONITORING FRAMEWORK FOR TRANCHE 1

Impact the Program is Aligned with			
Regional connectivity and trade enhanced via the CAREC Corridors (CAREC Transport and Trade Facilitation Strategy 2020 ⁸)			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
Outcome Efficiency for road traffic along the CAREC Corridors improved	By 2023, a.1 Average daily vehicle-km of road from Petaro to Sehwan increased to 0.49 million (2016 baseline: 0.36 million) a.2 Average daily vehicle-km of road from Ratodero to Shikarpur increased to 0.29 million (2016 baseline: 0.21 million in 2016) a.3 Average daily vehicle-km of road from Dara Adamkhel to Peshawar increased to 0.53 million (2016 baseline: 0.38 million) By 2023: b.1 Travel time from Petaro-Sehwan reduced to 0.73hours (2016 baseline: 1.02 hours) b.2 Travel time from Ratodero to Shikarpur reduced to 0.47hours (2016 baseline: 0.66 hours) b.3 Travel time from Dara Adamkhel to Peshawar reduced to 0.38hours (2016 baseline: 0.53 hours)	a–b. NHA compiled statistics on the asset management system and performance monitoring report a–b. Project completion report	Rapid deterioration of the road network caused by weak axle-load control.

⁸ ADB. 2014. *CAREC Transport and Trade Facilitation Strategy 2020*. Manila.

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting	Risks
Outputs 1. CAREC Corridor along N55 constructed or rehabilitated 2. NHA capacity strengthened	1a. 66 km from Petaro to Sehwan and 43 km from Ratodero to Shikarpur along N55 improved by 2022 with international roughness index no higher than 2.0m/km (2016 baseline: not applicable) 1b. 34 km from Dara Adamkhel to Peshawar along N55 improved by 2022 with international roughness index no higher than 2.0m/km (2016 baseline: 3.25) 2a. Due diligence works for subsequent tranches conducted and subsequent tranche projects prepared in compliance with ADB Safeguard Policy Statement (2009) and categorized as procurement- and design-ready.	1a–2a. NHA compiled statistics on the asset management system 1a–2a. Project completion report	Political instability and deteriorating security delays implementation Unfavorable political interference may negatively affect the implementation of capacity development support for NHA Insufficient budget allocation due to shifting government priorities
Key Activities with Milestones Output 1 CAREC Corridors along N55 constructed or rehabilitated 1.1 Select supervision consultants by February 2018. 1.2 Complete bid evaluation for civil works contract by March 2018. 1.3 Mobilize contractors by May 2018. 1.4 Complete land acquisition process by the Board of Revenue by December 2017. 1.5 Complete payment for compensation and relocation of affected people by June 2018. 1.6 Complete civil works by June 2022. Output 2 NHA capacity strengthened 2.1 Recruit consultants for due diligence advisory services by December 2018. 2.2 Complete due diligence works for Project 2 by June 2019.			
Inputs ADB: \$180 million (regular ordinary capital resource loan) Government: \$15 million			
Assumptions for Partner Financing Not Applicable			

ADB = Asian Development Bank, CAREC = Central Asia Regional Economic Cooperation, NHA = National Highway Authority.

Source: Asian Development Bank.

B. Monitoring

52. **Project performance monitoring.** The Asian Development Bank (ADB) and the National Highway Authority (NHA) have agreed on a preliminary set of indicators to be monitored and for evaluating project performance. Representative indicators are included in the design and monitoring framework. The baseline data will be collected within 6 months of the date of loan effectiveness. At the beginning of project implementation, NHA will confirm baseline values for

social, environmental, and poverty reduction impact indicators. Monitoring indicators will be measured, with appropriate frequency, during implementation. Comments and findings regarding these project indicators will be incorporated in progress report to ADB. In addition to indicators for implementation monitoring, indicators for project evaluation will be measured at project completion, and 3 years after completion. Where relevant, indicators will be disaggregated by gender, participatory surveys will take place, and results will be compared with the baseline. A final report will evaluate changes in the preceding 3 years. NHA has developed its monitoring capability for the ongoing projects, and has the capacity to monitor the project. A consultant will assist in establishing the monitoring and evaluation system, and periodically updating project impacts on socioeconomic, gender, and environment.

53. **Compliance monitoring:** Compliance to the covenants will be jointly monitored by NHA and ADB through monthly and semi-annual updates provided by the design review and construction supervision consultant. The consultant will submit to ADB a status report on the covenants with the explanation and time-bound actions on partly or non-complied covenants. Apart from ADB project review missions 2–3 times a year, ADB’s resident mission in Pakistan will also hold quarterly country portfolio review meetings with NHA to ensure the full compliance of the covenants.

54. **Safeguards monitoring:** The environmental management plan (EMP) and the site specific EMP (SSEMP) will be monitored and reported to ADB bi-annually with the assistance of supervision consultant team, the performance and results of which (through EMP reports) will be uploaded in ADB and NHA websites. Construction environmental monitoring is a day to day process, which ensures that departures from the EMP are avoided or quickly rectified, or that any unforeseen impacts are quickly discovered and remedied. Specific actions in the EMP that are to be monitored are included in the environmental assessment. These include the preparation of plans for aspects of the work, such as construction camps, borrow pits and quarries, establishing crusher and asphalt facilities, and a site safety plan, which need to be completed and approved during the preconstruction phase. Also included are air, noise, and water quality monitoring parameters that follow relevant Pakistan National Environmental Quality Standards (NEQS), as these are more stringent than most of World Bank/IFC standards. The only exception is for particulate matter and for day-time noise in industrial areas, for which categories the WB/IFC standards will be followed. Regular monitoring of the condition of the road surface, bridges, culverts, drainage structures and slope protection structures will also be carried out. In addition, information on the locations, type and consequences. If there are any unforeseen safeguards impacts or incidents these will be reported to ADB immediately for necessary action. The bi-annual environmental monitoring reports will be reviewed by ADB and when approved, will be disclosed on ADB’s website.

55. Monitoring of land acquisition and resettlement (LAR) tasks will be routinely conducted internally by Land Acquisition and Resettlement Unit, NHA in PIU, with the assistance of the Resettlement Specialist mobilized by the Supervision Consultants. The monitoring results of LAR tasks and issues can be included in the monthly project progress reports and LARP implementation will be consolidated into quarterly LARP implementation progress reports by Resettlement Specialist for NHA and ADB until LARP implementation is completed. However throughout project implementation period, bi-annual monitoring and evaluation reports prepared by an independent external monitor will be submitted to ADB for review and clearance before its disclosure on NHA and ADB websites. The monitoring reports⁹ may cover LARP implementation

⁹ The schedule for preparation and submission of bi-annual external monitoring reports will be June and December, while for quarterly LARP implementation progress reports it will be March, June, September and December.

progress with implementation gaps, identified social issues (if any) and recommended corrective actions to ensure implementation of project is fully in consonance with the loan covenants on social safeguards and ADB's SPS requirements as outlined IR safeguards requirement-II. Specific monitoring benchmarks for LAR monitoring include (i) information campaign and consultation with affected persons; (ii) status of grievance/complaints recorded and grievances redressed during monitoring period; (iii) compensation for affected structures and other assets; (iv) relocation of affected persons; (v) payments for loss of income; and (vi) living standard and income restoration activities.

56. **Gender and social dimensions monitoring:** A summary poverty reduction and social strategy has been prepared. NHA, with the assistance of construction supervision consultants, shall ensure the project follows (i) measures to raise public awareness of the risks of HIV/AIDS and other sexually transmitted infections, drug and human trafficking; (ii) requirements for the civil works contractor(s) to take measures to protect construction workers from the risks of HIV/AIDS and other sexually transmitted infections, and for the testing and treatment of construction workers; (iii) awareness raising among temporary workers of important social and health issues; and (iv) measures to protect public and workers with requirements for the civil works contractor(s) to maintain their labor environment in healthy condition will be incorporated into the contract documents and are provided in the mitigation provisions of the EMP to meet requirements of ADB's Core Labor Standards (2006) and the country's relevant laws and regulations.

C. Evaluation

57. ADB will field an inception mission within 3 months after signing of the loan agreement. Review missions will be carried out every 4–6 months jointly by representatives of ADB, the Borrower, and NHA. The review missions will assess the status of the project implementation and site visits are also required, whenever possible. ADB and the government will carry out a midterm review of project implementation in mid-2017. The review will focus on project impacts, particularly those relating to institutional, administrative, organizational, technical, environmental, and social aspects and poverty reduction. The project's economic viability, and other aspects that may have an impact on project performance, will be assessed. The review will examine the implementation progress of policy reforms and compliance with assurances specified in the loan agreement. This will allow for any necessary mid-course corrections to ensure successful implementation and the achievement of the project objectives.

D. Reporting

58. NHA will provide ADB with (i) monthly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated semi-annual project progress reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, and (c) updated implementation plan for next 12 months; (iii) bi-annual safeguards monitoring reports separately for environment and resettlement; and (iv) a project completion report within 6 months of physical completion of the project. To ensure projects continue to be both viable and sustainable, project financial statements together with the associated auditors' report, would be adequately reviewed by NHA and ADB.

E. Stakeholder Communication Strategy

Project Documents	Means of Communication	Responsible Party	Frequency	Audience(s)
Project data sheet	ADB's website	ADB	Initial project data sheet posted on the website no later than 2 weeks after approval of the concept paper; updated at least twice a year	General Public
Design and monitoring framework	ADB's website	ADB	Key information from the draft reflected in project data sheet; final version posted on the website at the same time it is circulated to the Board for approval, subject to the concurrence of the government	General Public
Environmental Assessment Report	ADB's website and local disclosure	NHA, ADB	Draft IEE posted on the website before appraisal; and the final version no later than 2 weeks of receipt by ADB Draft EIA posted on website at least 120 days prior to appraisal	General Public, project-affected people
Resettlement Plan	ADB's website	NHA, ADB	Draft posted on the website before appraisal; and the final/updated version no later than 2 weeks of receipt by ADB	General Public, project-affected people
Loan Agreement	ADB's website	ADB	Posted on the website no later than 2 weeks from their signing, after removing any information falling within exceptions at the time of the negotiations	General Public
Report and Recommendation of the President	ADB's website	ADB	Posted on the website at the same time it is circulated to the Board for approval, subject to the concurrence of the government	General Public
Summary of Poverty Reduction and Social Strategy	ADB's website Consultation	ADB NHA	Posted on the website at the same time it is circulated to the Board for approval, subject to the concurrence of the government	General Public
Procurement requirements	ADB website for procurement notice (ACN/SPN), consulting services	ADB	Available online (current and archive)	General public, potential civil works

Project Documents	Means of Communication	Responsible Party	Frequency	Audience(s)
	recruitment notice, invitation for bids, Local newspaper advertisement	NHA		contracting firms
Project Administration Manual	ADB's website	ADB	Posted on the website at the same time it is circulated to the Board for approval, subject to the concurrence of the government	General Public
Environmental & Social Safeguard Monitoring Reports	ADB's website NHA's website	ADB NHA	Routinely disclosed upon receipt	General Public, project-affected people in particular
Audited project financial statements and the auditors' report	ADB's website	ADB	Within 30 days of receipt	General Public
Project Completion Report	ADB's website	ADB	Within 2 weeks of circulation to the Board for information	General Public
Evaluation Report	ADB's website	ADB	Within 2 weeks of circulation to Management and the Board	General Public

ADB=Asian Development Bank, ACN= advance contracting notice, CSRN = consulting services recruitment notice, NHA = National Highway Authority, SPN = specific procurement notice.

X. ANTICORRUPTION POLICY

59. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.¹⁰ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.¹¹

60. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the Project. Further, NHA will establish eligibility criteria for persons serving on bid evaluation committees and require full disclosure of relevant interests and any potential conflict of interests. Additionally, NHA will engage private firms to conduct technical audits of randomly selected works contracts within 12 months of commencement of the contract and six months prior to NHA taking over the project site from the contractor.

XI. ACCOUNTABILITY MECHANISM

61. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can

¹⁰ Anticorruption Policy: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

¹¹ ADB's Integrity Office web site: <http://www.adb.org/integrity/unit.asp>

voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.¹²

XII. RECORD OF CHANGES TO THE FACILITY ADMINISTRATION MANUAL

62. All revisions and/or updates during the course of implementation should be retained in this section to provide a chronological history of changes to implemented arrangements recorded in the FAM, including revision to contract awards and disbursement s-curves.

Date	Revisions
xx September 2017	Original version (loan approval date)

¹² Accountability Mechanism. <http://www.adb.org/Accountability-Mechanism/default.asp>.

PROCUREMENT PLAN

Basic Data

Project Name: Central Asia Regional Economic Cooperation Corridor Development Investment Program-Tranche 1	
Project Number: 48404-003	Approval Number:
Country: Pakistan	Executing Agency: National Highway Authority
Project Procurement Classification: Category B	Implementing Agency:
Project Procurement Risk: Low	N/A
Project Financing Amount: US\$ 350,000,000 ADB Financing: US\$ 300,000,000 Cofinancing (ADB Administered): Non-ADB Financing: US\$ 50,000,000	Project Closing Date: 31 December 2022
Date of First Procurement Plan: 5 May 2017	Date of this Procurement Plan: 5 May 2017

A. Methods, Thresholds, Review and 18-Month Procurement Plan

1. Procurement and Consulting Methods and Thresholds

Except as the Asian Development Bank (ADB) may otherwise agree, the following process thresholds shall apply to procurement of goods and works.

Procurement of Goods and Works		
Method	Threshold	Comments
International Competitive Bidding for Works	US\$ 15,000,000 and Above	

Consulting Services	
Method	Comments
Quality- and Cost-Based Selection for Consulting Firm	

2. Goods and Works Contracts Estimated to Cost \$1 Million or More

The following table lists goods and works contracts for which the procurement activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Procurement Method	Review (Prior/ Post)	Bidding Procedure	Advertisement Date (quarter/year)	Comments
ICB/CAREC -01	Additional 2 Lane Carriageway from Petaro to Sehwan	69,500,000	ICB	Prior	1S2E	Q3 / 2017	Prequalification of Bidders: N Domestic Preference Applicable: N Advance Contracting: Y Bidding Document: Large Works
ICB/CAREC -02	Additional 2-Lane Carriageway for Ratodero–Shikarpur	47,200,000	ICB	Prior	1S2E	Q4 / 2017	Prequalification of Bidders: N Domestic Preference

Package Number	General Description	Estimated Value	Procurement Method	Review (Prior/ Post)	Bidding Procedure	Advertisement Date (quarter/year)	Comments
							Applicable: N Advance Contracting: Y Bidding Document: Large Works
ICB/CAREC -CP-3	Rehabilitation and Improvement of Existing Carriageway from Dera Adam Khel– Peshawar (Section 3) 34.350 Km	32,800,000	ICB	Prior	1S2E	Q3 / 2017	Prequalification of Bidders: N Domestic Preference Applicable: N Advance Contracting: Y Bidding Document: Large Works

3. Consulting Services Contracts Estimated to Cost \$100,000 or More

The following table lists consulting services contracts for which the recruitment activity is either ongoing or expected to commence within the next 18 months.

Package Number	General Description	Estimated Value	Recruitment Method	Review (Prior/ Post)	Advertisement Date (quarter/year)	Type of Proposal	Comments
CS	Design Review and Construction Supervision Consultants for CAREC Corridor Investment Program (T-1 Projects)	3,000,000	QCBS	Prior	Q1 / 2017	FTP	Assignment: International Quality-Cost Ratio: 90:10 Advance Contracting: Y Comments: Due to relative importance of quality
	Due Diligence Advisory Services	5,000,000	QCBS	Prior	Q2 / 2018	FTP	Ratio: 90:10 Advance Contracting: Y
	Assistance with Project Implementation	3,000,000	QCBS	Prior	Q3 / 2018	FTP	Ratio: 90:10 Advance Contracting: Y

4. Goods and Works Contracts Estimated to Cost Less than \$1 Million and Consulting Services Contracts Less than \$100,000 (Smaller Value Contracts)

The following table lists smaller-value goods, works and consulting services contracts for which the activity is either ongoing or expected to commence within the next 18 months.

Goods and Works								
Package Number	General Description	Estimated Value	Number of Contracts	Procurement Method	Review (Prior/Post)	Bidding Procedure	Advertisement Date (quarter/year)	Comments
None								

Consulting Services								
Package Number	General Description	Estimated Value	Number of Contracts	Recruitment Method	Review (Prior/Post)	Advertisement Date (quarter/year)	Type of Proposal	Comments
None								

B. Indicative List of Packages Required Under the Project

The following table provides an indicative list of goods, works and consulting services contracts over the life of the project, other than those mentioned in previous sections (i.e., those expected beyond the current period).

Goods and Works							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Procurement Method	Review (Prior/Post)	Bidding Procedure	Comments
None							

Consulting Services							
Package Number	General Description	Estimated Value (cumulative)	Estimated Number of Contracts	Recruitment Method	Review (Prior/Post)	Type of Proposal	Comments
None							

TERMS OF REFERENCE OF CONSULTANTS

CONSULTANCY SERVICES FOR THE DESIGN REVIEW AND CONSTRUCTION SUPERVISION FOR PAK: CAREC CORRIDOR INVESTMENT PROGRAM (T-1 PROJECTS)

A. Background

1. The Government of Pakistan (the Government) requested the Asian Development Bank (ADB) to help finance the Central Asia Regional Economic Cooperation Corridor Development Investment Program (the Investment Program) under a Multitranche Financing Facility (The Facility). The Government requested the first tranche to be disbursed to finance Tranche 1 of the Investment Program, which aims to improve the 208 km of road for the three sections i.e. (i) Dualization of Petaro-Sehwan Section (66 km); (ii) Dualization of Ratodero-Shikarpur Section (44 km); and (iii) Rehabilitation of Dara Adam Khel-Peshawar Section (36 km). The CAREC road network corridor 5 & 6 will connect Pakistan up North to China and West through Afghanistan respectively. Asian Development Bank lately designated N-55 section between Peshawar to DG Khan as an important CAREC Link other than Corridor 5 & 6. Moreover N-55 from Peshawar to Hyderabad is 1,228 km in length. On the right bank of river Indus, it is the shortest north-south route between Peshawar and Karachi. Government of Pakistan realizing its importance is already working on the improvement and dualization of this Road in various sections. The project will rehabilitate, reconstruct and construct additional carriageway of the following in Tranche-1 financing:

Road Section	Length (km)
Petaro-Sehwan Section (Dualization)	66
Ratodero-Shikarpur Section (Dualization)	44
Dara Adam Khel-Peshawar Section (Rehabilitation)	36
Total	146

2. The National Highway Authority (NHA) will be the Executing Agency and the Project Implementation Unit (PIU) under (NHA) will be the Implementation Agency which will be established with the General Manager "GM" (Employer's representative) as the head. NHA requires the services of Design Review and Construction Supervision Consultants to carry out design review, construction supervision & contract administration, implementation & monitoring of Environmental Management plans where required. In undertaking the design review of the project, the consultant is to take into account the procurement of the project's civil works will be proceeding in parallel with this consultant selection process, with the objective that the consultant's and the civil works contracts can be signed at the same time. Accordingly, the consultant's review of the designs must reflect the possible contractual impacts arising from recommending substantial changes to the designs, for contracts that have already been procured. Where in the consultant's opinion such changes are essential, its recommendations to the client must reflect the possible risks in terms of contractual claims, delays, or other impacts.

3. Brief Description of Road Projects:
Brief description of the T1 project roads under is given below:

Road Section	Petaro-Sehwan Road	Ratodero-Shikarpur Road	Dara Adam Khel-Peshawar Road
Connection Points:	Petaro (Start Point Km 6+384) – Petaro – Aliabad – Khanote – Manjhand – Lakha – Sann – Chhachhar – Aamri – Lakki Shah Saddar – Sehwan (End Point Km 134+384).	Ratodero (Start Point Km 334+000) – Dakkan – Garhi Yasin – Kabalo – Karan – Shikarpur (End Point Km 378+200)	Peshawar (Km 1192+000; First bridge location at Kohat Road, 1.5 Km away from Ring Road, Peshawar) – Badaber – Mattani – Dara Adam Khel (End Point Km 1228+000)
Present Condition:	Fair to Poor Functional since 1985 Existing 7.3 meter carriageway (two Lane) with 3.0 meter earthen shoulders on both sides.	Fair to Poor Functional since 1985 Existing 7.3 meter carriageway (two lane) with 3.0 meter earthen shoulders on both sides. Additional carriageway shall be bituminous road.	Fair to Poor Functional since 1985 Existing 7.3 meter dual-carriageway (dual lane on each direction) with 2.0 meter outer shoulder and 1.0 meter inner shoulder.
Proposed Improvement:	Proposed additional 7.3 meter carriageway (dual carriageway) with 1.0 meter inner treated shoulder and 3.0 meter outer earthen shoulder. Additional carriageway shall be bituminous road.	Proposed additional 7.3 meter carriageway (Dual Carriageway) with 1.0 meter inner treated shoulder and 3.0 meter outer earthen shoulder.	HMA overlay has been proposed. New design of shoulders has been proposed.
Road Classification:	National Highway		
Right of Way:	16.50 + 16.50 = 33 meters	16.50 16.50 = 33 meters	12.5 + 12.5 = 25 meters (Minimum Variable)
Alignment:	Plain	Plain	Plain
Geo-graphical Features:	Terrain: Level to Rolling	Geo-graphical Features: Terrain: Level to Rolling	Terrain: Level to Rolling
Climate:	Hot. The annual maximum temperature is higher than 45°C. The annual minimum temperatures sometimes up to 15°C.	Climate: Hot. The maximum temperature generally goes up to 50°C. The minimum temperatures always remain above 15°C.	Hot to Cold. The maximum temperature remains below 40°C. The minimum temperatures generally remain below 0°C.
Benefits:	The beneficiaries of the project will be communities served by the project road, although not necessarily travelling on the new road, will benefit indirectly from the improved, lower cost and faster transport services and thereby obtain improved access to	The beneficiaries of the project will be communities served by the project road, although not necessarily travelling on the new road, will benefit indirectly from the improved, lower cost and faster transport services and thereby	The beneficiaries of the project will be communities served by the project road, although not necessarily travelling on the new road, will benefit indirectly from the improved, lower cost and faster transport services and thereby

Road Section	Petaro-Sehwan Road	Ratodero-Shikarpur Road	Dara Adam Khel-Peshawar Road
	<p>economic opportunities and social services. Government and non-government agencies using the project road will improve their services delivery due to improved transport efficiency. Enhancement of socio-economic activity of the highway traversed districts.</p>	<p>obtain improved access to economic opportunities and social services. Government and non-government agencies using the project road will improve their services delivery due to improved transport efficiency. Enhancement of socio-economic activity of the highway traversed districts.</p>	<p>obtain improved access to economic opportunities and social services. Government and non-government agencies using the project road will improve their services delivery due to improved transport efficiency. Enhancement of socio-economic activity of the highway traversed districts.</p>

4. The consultancy services would be required for a period of 39 months including the defects notification period, which will be 12 months. Total input of **67 person-months** International and **345.5 person-months** national consultants would be required for the assignment.

5. The Consultants will perform the duties of the Engineer specified in the FIDIC conditions of contract and will be required to nominate Resident Engineers for the contract(s) that will be a full-time resident in the areas or located in the proximity of project areas. In addition to the primary role, the Consultants will assist the Employer in the efficient administration and implementation of the sub-projects, support and strengthen it in its tasks, monitor progress, financial management, social and environmental safeguards and gender mainstreaming in the project. The Consultants will report to the General Manager (GM) appointed by NHA. The Consultants will work under the overall guidance, coordination and directions of the GM.

B. Objective

6. The overall objectives of these Terms of Reference are to:

- (i) Ensure that the detailed engineering design is reviewed, and updated if required, in accordance with the specified parameters / standards and best international practices prior to implementation of civil works contracts.
- (ii) Ensure that high quality construction is achieved in time within budget and that all work is carried out in full compliance with the approved engineering designs, technical specifications, agreed work schedule, and within the terms and conditions of all other contract documents and sound engineering practices;
- (iii) Demonstrate the efficacy of contract administration and supervision by independent external agencies;
- (iv) Ensure safeguards management for tranche-1 project i.e. updating, and implementation of the LARPs, and incorporating EMPs in the works contracts, preparation and implementation of site-specific EMPs which are fully consistent with the ADB's safeguards requirements. Monitor and evaluate the implementation

of environmental management plan, resettlement plan and other social safeguard measures to be taken by the contractor and Employer.

- (v) Promote technology transfer and the introduction of modern Contract Administration practices within NHA.

C. Scope of Consultancy Services:

7. General Duties and Responsibilities of the Consultants.

- (vi) Review (if required) Bid documents for the project and assist NHA in prequalification of contractors, if required, evaluation of bids received and award of civil works contracts;
- (vii) The Consultants will carry out a critical review of the detailed engineering design prior to the commencement of works to identify anomalies or omissions that constitutes inconsistency in the design and completeness of works. This design review should be completed in three (3) months' time and the design review report will be submitted within three (3) months. The design report should clearly indicate if any section of the road requires adjustment in the horizontal and vertical alignment, changes to the structures and identify the LARP and non LARP areas. Further, the IEE and EMP are to be updated as applicable at the detailed design stage based on the final road alignments. On completion of the review, the Consultant will prepare a report, setting out all findings and recommendations for correcting any defects or omissions identified. Notwithstanding these, the Consultant will immediately inform the employer of any defect or omission that may have a substantial impact on the Project at the time the defect or omission is uncovered.
- (viii) Civil works will be carried out based on the FIDIC Conditions of Contract for Construction, MDB Harmonized Edition – June 2010. The consultant will administer the civil work's contracts, make engineering decisions, be responsible for quality assurance, provide general guidance and furnish timely responses to the contractors in all matters relating to the civil works, and ensure that all clauses of the contract agreement between the civil works contractors and PIU are adhered to and respected.
- (ix) The consultants will advise PIU on all matters relating to the efficient and successful execution of the civil works contracts, and will act at all times to protect the interests of the project and will take all reasonable steps to keep the construction costs to a minimum, consistent with sound economic and engineering practices; and will prepare a "Contract Administration and Construction Supervision Manual" outlining routines and standard operating procedures to be applied in contract administration and construction supervision, based on sound internationally recognized practice.

8. Design Review: The Consultant will review and validate on ground, the detailed engineering design including the design reports, design calculations and design drawings. Thereafter the Design Review Consultants will bear the professional liability for the accuracy of the design, which will be covered under this contract. The design review shall include but not be limited to the following tasks;

- (i) Review & ensure that the design meets all the standards and parameters specified in these ToR for supervision consultants, NHA specifications and best international practices. The design criteria used are:

Description	Codes
Geometric Design	A policy on Geometric Design of Highways and Streets 2011 AASHTO
Pavement Design	AASHTO guide for Design of Pavement Structures 1993
Highway Safety Design	Manual of Uniform Traffic Control Devices, Highway Safety Wing, Ministry of Communication, Government of Pakistan.
Design Standards for Bridges and Cross Drainage Structures: -AASHTO LRFD (Latest Edition- 2012 -Pakistan Highway Code of Practice for Bridges 1967 -UBC/IBC 2007: For Seismic zoning	

- (ii) Review and ensure that the geometric alignment particularly the horizontal curve and vertical profile of National Highways as well as service roads, meets the minimum specified criteria.
- (iii) Review and ensure that a cost effective embankment height, has been adopted throughout the alignment, based on the required capacity of soil, depth of water table and drainage pattern of the surrounding area.
- (iv) Review and ensure that the pavement is most efficient and cost effective; design has been carried out on the basis of traffic studies conducted by the Design Consultants, characteristics of the proposed pavement materials, the calculated axle loading (ESALs) and prescribed design life.
- (v) Review and ensure that the design parameters, calculation, location and layout of hydraulic and other traffic engineering structures to include bridges, flyovers, underpasses and culverts, on the basis of hydrology report, geotechnical investigations, soil analysis, drainage pattern, and site conditions, ensuring that safe and cost effective designs are adopted.
- (vi) Review and ensure that the design of road side drainage and cross drainage structures has been carried out as per the site requirement and flow patterns/calculations of runoff.
- (vii) Review and ensure that the design, lay out and requirement of retaining walls, breast walls, other retaining structures, and slope stability/ slide control measures are as per the geotechnical requirement and site conditions.
- (viii) Review and ensure that the requirement for U turns, underpasses, overhead bridges, Entry/ Exits, Service lanes, and all other highway related works have been included in the design.
- (ix) Review existing soil reports provided by the Employer and suggest any additional testing, if required;

- (x) Carry out the Highway Safety Audit as per international standards after a detailed site visit. Consultants will ensure that all safety measures are taken without any compromise in the design and recommend improvement/missing safety measures, if any before execution of the road; Verify a highway safety audit to ensure that all traffic signs, pavement marking, and pavement studs have been provided in the design as per the requirement. Check proposed work zone safety requirements are in accordance with best international practices;
- (xi) Based on the finding of Initial Environmental Examination (IEE), ensure that adequate measures are incorporated in the design to mitigate the adverse impact including those likely to be encountered during construction and recommend any improvement and support NHA in establishing and operationalizing a Grievance Redress Mechanism (GRM) as detailed in the IEE;
- (xii) Based on design review, i) prepare social due diligence reports confirming project road sections with and without LAR impacts, including clearly marking LAR and non-LAR sections in the field and reflected in a linear plan and timelines for updating of LARPs ii) and update the LARPs based on horizontal and vertical alignment adjustments proposed/incorporated (if any) in design. Assist PIU in a) establishing a LAR database, b) planning and implementation of public consultations during design review and c) operationalizing Grievance Redress Mechanism (GRM) with complaints recording, tracking, monitoring and community outreach systems.

9. **Contract Administration & Construction Supervision.** The scope of construction supervision and contract administration services of the Consultant shall include but will not be limited to the following tasks:

- 1) Prepare the Pre-Construction meeting agenda, and conduct the Pre-construction meeting, record and distribute the minutes;
- 2) Appoint various members of the Engineer's construction supervision team as the Engineer's Assistants (Resident Engineers, Material Engineers, Inspectors, etc) and notify the Contractor and the Employer, and approve the Contractor's Representative;
- 3) Verify whether the Performance Security complies with the form provided in the Contract, whether it is in the correct amount and currencies, and notify the Employer accordingly;
- 4) Advise the Employer whether to accept the Performance Security;
- 5) If the Contractor does not submit the Performance Security on time, notify and advise the Employer of the appropriate contractual remedies;
- 6) Request the Contractor to increase the amount of the Performance Security if the Contract Price increases and monitor the validity of the Performance Security until the issue of the Performance Certificate;
- 7) Verify whether the bank guarantee for advance payment is in the form specified under the Contract and in the amount and currencies stated in the Particular

Conditions of the Contract;

- 8) Verify whether the bank guarantee for advance payment conforms to the Contract requirements and that the guarantee is valid until the entire advance payment is recovered from the Contractor's certificates;
- 9) Interpret the specific provisions of the Contract related to the Employer's obligation to give possession of the Site, and the Contractor's Work Program, assess the contractual consequences of any specific land acquisition issue and advise the Employer on the appropriate mitigation measures;
- 10) Obtain the Parties' confirmation that all conditions in Sub-Clause 8.1 of the Conditions of Contract are fulfilled;
- 11) Issue instruction to the Contractor to commence the works and record the Parties agreement according to Sub-Clause 8.1 of the Conditions of Contract;
- 12) Verify whether the form and substance of the evidence of the Contractor's insurances is satisfactory, whether insurance premiums have been paid and the required insurances are effective on the dates required by the Contract;
- 13) Verify that the terms of the Contractor's insurance policies fully comply with the requirements of the Contract including:
 - a. whether both the Employer and the Contractor are adequately covered as insured Principals;
 - b. amounts insured and currencies of payment, validity of the insurance policies, special conditions;
 - c. limits of insurance per event and in aggregate, deductibles, excess, conditions related to locations;
 - d. whether and which subcontractors are covered by the insurances, and whether additional insurances will be required if the Contractor engages new subcontractors.
- 14) Monitor whether the Contractor maintains adequate insurance in the course of performance of the Contract, particularly if the Contractor provides insurances for a fixed period which is shorter than the period required under the Contract;
- 15) Advise the Employer on the appropriate action and contractual remedies in case that the Contractor does not perform its insurance obligations in accordance with Contract;
- 16) Without relieving the Contractors of their obligations under the Contract, review and approve the traffic management and safety plan, and ensure compliance such that the Works are carried out at all times in a safe and secure manner and damage or injury to persons or property is avoided;
- 17) Obtain the bench marks and other information from the NHA Design Section as required for commencement of construction activities;

- 18) Ensure that the Contractors have all necessary data for setting out and check the Contractors setting out including staking the right-of-way limits, centerline, and grade and confirm permanent monuments in the construction area;
- 19) Ensure that all land and all rights-of-way required for the Project and all Project facilities are made available to the Works contractor in accordance with the schedule agreed under the related Works contract and all land acquisition and resettlement activities are implemented in compliance with (a) all applicable laws and regulations of the Borrower relating to land acquisition and involuntary resettlement; (b) the Involuntary Resettlement Safeguards; and (c) all measures and requirements set forth in the LARP, and any corrective or preventative actions plan set forth in a Safeguards Monitoring Report;
- 20) Assist the PIU in notifying the contractors on LAR and non-LAR sections and ensuring that works are conducted only in LAR-free areas and areas where LARP implementation has been completed;
- 21) Support PIU in ongoing public consultations throughout the construction phase and in resolving environment related complaints through the GRM;
- 22) Submit semi-annual reports during construction and annual reports thereafter with separate environmental and social Safeguards Monitoring Reports to ADB, and disclose relevant information from such reports to affected people promptly upon submission;
- 23) If any unanticipated environmental and/or social risks and impacts arise during construction, implementation or operation of the Project that were not considered in the IEE, the CEIA, the EMP, the SSEMP or the LARP, promptly inform ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan;
- 24) Report any actual or potential breach of compliance with the measures and requirements set forth in the EMP, the SSEMP or the LARP promptly after becoming aware of the breach. provide NHA with a written notice of any unanticipated environmental, or resettlement or indigenous peoples risks or impacts that arise during construction, implementation or operation of the Project that were not considered in the IEE, the CEIA, the EMP, the SSEMP or the LARP;
- 25) Carry out the following duties related to environmental management with particular reference to the technical requirements of sound environmental standards on the basis of the Environmental Assessment and Review Framework (EARF), the Initial Environmental Examinations (IEEs), and the Environmental Management Plans during construction: (i) review and endorse site specific Environmental Management Plans (EMPs) for the projects sections, prepared by the Contractors; (ii) ensure that all the environmental mitigation measures required to be implemented are incorporated into the contract documents; (iii) ensure that the Contractors comply with the measures and requirements relevant to the contractors set forth in each IEE and EMP, and any corrective or preventative actions set out in Environment Monitoring Reports; (iv) conduct environmental monitoring and ensure that the day-to-day construction activities

are carried out in an environmentally sound and sustainable manner; (v) prepare and submit semi-annual environmental monitoring reports on the implementation of the 'Environmental management Plan (EMP) to PIU within 14 days after a completion of the monitoring period; (vi) Prepare additional environmental impact assessments, if required, compliant with ADB SPS, 2009 and ensure that all required mitigation measures are identified and acceptable; (vii) in the event of unanticipated environmental and/or social risks and impacts, that were not considered in the applicable IEE, or EMP, promptly inform PIU and ADB of the occurrence of such risks or impacts, with detailed description of the event and proposed corrective action plan; (viii) report to ADB/PIU of any actual or potential breach of compliance with the measures and requirements set forth in the applicable EMP promptly after becoming aware of the breach;

- 26) With respect to the prevention of HIV/AIDs and Human Trafficking, monitor that the contractors comply and carry out required actions as provided in the respective contract documents, such as awareness and education of laborers and workers;
- 27) Ensure that the contractors do not involve child labor for the execution of the civil works contracts in accordance with the provisions of the contract agreement;
- 28) Without relieving the Contractors of their obligations under the Contract, check and approve the contractors' Working Drawings, Method Statements and Temporary Works proposals;
- 29) Review the Contractor's Work Program and notify the Contractor if the program does not comply with the Contract;
- 30) Monitor the progress against the Work Program and the cash flow estimate and request revisions, if required;
- 31) Report in the Consultant's Monthly Report the work progress against the Contractor's Work Program and the cash flow estimate;
- 32) Verify whether the progress charts in the Contractor's Monthly Progress Report reflect the actual progress and correspond to the latest revision of the Work Program and the cash flow estimate, and instruct the Contractor to correct the report, if required;
- 33) If required, determine the Contractor's entitlements to time extensions on the basis of the Contractor's Work Program;
- 34) Determine the Employer's entitlement to Delay Damages on the basis of the Work Program and advise the Employer of the relevant contractual remedies if the Contractor's progress is behind schedule;
- 35) Verify the Contractor's Monthly Progress Reports and notify the Contractor of any incorrect or inconsistent information;
- 36) Conduct regular weekly site meetings and monthly progress review meetings, record and distribute the minutes;

- 37) Perform quantity take-offs from drawings to verify BoQ quantities;
- 38) Issue regular notices to the Contractors of intended field measurements, measure the Works, compute the quantities for payment, and determine the amounts due to the Contractor within the period specified in the Contract;
- 39) Carry out any subsequent design changes, and expeditiously issue supplementary drawings, site instructions, variation orders and day work orders to avoid delay to the works and to ensure that the works are executed in accordance with Contract;
- 40) Establish and maintain throughout the works contracts a structured system of measurement records, supporting documents and calculations for the payment of all BoQ items, that is transparent for auditing purposes;
- 41) Provide all necessary assistance to the Employer and external auditors for conducting regular quarterly audits of the measurement records, supporting documents and calculations for the payment of all BoQ items;
- 42) Verify the sources of indices or prices for price adjustment, determine a provisional value of an index/reference price until it is published, but, if the index is not published in certain period(s), apply the last available published value;
- 43) Establish with the Contractor a standard format for the Contractor's Statement and the Interim Payment Certificates;
- 44) Issue the interim certificates to PIU for payment to the Contractors in accordance with Clause 14 of the Conditions of Contract, having regard to any contractual provisions for advance payment, variation of price, and exchange rate fluctuation etc. Certify the completion of the Activities/Works or parts thereof and process final payments to the Contractors;
- 45) Prepare and maintain the Estimates of Cost of Works to Completion continuously, update the Estimates after each Variation instruction or a Variation Order issue and after each IPC, and present the latest Estimate in the Consultant's Monthly Progress Reports;
- 46) Initiate and process variations promptly, when it is necessary for the construction of the works;
- 47) Request the Contractor's technical and cost proposal, as required, consult both parties in all matters in connection to variation work;
- 48) Value variations, obtain the Employer's approval of any variation, issue variations under the Contract, keep record of all variations issued under the Contract and report the summary of the variations in the Consultant's Monthly Progress Reports;
- 49) Discharge fully the Engineer's obligations with respect to approval of materials and workmanship, approval and auditing of the Contractor's Quality Assurance System and the QA Personnel and the compliance testing by the Engineer;

- 50) Inspect quarries and borrow pits, and crushing plants, and order tests of materials and ensure adherence to specifications, and approve the sources of materials;
- 51) Without relieving the Contractors of their obligations under the Contract, monitor the Contractors' laboratory testing, evaluate the Portland cement concrete and bituminous mixture designs prepared by the Contractors, and recommend improvements (if any) to ensure the desired performance, and accord approval thereof;
- 52) Carry out independent testing in the field and/or in the laboratory of the "Engineer/Project Manager", and approve or disapprove and certify the works that conform with the specifications and maintain permanent records of results of all the tests made;
- 53) Give notice to Contractors of any defects and deficiencies, and issue instructions for the removal and substitution of the improper works, where provided under the contract. If required, order suspension of the work(s) and/or recommend to PIU other recourse available under the Contract;
- 54) When the works are completed in accordance with the Contract, issue a Taking Over Certificate to the contractor(s);
- 55) Undertake an inspection of the works at the completion of the respective road sections, and certify the contractor(s)' final accounts;
- 56) Obtain the Employer's specific approval before taking any action for determination of extension of time, additional costs and the Contractor's claims for additional time or costs, for all events for which the Employer's express approval is required under the Conditions of Contract;
- 57) Assess objectively the Contractor's claims and give professional and objective advise to the Employer, consult both parties before determining an extension of time;
- 58) Determine Contractor's claims on the basis of the Contractor's Work Program, the impact of the delay(s) event on the Critical Path and the particulars submitted by the Contractor, and not to act as the Contractor's advisor in this matter;
- 59) Prepare standard Daily Diary forms and ensure that all supervision staff maintain daily diaries of Contractor's and its own activities;
- 60) Assess minimum construction equipment, plant and machinery requirements, by type and specification, and monitor, keep and regularly update a list of the Contractors' equipment, plant and machinery in order to keep a check on the Contractors' mobilization. Inspect and evaluate the Contractor's establishments including in particular the laboratory facilities to ensure compliance with the terms and conditions of the Contract Agreement;
- 61) Maintain an Events Log starting at beginning of Contract;

- 62) Assist the parties establish Dispute Board, provide all necessary information to DB members and attempt to facilitate amicable settlement of the dispute between the Employer and the Contractor;
- 63) Establish and maintain an effective documents management system in the Engineer's office, which provides for separate filing of incoming and outgoing correspondence and documents, as well as the filing by subject matter;
- 64) Carry out detailed inspections of the works during the Defects Notification Period and prepare detailed inspection and recommendation reports for the Employer after each inspection;
- 65) Ensure that the contractor(s) provide a safe workplace for their workforce, supervisory personnel and for members of the public requiring access through the sites in full conformity with Health and Safety regulations;
- 66) Ensure that the contractor(s) comply fully with contractual obligations relating to care of the environment (both specified and legislated) and provide all reports and obtain all permits and permissions required in relation to spoil areas, borrow areas quarries and the like;
- 67) Keep and maintain daily records of labor, equipment and weather conditions on the site along with records of activity, progress and other events happening on the site and having relevance to the works;
- 68) Ensure the receipt of and maintain as permanent records of all warranties required under terms and conditions of the Contract Agreement for materials including their source and equipment accepted and incorporated in the project;
- 69) Undertake project performance monitoring and evaluation in accordance with the Project Framework and ADB's *Project Performance Management System (PPMS) Handbook* including the baseline data survey and the following annual survey and reporting up to project completion;
- 70) Advise PIU on need for effective liaison with local authorities, police, landowners, utility owners, complainants, the public and other organizations affected by the Works in order to minimize or avoid unnecessary delays or disputes;
- 71) Maintain consolidated project accounts and assist NHA for settlement of Audit Para's and objections raised, prepare replies related to project, and provide the entire relevant documents/papers/letters etc. to support the replies-until 1 year after completion of works. The cost to be incurred may be built in the rates;
- 72) Develop training programs for EA staff and develop on the job training on innovative construction methods, project management and value engineering;
- 73) Based on the design data provided, prepare revised PC-1 for the project including economic analysis and Initial Environmental Examination (IEE) on Proforma of PC-1 prescribed by Planning Commission;

- 74) Provide any other specialist services requested by PIU under conditions to be mutually agreed ensure that the construction methods as proposed by the contractor for carrying out the works are satisfactory, inspection of contractor's construction equipment; and safety of the works, property, personnel, and general public; the schedule of mitigation measures for adverse environmental impacts;
- 75) The Consultants will be responsible for the audit report, observation and will make the necessary replies, report, and presentation to defend the department interest;
- 76) For any laps in quality, quantity, or financial irregularity related to the performance of the Services, the Consultants will indemnify the Client.

D. Staffing

- 77) 67 persons-months International and 345.5 person-months National design review and construction supervision consultants are required to review the designs and assist in construction supervision / contract administration, financial management, safeguard compliance and implementation of the above mentioned projects. The consultancy services would be required for a period of 39 months including the defects notification period, which will be 12 months. There will be three "site supervision teams", for three contract packages. The staffs for each package are expected to mobilize on the date of actual commencement of works by the contractors. Construction Supervision Team Leader of the Consultants is expected to be full time during construction and be mobilized to the Project Site at least two months in advance of the commencement of the works in order to assist PIU with activities leading up to mobilization of the Contractors. Consulting Services will be engaged using Full Technical Proposal (FTP) procedures based on quality and cost-based selection (QCBS) method following ADB's Guidelines on the Use of Consultants (2013, as amended from time to time). The provisions of ADB's Anticorruption Policy will be included in all invitation documents and contracts for consultants. The tentative team composition is as below:

(i) Experts (International and National)

S/No	Expertise	Positions	Input (Person Months)
A.	International Experts		
1	Chief Resident Engineer/Team Leader	1	27
2	Senior Pavement Design Engineer	1	3
3	Senior Bridge/Structure Engineer	1	5
4	Senior Soils and Materials Engineer	1	3.5
5	Senior Hydrologist	1	3
6	Senior Contract Specialist	1	8
7	Senior Geotechnical Engineer	1	6.5
8	Senior Geometric Design Engineer	1	3
9	Senior Environmental Specialist	1	4

S/No	Expertise	Positions	Input (Person Months)
10	Road Safety Auditor	1	4
Sub-Total		10	67
B.	National Experts		
1	Deputy Team Leader/ Senior Resident Engineer	1	39
2	Resident Engineer	3	75
3	Assistant Resident Engineer (ARE)	3	54
4	Geometric Design Engineer	1	3
5	Pavement Design Engineer	1	4
6	Bridge/Structure Engineer	3	24.5
7	Soil/Material Engineer	3	54
8	Hydrologist	1	3
9	Senior Environmental Specialist	3	26
10	Procurement/Contract Specialist	3	36
11	Social Development/Resettlement Specialist	1	10
12	Road Safety Specialist	1	7
13	Geotechnical Engineer	1	10
Sub-Total		25	345.5

(ii) **Support Staffs (Technical)**

S/No	Title	Professional Experience	Estimated person-months
1	Chief Quantity Surveyor [01 Position]	10 Years	39
2	Chief Surveyor [03 Position]	10 Years	24
3	Quantity Surveyors [3 Positions]	10 Years	63
4	Surveyors [06 Positions]	5 Years	120
5	Road Inspector [07 Positions]	5 Years	132
6	Structure Inspector [07 Positions]	5 Years	96
7	Material Inspector [07 Positions]	5 Years	132
8	Lab. Technician [14 Positions]	5 Years	264
9	Computer Operator (04 Nos)	5 Years	90
10	AutoCAD Operator (01 No)	5 Years	12
11	Administration Assistant (04 Nos)	5 Years	81
12	Trainee Engineer (06 Nos)	–	90
13	Project Coordinator (01 No)	10 Years	18
Total			1,161

INTERNATIONAL EXPERTS

1. Title: Chief Resident Engineer / Team Leader

Experience:

15 years international experience as Chief Resident Engineer and 10 years as Team Leader on major road projects

Qualification:

Bachelor's degree in Civil Engineering – preferably Masters in Civil Engineering / Highway Engineering / Transportation Engineering / Construction Management / Project Management or equivalent.

Responsibilities:

Overall responsibility for the organization, conduct and delivery of consultancy services and reporting to NHA. The CRE / Team Leader will head the Consultants' team and will work directly to manage the project and will maintain liaison with NHA.

Responsibilities of the CRE / Team Leader will include, but is not limited to the following:

- Assist the PIU in Project implementation.
- Assume full responsibility for the consulting team and performance of services under the consultancy contract.
- Ensure that the consulting team undertakes comprehensive review of the designs and specifications which were prepared by the design consultant.
- Ensure that the consulting team undertakes comprehensive construction supervision and contract administration of the inescapable civil works.
- Oversee the consultants activities ensuring compliance to details provided in the construction drawings and strict adherence to construction specifications.
- Oversee and supervise construction of works in accordance with details provided in the construction drawings ensuring strict adherence to construction specifications.
- Ensure preparation of detailed and quantitative progress reports to support the contractor's requests for progress payments.
- Keep the Employer informed of technical issues and progress of all works both by informal and formal meetings and correspondence and assist in any project issue which the Employer may require.
- Participate in the Dispute Board meetings to explain and discuss issues raised by the Contractor/Employer or dispute board.
- Ensure implementation of environment and social safeguards requirements.
- Assist the Employer in preparing responses to audit objections and queries of the financiers or other Government Authorities.
- Coordinate with all concerned Employer's organizations on project issues.
- At the end of the construction activities, guide and ensure that the team prepares a comprehensive Construction Completion Report inclusive of "as-built drawings" as appropriate

2. Title: Senior Pavement Design Engineer

Experience:

15 years of international experience or more in major road construction works with a focus on pavement engineering and materials testing. Relevant experience should include: (i) supervising the Contractor's compliance with material specifications and testing; (ii) providing input to the design team to source suitable materials; (iii) engineering design of flexible Asphaltic Concrete (AC) pavements, (iv) coordinating and supervising the work of field teams in supervising and certifying construction in accordance with contract conditions including acceptance standards of materials, approval of source supply, establishing QAJQC procedures, setting up laboratories, mix designs and testing procedures; (v) fluency in English; and (vi) regional experience in Central Asia

Qualification:

Bachelor's degree in Civil Engineering – preferably Masters in Civil Engineering / Highway Engineering / Transportation Engineering or equivalent

Responsibilities:

He/she will be responsible for checking the pavement design and providing comments. Lead the design review of pavement works in the DED including proposed material specifications and sources and asphalt and concrete mix designs;

3. Title: Senior Bridge / Structure Engineer

Experience:

12 years international experience on structure / bridge engineering on major road projects. He shall demonstrate a working knowledge in: (i) the design and construction of bridges and other structures for road projects; (ii) various structural designs and documentations including the design of all required earthworks, retaining walls, drainage and any other required structures; and (iii) supervising the work of field teams in monitoring progress, assessing quality, and certifying construction in accordance with contract conditions.

Qualification:

Bachelor's degree in Civil Engineering – preferably Masters in Civil Engineering / Bridge Engineering or equivalent

Responsibilities: The Senior Bridge/Structure Engineer will perform duties under the guidance of the Team Leader. He/she will assist the Team during construction supervision of the project's bridges and structures and assist in ensuring that the project is implemented in accordance with the required specifications and approved drawings. He/She will set up supervision systems, and train the consultant's national staff in their use.

4. Title: Senior Soil / Material Engineer

Experience:

12 years international experience as Material Engineer on major road projects, preferably two years' experience of asphalt concrete mix design in countries having similar climate condition and/or truck over loading problems like Pakistan

Qualification:

Bachelor's degree in Civil Engineering preferably Masters in Geo-Technical Engineering / Highway Engineering / Geology / Material Engineering / Pavement Engineering.

Responsibilities:

Senior Soil/Material Engineer will perform duties under the guidance of the Team Leader. He/she will assist the Team during the design review and construction supervision of the Road, Bridges and structures and assist in ensuring that the subject project is implemented in accordance with the required specification and approved drawings. The Senior Soil/Material Engineer will set up quality control systems, testing procedures, preparation of JMF, train the national staff and ensure that the system is in place.

5. Title: Senior Hydrologist**Experience:**

12 years international experience in hydrological design of roads and bridges. Minimum worked on 3 design projects.

Qualification:

Bachelor's degree in Civil Engineering Masters in Hydrology or equivalent

Responsibilities:

Senior Hydrologist will perform their duties under the guidance of the Team Leader. Work in the survey and design team and will be responsible for collecting and assessing the hydrological data, finalizing the design discharges for the required drainages, cross drainages, sub surface drainages. Provide assistance to the design team in designing the appropriate and cost effective design of drainage structures. Hydrologist shall collect relevant field data and estimate the design discharges for various drainages structure for the design purpose.

6. Title: Senior Contract Specialist**Experience:**

15 years international experience as Contract Specialist on major road projects based on FIDIC form / conditions of contract, Experience and knowledge of ADB's procurement procedures is essential. Proven credentials in contract administration, evaluating contractor's claims and dispute resolution, preferable experience/track record of an arbitrator, mediator, adjudicator and/or dispute resolution adviser

Qualification:

Bachelor's degree with a major in Civil Engineering, Law, Contracts, Purchasing, or Management – preferably MSc in Civil Engineering, Law, or Contracts / Procurement, or equivalent

Responsibilities:

Responsible for assistance in contract administration of works contracts, taking timely contractual actions related to cost, time and quality controls and closure of the contracts, and in case of dispute its referral to the adjudication and arbitration in case of dispute.

He/she will be responsible for assisting the EA and Team Leader in all the activities pertaining to contract management, early warning of key contractual actions, schedule and document contract management meetings and evaluating/resolving contractor's claims and contractual disputes.

Responsibilities of the Senior Contract Specialist will include, but is not limited to the following:

- Assist Employer and TL in coordinating contract management and planning activities for the work package with Engineering, Project Controls and Construction;
- Assist to organize meetings for negotiating and resolving technical and contract completion issues;
- Assist Employer and TL in effect the timely distribution of reports and pertinent commercial information to and from Contractors in accordance with agreed schedule;
- Assist in schedule turnover meetings with Site Personnel, where required;
- Assist to check timesheets for contract conformance (rates, backup and extensions);
- Assist in review Contractors' invoices and prepare Progress Payment Certificates with Cost Control;
- Assist in review Contractors' costs, forecasts and requests for extras;
- Assist in review and issue for approval and post Substantial Performance documents;
- Participate in contract cost review meetings and regular Project progress and assist with preparation of monthly contracts and Project progress reports.
- Assist in procurement and contracts administration and assistance actions such as contracts, solicitations, modifications, delivery schedules, plans and coordination with relevant departments;
- Assist in preparation of procurement and contract documents;
- Assists in the review of procedural aspects of contract actions. Participates in contracts administration sufficient to ensure contract terms and conditions are met and that the contractor delivers the required services in a timely manner to achieve the objectives of the project;
- Assists in the termination of contracts for the convenience of the Project by the contractor. The incumbent is responsible for the preparation of all documentation necessary to support and defend termination decisions.
- Recommends actions when the contractor is not in compliance with contract provisions;
- Coordinate with contractors to determine and recommend alternative courses of action, such as extension of delivery schedule;
- Conducts contract reviews to evaluate contractor's performance, and monitors contractor activity to assure compliance;
- Monitors such matters as payments, claims, and contractual changes to insure requirements of the contract are met;
- Reviews completed contract file to ensure routine administrative matters are resolved or completed; and
- Support to TL in drafting, for submittal to ADB through Employer, any requests for consent to extension of time / variation orders.

7. Title: Senior Geotechnical Engineer

Experience:

15 years international experience as Geotechnical and/or Geotechnical reviewer of roads/structures with proven credentials in Bridge Designing or related to foundation investigation and design of major structures and embankments

Qualification:

Bachelor's degree in Civil Engineering or Geological Engineering with Master's degree in Geotech Engineering or Foundation Engineering or equivalent

Responsibilities:

Responsible for geotechnical investigations and subsurface explorations for road and structures, stipulate material testing procedures and specifications, identify sources of materials, quarry sites and borrow areas. Geotechnical Engineer will review the design and if required during construction any modification and change in design, construction method, alternate technology of construction and provide oversight during the consultancy service.

8. Title: Senior Geometric Design Engineer**Experience:**

15 years international experience in roads and bridges design experience, strong background in access management and traffic control systems is highly desirable.

Qualification:

Bachelor's degree in civil engineering preferably Masters in Civil Engineering / Highway Engineering / Structure Engineering / Transportation Engineering or equivalent.

Responsibilities:

The Senior Geometric Design Engineer will perform duties under the guidance of the Team Leader. He/she will assist the Team during the design review and construction supervision of the project and will verify the detailed design and provide comments. Verify, recommend and provide design plans for road furniture and road safety appliances.

9. Title: Senior Environmental Specialist**Experience:**

15 years international experience as Environment Specialist supervising and monitoring environmental management plans on donor financed road projects and familiarity with the ADB's safeguard policies.

Qualification:

Bachelor's degree in Environmental Engineering - preferably Masters in Environmental Sciences or equivalent.

Responsibilities:

Responsible for preparing Environmental monitoring check list, reviewing and endorsement of Site Specific Environmental Management Plan (SSEMP), review of Bi-Environmental monitoring reports, prepare corrective action plan in case of noncompliance. The Senior Environmentalist will set up environmental management and monitoring system, train the national staff and ensure that the EMS is in place.

10. Title: Road Safety Auditor**Experience:**

15 years relevant international experience with proven credential as safety auditor on major road projects

Qualification:

Bachelor degree preferably Masters in Civil Engineering/Transportation Engineering/Highway Engineering/Traffic Engineering and a certified safety auditor or equivalent and preferable a certified safety auditor.

Responsibilities:

The Road Safety Auditor is part of the services team and will be providing all necessary assistance to the construction supervision team with respect to all safety, health and environmental issues. He/she will assist to the TL in review and approve the safety plans of the contractor and he will monitor the safety of the works and the safety of the traffic diversions and ensure compliance with the regulations. Road Safety Auditor will identify hazardous location(s) and conditions, conduct a highway safety study, collect and analyses preliminary data, identify and collect field data, select and conduct appropriate detailed studies, evaluate study results, determine safety and operational deficiencies, identify potential safety and operational improvement and to select appropriate improvements. The Road Safety Auditor will set up the road safety supervision systems, train the national staff and ensure that the system is in place.

NATIONAL EXPERTS**1. Title: Deputy Team Leader/SRE****Experience:**

15 years experience as Deputy Team Leader / SRE on major road projects in contract management, processing of claims and implementation of road projects.

Qualification:

Bachelor's degree in Civil Engineering - preferably Masters in Civil Engineering / Highway Engineering / Transportation Engineering / Construction Management / Project Management or equivalent.

Responsibilities:

Responsible for construction supervision and ensuring that the project is implemented in accordance with the required specifications and approved drawings. Assist Team Leader for issues relating to Highway Geometry etc. when required.

Responsibilities of the Deputy Team Leader/ SRE will include, but are not limited to the following:

- Act as the Team Leader during the absence of Team Leader;
- Assist the Team leader in ensuring that the consulting team undertakes comprehensive review of designs and specifications and carries out construction supervision and contract administration of the civil works for the Project assuming the role of "the Engineer" and undertake all tasks as defined under FIDIC General Conditions of Contract for Construction;
- Assist the team leader in overseeing the consultants activities ensuring compliance to detail provided in the construction drawings and strict adherence to construction specifications;
- Assist the Team Leader in overseeing quality control methodology put in place, confirming its adequacy and ensuring that its employment is satisfactorily carried out;
- Render necessary advice and assist the Team leader in contract administration and procurement issues/assignments/contractual claims;
- Assist the Team Leader in resolving any contractual issues;
- Determine extension of time for completion and other claims in accordance with the conditions of contract in consultation with the CRE / Team Leader;
- Provide assistance to the Employer in dispute resolution as per provisions in the conditions of contract;
- Assist the Team Leader in keeping the Employer informed of contractual and claims issues by direct contacts and through discussions or correspondence;

- Assist the Team Leader/Chief Engineer in holding meetings with the Contractor on contract and claims issues; and
- Assist the team leader in preparing a comprehensive Project Completion Report (PCR) and any other duty/ assignment the Team Leader may entrust.

2. Title: Resident Engineer

Experience:

12 years' experience as Resident Engineer on major road projects

Qualification:

Bachelor's degree in Civil Engineering – preferably Masters in Civil Engineering / Highway Engineering / Structure Engineering / Transportation Engineering / Construction Management / Project Management or equivalent.

Responsibilities:

Responsible for construction supervision and ensuring that the project is implemented in accordance with the applicable specifications, approved drawings, and timeframe. Responsible for construction supervision and reviewing and approving contractors' bills. Supervise the work of Assistant Resident Engineers and rest of construction supervision teams and will manage the construction milestones and quality control of works. Provide assistance to the Team Leader in overall management, monitoring and reporting and will be responsible for day-to-day management of works. The construction works will be executed in accordance with the Conditions of Contract contained in ADB's standard documents as appropriate and in accordance with Conditions of Contract.

Responsibilities of RE will include but not limited to the following:

- The Resident Engineer will be responsible for quality, cost, scope, time, safety, and environmental control of the subprojects;
- Review and assist in the approval of contractor's work program, method statements, material sources, preparing and issuing reports as defined subsequently, approving and/or issuing working drawings, approving the setting out of the works, and instructing the contractor;
- Certifying work volume and recommending interim certificates for progress payments, maintaining consolidated project accounts, and preparation of financial statements, ensuring minimum disruption/damage to the environment by approval of contractors' work statement/methodology;
- Monitoring the impact of construction works on the environment and local settlements and providing information to the PMC, NHA department, and the ADB on the monthly progress reports;
- Preparing and issuing reports as defined subsequently;
- Approving and/or issuing working drawings, approving the setting out of the works, and instructing the contractor;
- Taking measurements and keep measurement records;
- Maintaining records, correspondence, and diaries;
- Certifying work volume and recommending interim certificates for progress payments;
- Maintaining consolidated project accounts, and preparing of financial statements and withdrawal applications for submission to the ADB;

- Certifying completion of part or all of the works;
- Inspecting the works at appropriate intervals during the defects notification period and issuing the defects notification certificate;
- Processing the contractor's possible claims;
- Ensuring minimum disruption/damage to the environment by approval of contractors' work statement/methodology, including monitoring the impact of construction works on the environment and local settlements and providing information to NHA and the ADB on the monthly progress reports;
- Providing the employer with complete records and reports, and approving the contractors' as-built drawings for the works;
- Inspecting the works at appropriate intervals during the defects notification period and issuing the defects notification certificate;
- Compile a Project completion report providing details of Project implementation, problems encountered, and solutions adopted, and detailing and explaining any variation in Project costs and implementation schedules from the original estimates.

3. Title: Assistant Resident Engineer

Experience:

12 years experience as Assistant Resident Engineer on Highways or major road projects

Qualification:

Bachelor's degree in Civil Engineering – preferably Masters in Civil Engineering / Highway Engineering / Structure Engineering / Transportation Engineering / Construction Management / Project Management or equivalent

Responsibilities:

ARE will be responsible for construction supervision of the road and ensuring that the subject project is implemented in accordance with the required specification and approved drawings.

He will be responsible for construction supervision and review and approval of contractor's bills. ARE will assist the Resident Engineer (RE) in the performance of his tasks. The main responsibilities of the position will include but not limited to the following:

- Inspect the site and collect the condition data for the design review and necessary changes if any;
- Assist the RE in preparation of technical details such as specifications and estimates;
- Provide details about existing pavement, damages and assessment;
- Assist the RE and recommend approval of contractor's work program, method statements, material sources, etc;
- Assist the RE in preparing and issuing reports as defined subsequently;
- Review and recommend approval and/or issuing working drawings, approval of the setting out of the works, and instruction to the contractor;
- Taking measurements and keep measurement records;
- Maintaining records, correspondence, and diaries;
- Certifying work volume and recommending interim certificates for progress payments;
- Assist in maintaining consolidated project accounts, and preparing of financial statements and withdrawal applications for submission to the ADB;
- Provide feedback to the RE on the certification of completion of part or all of the works;

- Processing the contractor's possible claims;
- Ensuring minimum disruption/damage to the environment by approval of contractors' work statement/methodology, including monitoring the impact of construction works on the environment and local settlements and providing information to W&S Sindh and the ADB on the monthly progress reports;
- Providing the employer with complete records and reports, and recommend the contractors' as - built drawings for the works;
- Assist in the compilation of a Project completion report data, providing details of Project implementation, problems encountered, and solutions adopted, and detailing and explaining any variation in Project costs and implementation schedules from the original estimates.

4. Title: Geometric Design Engineer

Experience:

10 years in roads and bridges design experience, strong background in access management and traffic control systems is highly desirable.

Qualification:

Bachelor's degree in Civil Engineering preferably Masters in Civil Engineering / Highway Engineering / Structure Engineering / Transportation Engineering or equivalent.

Responsibilities:

Generally, role of a geometric road design engineer is to decide the placement of the road with respect to surrounding physical environs and give a shape to its configuration with due care for mobility, access management, traffic control and best possible road safety mechanism embedded in design process. More specifically geometric design engineer is required but limited to the following;

- Agree upon the category of road to be developed to make sure relevant design standards are applied and relevant guidelines are followed during the design process. It could be any category ranging from motorway to rural access roads or mountainous roads in rural settings and urban freeways, primary roads, secondary roads, laterals and access roads in case of an urban situation;
- To decide and fix the route alignment as per project requirements;
- Firm up connectivity requirements and linkages;
- Liaise with survey entity to get the topographic details of the route alignment with appropriate details;
- Assess travel demand for the project road alignment;
- Work out road's right of way requirement and spacing for various road components including formation widths, carriageways, lanes, shoulders, medians/horizontal barriers, road side facilities like spacing for NMT, drainage channels, green verges, laybys and other road side facilities etc. Decide upon relevant design standards for cross falls, camber and super elevations;
- Design both horizontal and vertical profile alignments as per given speed and other geometric design criteria to bring upon most direct, cost effective and safe route alignment;
- Locate and firm up position of road crossings and crossings for water channels and cross drainage. Collaborate with relevant engineering specialists for structure design and positioning of utilities and other crossings;
- Provide design plans for various road segments including links (sections between road crossings) and road crossings. In case of motorways/ expressways only grade separated

crossings and interchanges are involved whereas in case of lower order roads multiple choices are available requiring option analysis for selection of relevant form of road crossings;

- Both horizontal design plans and vertical alignments are required to run simultaneously;
- Collaborate with pavement design engineer during production of design plans;
- Design engineers are encouraged to apply any relevant software available for generation of design plans;
- Provide design plans for road furniture and road safety appliances including traffic control devices, signage and road marking;
- In case of signalised crossings provide separate design plans for installation of signal configuration and relevant plans for signal and other relevant ITS operations;
- Generate typical and standardized design details of various elements as appropriate;
- Produce the design folder in hard and soft formats; and
- Be responsible for and respond to third party road safety audit recommendations.

5. Title: Pavement Design Engineer

Experience:

12 years of experience or more in major road construction works with a focus on pavement engineering and materials testing. Relevant experience should include: (i) supervising the Contractor's compliance with material specifications and testing; (ii) providing input to the design team to source suitable materials; (iii) engineering design of flexible Asphaltic Concrete (AC) pavements, (iv) coordinating and supervising the work of field teams in supervising and certifying construction in accordance with contract conditions including acceptance standards of materials, approval of source supply, establishing QA/QC procedures, setting up laboratories, mix designs and testing procedures.

Qualification:

Bachelor's degree in Civil Engineering – preferably Masters in Civil Engineering / Highway Engineering / Transportation Engineering or equivalent

Responsibilities:

He/she will be responsible for designing especially in pavement design, designs for road features and road safety/traffic control features, drainage designs, rehabilitation and repair plan, traffic plans and amenities including detailed drawings and specifications.

Responsible for the Pavement Design Engineer will include, but is not limited to the following:

- Coordination of design review and construction supervision of all Project pavements, including the management of the Materials/Pavement engineering team in coordination with the Team Leader and the other senior officials of the Consultant Team;
- Lead the design review of pavement works in the DED including proposed material specifications and sources and asphalt and concrete mix designs;
- Review and approve the Contractor's proposed geotechnical investigations for pavements and pavement materials;
- Liaise with the Bridge/Structural Engineer on the geotechnical requirements for bridge design;
- Design review and construction supervision of all Project pavements;
- Design review of pavement works, proposed material specifications and sources and asphalt and concrete mix designs;
- Review the Contractor's proposed geotechnical investigations for pavements and pavement materials;
- Review the construction schedule for all pavement works.

6. Title: Bridge / Structure Engineer

Experience:

12 years experience as Structure / Bridge Engineer preferably on major road / bridge projects

Qualification:

Bachelor's degree in Civil Engineering preferably Masters in Civil Engineering / Highway Engineering / Structure Engineering / Transportation Engineering or equivalent.

Responsibilities:

He/she will be responsible for construction supervision and of structural components of the road and ensuring that the subject project is implemented in accordance with the required specification and approved drawings.

He will be responsible for construction supervision and review and approval of contractor's bills. He will assist the Resident Engineer (RE) in the performance of his tasks. He will be responsible for designing especially on cost effective, multi-hazard resistant design, design the structural elements of roads component and bridges, including detailed structural drawings and specifications. The main responsibilities of the position will include but not limited to the following:

- Inspect the site and collect the condition data for the design review and necessary changes if any;
- Assist in preparation of technical details such as specifications and estimates;
- Provide details about existing structures, damages and assessment;
- Assist and recommend approval of contractor's work program, method statements, material sources, etc;
- Assist in preparing and issuing reports as defined subsequently;
- Review and recommend approval and/or issuing working drawings, approval of the setting out of the works, and instruction to the contractor;
- Taking measurements and keep measurement records;
- Maintaining records, correspondence, and diaries;
- Certifying work volume and recommending interim certificates for progress payments;
- Assist in maintaining consolidated project accounts, and preparing of financial statements and withdrawal applications for submission to the ADB;
- Provide feedback on the certification of completion of part or all of the works;
- Inspecting the works at appropriate intervals during the defects liability period and issuing the defects liability certificate;
- Processing the contractor's possible claims;
- Ensuring minimum disruption/damage to the environment by approval of contractors' work statement/methodology, including monitoring the impact of construction works on the environment and local settlements and providing information to NHA and the ADB on the monthly progress reports;
- Providing the employer with complete records and reports, and recommend the contractors' as -built drawings for the works; and
- Assist in the compilation of a Project completion report data, providing details of Project implementation, problems encountered, and solutions adopted, and detailing and explaining any variation in Project costs and implementation schedules from the original estimate

7. Title: Soil / Material Engineer

Experience:

10 years as Material Engineer on five major road projects preferably with experience of Asphalt concrete mix design in countries having similar climate and/or truck over loading problems like Pakistan

Qualification:

Bachelor's degree in Civil Engineering or Masters in Engineering Geology or equivalent

Responsibilities:

He/she will assist and will be responsible for quality of materials used in construction by performing field and laboratory tests and certifying their acceptance based on recommended specifications for the material, will also identify the sources of material and query sites.

Main responsibilities of the position will include but not limited to the following:

- Stipulate Material Testing Procedures and Specifications;
- Identify sources of materials, quarry sites and borrow areas;
- Confirm the suitability and availability of material in the borrow pits and quarries for pavement;
- If required, identify and evaluate additional sources of materials;
- Undertake field and laboratory testing of the materials to determine their suitability for various components of the work;
- Prepare mass haul diagram for haulage purposes giving quarry charts indicating the location of selected borrow areas, quarries and the respective estimated quantities;
- Make suitable recommendations regarding making good the borrow and quarry areas after the exploitation of materials for construction of works;
- Be responsible for Material Testing and specification and certification of material quality;
- Preparation and testing of concrete mixes of different design mix grades using suitable materials (binders, aggregates, sand filler etc.) as identified during Material Investigation to conform to specification applicable in Pakistan; and
- Preparation of JMF

8. Title: Hydrologist

Experience:

10 years of experience in hydrological design of roads and bridges.

Qualification:

Bachelor's degree in Civil Engineering Masters in Hydrology or equivalent

Responsibilities:

Responsibilities of the Hydrologist will include, but is not limited to the following:

- Hydrologist will perform their duties under the guidance of the Senior Hydrologist and Team Leader.
- Work in the survey and design team and will be responsible for collecting and assessing the hydrological data, finalizing the design discharges for the required drainages, cross drainages, sub surface drainages.
- Provide assistance to the design team in designing the appropriate and cost effective design of drainage structures.

- Hydrologist shall collect relevant field data and estimate the design discharges for various drainages structure for the design purpose.

9. Title: Environmental Specialist

Experience:

12 years' experience as Environment Specialist supervising and monitoring environmental management plans on donor financed road projects and familiarity with the ADB's safeguard policies. Specific experience in a similar position on road projects in accordance with GoP and ADB's Environmental Guidelines will be preferred

Qualification:

Bachelor's degree in Environmental Engineering - preferably Masters in Environmental Sciences or equivalent

Responsibilities:

Responsible for monitoring the implementation of EMPs and SSEMPs, course correction, consultations, due diligence and disclosures.

Responsibilities of the Environmental Specialist will include but not limited to the following:

- Assist Senior Environmental Specialist and Team Leader in reviewing the site specific environmental management plan (SSEMP) for each sub-project and ensure its effective implementation;
- Assist Senior Environmental Specialist in preparing and executing required appropriate actions to mitigate any negative environmental impacts associated with construction activities in collaboration with PIU and all concerned stakeholders;
- Ensure that any environmental assessments fully comply with ADB Safeguards Policy Statement (SPS, 2009) and ensure that all required mitigation measures are identified and acceptable.
- Besides assisting in finalizing the biannual environmental monitoring report, assist the PIU in finalization of environmental part of quarterly progress report, annual progress report and any specific report asked by the PIU.
- Provide support to PIU in conducting public consultation throughout the duration of the project.
- Provide support to PIU in resolving environment related complaints through the GRM.

10. Title: Procurement / Contract Specialist

Experience:

12 years' experience as Procurement and Contract Specialist on major road projects based on FIDIC conditions of contract, Experience and knowledge of ADB's procurement procedures is essential. Proven credentials in contract administration, evaluating contractor's claims and dispute resolution, preferable experience/track record of an arbitrator, mediator, adjudicator and/or dispute resolution adviser

Qualification:

Bachelor's degree with a major in Civil Engineering, law, contracts, purchasing, or management – preferably Master's degree in Civil Engineering, law, contracts / procurement, or equivalent.

Responsibilities:

Responsible for assistance in procurement and contract administration, taking timely contractual actions related to cost, time and quality controls and closure of the contracts, and in case of dispute its referral to the adjudication and arbitration in case of dispute.

He/she will be responsible for assisting in all the activities pertaining to procurement and contract administration, early warning of key contractual actions, schedule and document contract management meetings and evaluating/resolving contractor's claims and contractual disputes.

Responsibilities of the Procurement and Contract Specialist will include, but is not limited to the following:

- Assist in coordinating procurement and contract administration and planning activities for the work package with Engineering, Project Controls and Construction;
- Assist to organize meetings for negotiating and resolving technical and contract completion issues;
- Assist in effect the timely distribution of reports and pertinent commercial information to and from Contractors in accordance with agreed schedule;
- Assist in schedule turnover meetings with Site Personnel, where required;
- Assist to check timesheets for contract conformance (rates, backup and extensions);
- Assist in review Contractors' invoices and prepare Progress Payment Certificates with Cost Control;
- Assist in review Contractors' costs, forecasts and requests for extras;
- Assist in review and issue for approval and post Substantial Performance documents;
- Participate in contract cost review meetings and regular Project progress and assist with preparation of monthly contracts and Project progress reports.
- Assist in procurement and contracts administration and assistance actions such as contracts, solicitations, modifications, delivery schedules, plans and coordination with relevant departments;
- Assist in preparation of procurement and contract documents;
- Assists in the review of procedural aspects of contract actions. Participates in contracts administration sufficient to ensure contract terms and conditions are met and that the contractor delivers the required services in a timely manner to achieve the objectives of the project;
- Assists in the termination of contracts for the convenience of the Project by the contractor. The incumbent is responsible for the preparation of all documentation necessary to support and defend termination decisions.
- Recommends actions when the contractor is not in compliance with contract provisions;
- Coordinate with contractors to determine and recommend alternative courses of action, such as extension of delivery schedule;
- Conducts contract reviews to evaluate contractor's performance, and monitors contractor activity to assure compliance;
- Monitors such matters as payments, claims, and contractual changes to insure requirements of the contract are met;
- Reviews completed contract file to ensure routine administrative matters are resolved or completed; and
- Support to TL in drafting, for submittal to ADB through Employer, any requests for consent to extension of time / variation orders.

11. Title: Social Development / Resettlement Specialist

Experience:

12 years' experience in planning preparation, implementation and monitoring of Social Safeguards (Involuntary Resettlement and Indigenous people) as Resettlement Specialist on IFI financed development projects and familiarity with ADB's Social Safeguard Policies.

Qualification:

Masters in Social sciences or relevant field

Responsibilities:

He/she will be responsible to support PIU in NHA to ensure compliance to social safeguards (Involuntary Resettlement Indigenous people) while planning, preparation, implementation and monitoring of resettlement plans for the sub-projects as required under Safeguard Policy Statement (2009). During event he/she will facilitate NHA in screen of subprojects for IR/IP requirements, identify, assess and update impact inventory linked to the DPs based on design review; conduct consultations with project affected/displaced persons and update the resettlement plans as per marked construction limits; establish updated LAR database and grievance redress system for social safeguards. Monitor day to day RP implementation and consolidate RP implementation progress in monthly progress reports, facilitate NHA in recording and redress of grievances of project affected people and prepare Social Monitoring (internal monitoring) reports biannually or as provided in ADB cleared LARPs and project documents for ADB's review as well as final report on social safeguards implementation at completion of project.

Responsibilities will include but not limited to the following:

- Screen subprojects for involuntary resettlement impacts to determine IR/IP impact significance and eligibility of the subproject for social safeguards due diligence and preparation/updating of LARPs/IPPs under the project;
- For subprojects with involuntary resettlement impacts, prepare/update Resettlement Plans in accordance with provisions outlined the Resettlement Framework for the MFF;
- Coordinate with design review team during review of detailed design to discuss and explore design measure/options to avoid/minimize the resettlement impacts of subprojects and ensure involuntary resettlement impacts are minimized, if not avoided;
- Based on detailed design review, prepare social safeguards due diligence reports confirming sub-projects/project road sections with and without LAR impacts including linear plans with clearly marked LAR and non-LAR sections and assist PIU and the Engineer in notifying the LAR sections to contractors that are not open for construction
- Assist and supervise in conducting detailed measurement survey of impacted assets, updating of the impact inventory, census of DPs and shall prepare updated Land Acquisition and Resettlement Plans for ADB's review and clearance in accordance with provisions outlined in the Resettlement Framework for the MFF;
- Assist in organizing and conducting meaningful consultations with affected/displaced people to ensure the concerns raised and addressed adequately addressed during design review, the Land Acquisition Resettlement Plans have been fully disclosed and the DPs are informed on the eligibility criteria, entitlements, compensation payment mechanism and project based grievance redress system;
- Assist PIU and field staff to maintain updated LAR database and in implementation of Resettlement Plans in the subproject areas before physical or economical displacement and subsequent commencement of works;

- Assist PIU to establish and operationalize the project based grievance redress system and coordinate (on regular basis) with the grievance redress committee and assist the GRC in delivery of its functions including but not limited to recording, review and tracking of progress on complaints, information dissemination and consultations with the complainants during complaints resolution process.
- Assist PIU in review of LAR issues that may emerge during execution of civil works, prepare and implement corrective actions/measure consistent with project safeguards requirements as outlined in the LARF and LARPs;
- Track and monitor day to day LAR implementation progress and make adjustments in implementation schedule to achieve the targeted timelines and provide safeguards related input in project implementation monthly progress reports.
- Develop and conduct training sessions for PIU staff involved in project LAR management to improve their understanding on the ADB's safeguards requirements and ensure proper understanding and implementation of Resettlement Plans;
- Monitor implementation of Resettlement Plans, consolidate LARP implementation progress and prepare quality social monitoring reports periodically (biannual or as provided in the ADB cleared LARPs and other project documents) and share with ADB for review, clearance and disclosure.

12. Title: Road Safety Specialist

Experience:

12 years relevant experience with proven credential as safety auditor on major road projects

Qualification:

Bachelor degree preferably Masters in Civil Engineering / Transportation Engineering / Highway Engineering / Traffic Engineering and a certified safety auditor or equivalent

Responsibilities:

The Road Safety Specialist will be providing all necessary assistance to the construction supervision team with respect to all safety, health and environmental issues. He will assist in review and approve the safety plans of the contractor and he will monitor the safety of the works and the safety of the traffic diversions and ensure compliance with the regulations.

Road Safety Specialist will also identify hazardous location(s) and conditions, conduct a highway safety study, collect and analyses preliminary data, identify and collect field data, select and conduct appropriate detailed studies, evaluate study results, determine safety and operational deficiencies, identify potential safety and operational improvement and to select appropriate improvements.

He / She will also responsible to prepare the road safety report of the design.

13. Title: Geotechnical Engineer

Experience:

10 years experience as Geotechnical and/or Geotechnical reviewer of roads/structures with proven credentials in Bridge Designing or related to foundation investigation and design of major structures and embankments

Qualification:

B.Sc. Civil Engineering or Geological Engineering with Master's degree in Geotech Engineering or Foundation Engineering or equivalent

Responsibilities:

Responsible for geotechnical investigations and subsurface explorations for road and structures, stipulate material testing procedures and specifications, identify sources of materials, quarry sites and borrow areas.

Geotechnical Engineer will review the design and if required during construction any modification and change in design, construction method, alternate technology of construction and provide oversight during the consultancy service.

Responsibilities of the Geo-tech Engineer will include but are not limited to the following:

- Review all relevant technical documents;
- Carry out (organize and oversee) comprehensive review of foundation conditions at each structure ensuring long-term integrity of the project components;
- Identify any remedial foundation stabilization work to be included in the work package for construction of road works;
- During the construction phase, investigate and evaluate any unexpected foundation conditions encountered and recommend alternative treatment as appropriate.

E. Reporting & Documents Requirements

10. Reporting Requirements: The Consultant will prepare and submit to PIU five copies of each of the under mentioned reports. The format of these reports shall be mutually agreed with the PIU. One copy shall be sent directly to the Asian Development Bank together with softcopy:

- (i) Inception Report: The Consultant will submit an Inception Report at within one Month after mobilization. This will contain full detail of the consultant's supervision, & contract administration methodology and staff plan with supporting CVs of professional staff and projected monthly billing.
- (ii) Design Review Report. The consultant will submit a detailed Design Review Report, under the guidance of team leader within three months, indicating any deficiencies / improvements required in the detailed design prepared by the Design consultant. The design review will ensure that the construction drawings carry all details necessary for executing the job and shall not result in claims of non BOQ items / additional associated costs.
- (iii) Monthly Contract Administration Reports: The Consultant will, no later than the 10th of each month, prepare a narrative progress report summarizing:
 - a. Construction progress during the month and cumulative to date for each individual contract drawing specific attention to any major causes of delay (administrative, technical or financial) with details of remedial action taken or recommended to the Employer.
 - b. A comparison of actual and forecast expenditure both during the month and cumulative to date for each individual contract, and a record of the status of payment of the Contractors' monthly invoices, of all claims for cost or time extensions, and of actions required of PIU to permit unconstrained works implementation. The Consultant will also advise on the final estimated cost for

each individual contract and draw attention to any major changes in the project budget including details of remedial action taken or recommended to the Employer.

- c. Brief on all correspondence exchanged with the contractors particularly relating to contractual clauses, with financial and time implications.
 - d. Technical appreciation of any design or quality control problems for each individual contract including details of remedial action taken or recommended to the Employer.
 - e. Status of compliance with the Environmental & Resettlement Plans.
- (iv) **Annual Management Information Report at the end of each Financial Year:** The Consultant will prepare a comprehensive report summarizing all activities under the services at the end of each Financial Year, and also at other times when considered warranted by either the Consultant or PIU because of delay of the construction works or because of the occurrence of technical or contractual difficulties. Such reports shall summarize not only activities of the Project Engineer/ Manager but also the progress of the Contracts including all contract variations and change orders, the status of the Contractor claims, and brief descriptions of the technical and contractual problems being encountered and other relevant information for each of the ongoing contracts.
- (v) **Resettlement Monitoring Reports.** A quarterly report highlighting the progress on implementation of resettlement, documenting all activities including formal & informal consultation, gender issues, socio economic aspects, child labor, drug trafficking, hygiene, & safety and other social aspects
- (vi) **Technical Reports:** The Consultant will produce as necessary technical/ due diligence reports and position papers dealing with project matters during implementation.
- (vii) **Interim Contract Completion Reports:** The Consultant will prepare completion report for each contract within 30 days of issuance of Taking-over Certificate/Certification of Completion. This report shall summarize the implementation and financial history of the project. The defects list provided to the contractor and all outstanding claims pending resolution.
- (viii) **Final Project Completion Report:** The Consultant will prepare a comprehensive final Completion Report within 90 days after Issuance of the Taking Over Certificate of the last civil works contract. The Consultant will prepare a comprehensive final Completion Report for the project including each of the contracts and shall summarize the method of construction, as built record showing the location and details of all works carried out, all defects and certification of the satisfactory correction of such defects for each of the construction contracts, the construction supervision performed, and recommendations for future projects of similar nature to be undertaken by PIU. A safeguards implementation completion (final) report will also be included as appendix to the final project completion report.

- (ix) Project Documentary Report. The Consultant has to make documentary of all major activities during constructions as well as that of completed project sections to be submitted towards the end of the project. These should also pertain;
 - a) Laying and compaction of various pavement layers
 - b) Operation of Asphalt and concrete Plants
 - c) Quarry sites and laboratory activities
 - d) Road after completion showing road furniture
 - e) Various important stages in construction of structures
 - f) Any other major activity involved requiring specific mention
- (x) Roughness Survey Report. The roughness surveys will be carried out at substantial completion in coordination with NHA, before the end of the defect liability period. The consultant is required to submit his findings along with data in this report.
- (xi) Revised PC-1. The Consultant shall prepare the revised PC-1 of the project, before completion of the project, if required by incorporating all changes in the scope of work and, prepare completion report (PC-IV), at the completion of the project.

11. Documents & Manuals Required. The consultants will prepare following documents to be approved by the Employer for efficient contract administration & construction supervision.

- a. Contract Administration Manual
- b. Quality Control & assurance manual
- c. Laboratory Manual
- d. Environmental Monitoring Checklist
- e. Safeguard Monitoring Check list

F. Employer's Input and Counterpart Personnel

- (i) Services, facilities and property to be made available to the Consultant by the Employer: Design Reports, Drawings and related data for the sub-projects will be shared with the consultants.
- (ii) Professional and support counterpart personnel to be assigned by the Employer to the Consultant's team: The Employer shall establish a functional Project Management Unit for support and liaison with the Consultants.

G. Employer will provide the following inputs, project data and reports to facilitate preparation of the Proposals: N/A

H. Miscellaneous

- (i) Employer's Staff:
The Employer has nominated a Program Implementation Coordinating/ Steering Committee to provide guidance and oversight to the Program management Office & Project Implementation Unit. The PIU has been established under a General Manager, assisted by Project Director and land acquisition Staff and will be located in the field.

- (ii) Facilities:
Facilities for the Engineer and his staff: The Construction Contractor shall provide, operate and maintain the following facilities for the exclusive use of the Consultants:
 - a. Laboratory and Testing Equipment
 - b. Site Office and Residential Accommodation (adequately furnished)
 - c. Site Transport
 - d. Survey Equipment
- (iii) The Consultants are encouraged to familiarize with Construction Work before submitting their proposals. Draft sample documents regarding EMP, Resettlement, and Environment as per the instruction of the Client.

12. Security for the Engineer's representative and his staff.
The GoP shall provide security for the Engineer's representative and his staff.