

Project Administration Manual

Project Number: 48401-008
Loan and/or Grant Number(s): Lxxxx; Gxxxx
September 2018

**Kyrgyz Republic: Proposed CAREC Corridors 1 and
3 Connector Road Project (Phase 2)
—Additional Financing**

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Project Administration Manual Purpose and Process

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

The Ministry of Transport and Roads (MOTR) of Kyrgyz Republic—executing agency (EA), and the Investment Projects Implementation Group (IPIG)—implementing agency are wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with Government and ADB's policies and procedures. ADB staff is responsible to support implementation including compliance by MOTR and IPIG of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

During Loan Negotiations, the borrower and ADB shall agree to the PAM and ensure consistency with the Financing Agreement. Such agreement shall be reflected in the minutes of the Loan Negotiations. In the event of any discrepancy or contradiction between the PAM and the Financing Agreement, the provisions of the Loan/Grant Agreement shall prevail.

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

Abbreviations

ADB	=	Asian Development Bank
CSC	=	construction supervision consultant
EA	=	executing agency
EMP	=	environmental management plan
ICB	=	international competitive bidding
IPIG	=	Investment Projects Implementation Group
LARP	=	land acquisition and resettlement plan
MOTR	=	Ministry of Transport and Roads
PAM	=	project administration manual
RAMS	=	road asset management system
SEMP	=	site-specific environmental management plan
SOE	=	statement of expenditure
SPS	=	Safeguard Policy Statement
TOR	=	terms of reference

I. PROJECT DESCRIPTION

1. **Project's location, description, and rationale.** The project will connect two major CAREC regional corridors by rehabilitating a crucial connector road, part of the North–South Alternate Corridor, which is a priority in the National Sustainable Development Strategy.¹ It will (i) improve connectivity and mobility, (ii) link economically underprivileged regions with economic hubs, and (iii) strengthen institutional capacity by introducing and implementing a road asset management system (RAMS) and a project implementation unit administrative manual and procedure.²

2. **Impact and Outcome.** The project impact, which is aligned with the Development Program of Kyrgyz Republic Unity, Trust and Prosperity—covering 2018–2022, will be enhanced regional and national connectivity. The impact statement has been updated based on the new development program of the government. The outcome will be efficiency and safer movement of goods and people improved.

3. **Outputs.** In addition to the current project's two outputs, another output (Output 3) will be added as described below:

- (i) Output 1: Road from Epkin to Bashkugandy (Diykan) 70 km long (Km 89–Km 159) rehabilitated³ that incorporates specific features for road safety and climate change adaptation;
- (ii) Output 2: Institutional capacity strengthened, including consulting services for detailed design,⁴ construction supervision, project management, project auditing, safeguards support, the preparation and implementation of the RAMS, and a review of pilot performance-based maintenance contracting; and
- (iii) Output 3: Two sections of roads from Balykchy to kilometer marker 43 (KM 43) (referred as Section 1 of the Connector Road) and from Kochkor to Epkin (25km) (referred as Section 2A of the Connector Road) totaling 68 km (together comprising Phase 2) rehabilitated. The rehabilitation will be followed by a performance-based road maintenance period to ensure long term sustainability of the road assets and promote private sector development. Consulting services will be provided for supporting the MOTR in implementing road sector reforms and for continuing the interventions in road safety and RAMS.

¹ Government of the Kyrgyz Republic. 2013. *National Council for Sustainable Development of the Kyrgyz Republic, National Sustainable Development Strategy for the Kyrgyz Republic, 2013–2017*. Bishkek.

² The Asian Development Bank (ADB) provided project preparatory technical assistance for Preparing the CAREC Corridors 1 and 3 Connector Road Project (TA 8887-KGZ).

³ Referred as Section 2B of the Connector Road

⁴ ADB approved a \$3 million Asian Development Fund (ADF) grant as a PDA for the CAREC Corridors 1 and 3 Connector Road Project on 2 June 2015 to finance detailed design.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities Phase 2 (Additional Financing)

Indicative Activities	Month 1 (Apr 2018)	Month 2 (May 2018)	Month 3 (Jun 2018)	Month 4 (Jul 2018)	Month 5 (Aug 2018)	Month 6 (Sep 2018)	Month 7 (Oct 2018)	Month 8 (Nov 2018)	Month 9 (Dec 2018)	Month 10 (Jan 2019)	Month 11 (Feb 2019)	Month 12 (Mar 2019)	Responsible Party
Advance contracting actions						X							ADB and MOTR
Establish project implementation arrangements		X											MOTR
ADB Board approval							X						ADB
Loan/Grant signing									X				ADB and MOF
Govt opinion provided										X			MOTR
Govt budgeting											X		MOTR
Grant/Loan effectiveness												X	ADB and MOTR

ADB = Asian Development Bank, MOF = Ministry of Finance, MOTR = Ministry of Transport and Roads.

Source: Asian Development Bank.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations – Roles and Responsibilities

Project implementation Organizations	Management Roles and Responsibilities
I. Executing Agency: Ministry of Transport and Roads (MOTR)	<ul style="list-style-type: none"> ➤ Focal point for communication with ADB on project related matters, and signatory to contract agreements for civil works, consulting services, withdrawal applications, and audit reports ➤ Ensure timely completion of project ➤ Ensure that IPIG is fully staffed and functional during the entire period of implementation ➤ Supervision of all consultancy and works contracts (including approving contract variations, suspending, and terminating contracts) ➤ Ensure compliance with financing covenants, ADB's guidelines, procedures, and policies
II. Implementing Agency: Investment Projects Implementation Group (IPIG)	<ul style="list-style-type: none"> ➤ Pre-construction phase: <ul style="list-style-type: none"> ○ advise MOTR on procurement of goods, works, consulting and audit services ○ design capacity development program ○ review and verify documents submitted by contractors and consultants ○ obtain ADB approvals ➤ Construction phase: <ul style="list-style-type: none"> ○ monitor and evaluate project activities and outputs ○ administer contracts and ensure minimal variations and deviations from original prices and schedules ○ ensure compliance with ADB's Safeguards Policy Statement 2009 (as amended from time to time) ○ ensure compliance with financial management guidelines of ADB ○ report Project's progress to MOTR and ADB ○ assist ADB missions ➤ consult with the public and disclose project information, in consultation with ADB
III. Asian Development Bank (ADB)	<ul style="list-style-type: none"> ➤ Assist MOTR in implementing the Project by: <ul style="list-style-type: none"> ○ reviewing and facilitating approval of project implementation and procurement documents submitted by EA ○ disclosing project information to the public ○ fielding review missions ➤ Facilitate knowledge sharing

Project implementation Organizations	Management Roles and Responsibilities
IV. Ministry of Finance (MOF)	<ul style="list-style-type: none"> ➤ Facilitate negotiation, signing, and execution of the financing agreement ➤ Expedite project implementation and minimize cost by: <ul style="list-style-type: none"> ○ Timely allocating and making available counterpart funds ○ approving payments to contractors, goods, and service providers ➤ monitor project progress ensuring that corrective actions are taken to prevent significant variations and deviations from original schedules and budgets

B. Key Persons Involved in Implementation

Executing Agency

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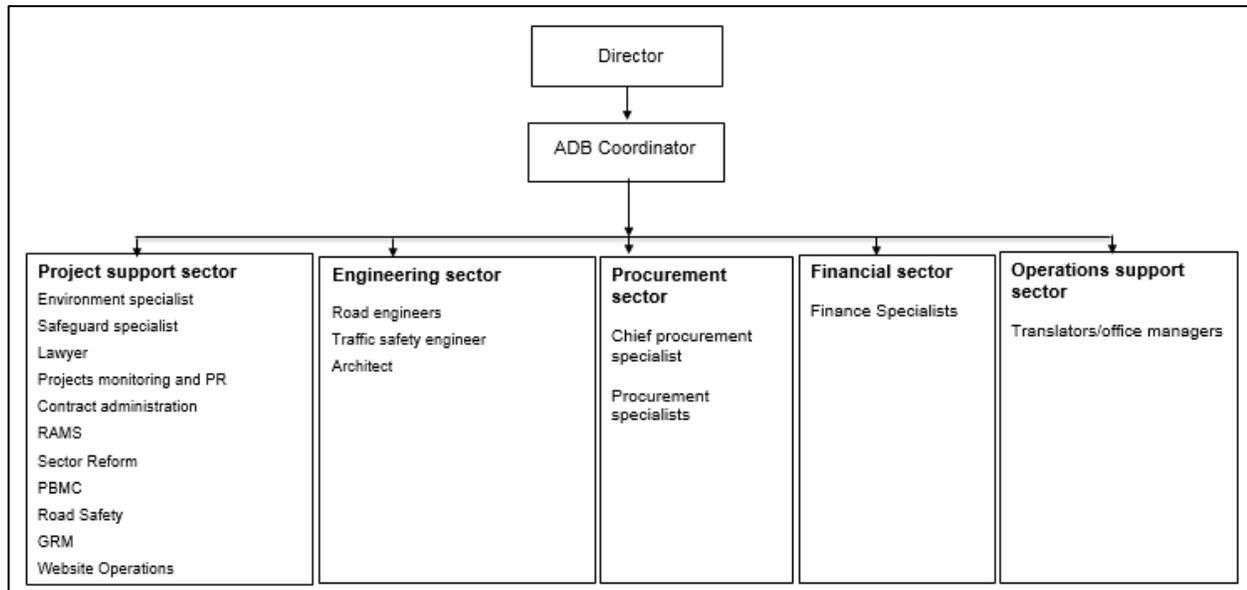
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C. Project Organization Structure

5. The following organization chart shows the reporting lines between key organizations involved in project implementation.



6. The ADB coordinator will act as deputy to the IPIG director. He shall receive instructions from and report directly to IPIG director and maintain effective channels of communication with all stakeholders, including donors. The project team leaders are responsible for the day-to-day activities of project implementation and are responsible for the management of project staff and their respective outputs. Technical project staff shall manage and administer the technical aspects of the project implementation process. They shall establish and maintain project implementation schedules, manage and administer the implementation of contracts, including monitoring and evaluating progress and performances of consultants and contractors. Technical project staff shall receive instructions from and report directly to the project team leader.

7. Depending on the size and nature of projects, other qualified experts and support staff may be required and shall be recruited/mobilized, as needed. The necessary authority from MOTR shall be delegated to IPIG staff to enable them to effectively carry out their duties and responsibilities. MOTR must ensure that IPIG and its individual members are held accountable for implementing the project in a manner consistent with the guidelines and systems and procedures of MOTR and funding agencies/donors. Within the project team, certain positions could be shared, whilst other positions can still be dedicated full time to specific projects. In addition to designated portfolio managers, IPIG may engage a pool of local experts/consultants for areas needing specific expertise, particularly in social analysis, environmental protection, and other technical fields according to the needs of different projects.

IV. COSTS AND FINANCING

8. The overall project is estimated to approximately \$205.10 million, out of which the Phase 2 project is estimated at \$90.75 million. Additional financing for the Phase 2 project will comprise \$78 million to be financed by ADB and \$12.75 million by the government.

9. For Phase 2 (additional financing), the government has requested ADB to provide (i) a concessional loan not exceeding \$68.5 million from ADB's ordinary capital resources, and (ii) a grant not exceeding \$9.5 million from ADB's Special Funds resources (Asian Development Fund) to help finance the project. The concessional loan will have a 32-year term, including a grace period of 8 years, and interest rate of 1.0% per year during the grace period and 1.5% per year thereafter, and such other terms and conditions set forth in the financing agreement. The government will provide counterpart funding of \$12.75 million to cover taxes and duties related to all civil works, goods, and consulting services. The government has requested that the loan be denominated in US Dollars.

10. The Project is expected to be completed by July 2027.

A. Cost Estimates Preparation and Revisions

11. The cost estimates are prepared by the detailed design consultant jointly with the MOTR/IPIG.

B. Key Assumptions

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

- (i) Exchange rate: 69.265 SOM = \$1.00 (as of 18 September 2018).
- (ii) Price contingencies based on expected cumulative inflation over the implementation period are as follows:

Table 4: Escalation Rates for Price Contingency Calculation

	2017	2018	2019	2020	2021	2022	2023
Domestic rate of price inflation	5.0%	4.0%	4.5%	5.0%	5.0%	5.2%	5.2%
Foreign rate of price inflation	1.4%	1.5%	1.5%	1.5%	1.6%	1.8%	1.8%

	2024	2025	2026	2027
Domestic rate of price inflation	5.2%	5.2%	5.2%	5.2%
Foreign rate of price inflation	1.9%	1.9%	1.9%	1.9%

Source: Asian Development Bank.

C. Tentative Financing Plan

		Current		Additional Financing		Total	
Source		Amount	Share of	Amount	Share of	Amount	Share of
		(\$ million)	Total (%)	(\$ million)	Total (%)	(\$ million)	Total (%)
Asian Development Bank							
	Special Funds resources (grant)	36.72	32	9.50	10	46.22	23
	Special Funds resources (loan)	58.39	51	68.50	75	126.89	62
Government		19.24	17	12.75	14	31.99	16
Total		114.35	100	90.75	100	205.10	100
Source: Asian Development Bank estimates.							

D. Project Investment Plan

Item	Current	Additional	Total
	Amount	Amount	
A. Base Cost^a			
1. Rehabilitation of the Epkin–Bashkugandy road section (70 km)	71.89	0.00	71.89
2. Rehabilitation of the Balykchy village - kilometer marker 43 road section (43 km)	0.00	30.65	30.65
3. Rehabilitation of the Kochkor village - Epkin village road section (25 km)	0.00	22.89	22.89
3. Institutional strengthening ^b	8.60	8.83	17.43
4. Project management support ^c	2.16	1.20	3.36
5. Resettlement expenses for the Epkin–Bashkugandy road section ^d	0.10	0.00	0.10
6. Resettlement expenses for the Kochkor village - Epkin village section ^d	0.00	0.09	0.09
7. Project expertise and approval (State Architectural Agency)	0.44	0.00	0.44
8. Taxes and duties	16.75	12.73	29.48
Subtotal (A)	99.94	76.40	176.34
B. Contingencies^f	12.37	10.85	23.22
C. Financing Charges During Implementation^g	2.04	3.50	5.54
Total (A+B+C)	114.35	90.75	205.10

km = kilometer.

^a In mid-2017 prices.

^b Includes supervision firms, Road Asset Management Systems (RAMS) development and implementation, performance-based maintenance consultants, road safety consultants, insurance, consulting services, income tax on non-residents, and employer's social fund contributions for individual consultants; as well as a \$3 million project design advance.

^c Includes project implementation unit staff salaries, plus employer's social fund contributions (17.25%), office operating expenses, bank charges, local transport, and insurance. ADB will finance taxes and duties for project management support, provided that (i) the amount is within the reasonable threshold identified during the country partnership strategy preparation process, (ii) the amount will not represent an excessive share of the project investment plan, (iii) the taxes and duties apply only to ADB-financed expenditures, and (iv) the financing of the taxes and duties is material and relevant to the project's success. Includes financial auditor expenses.

^d Resettlement expenses will be financed from the Asian Development Fund grant.

^e Includes taxes and duties to be financed from government resources.

^f Physical contingencies were computed at 10% for civil works and consulting services. Price contingencies were computed according to ADB's cost escalation factors, including a provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

^g Includes interest charges financed from the loan and calculated at 1% per year.

Source: Asian Development Bank estimates.

E. Detailed Cost Estimates by Expenditure Category (\$ million) – Additional Financing

Item	(SOM Millions)			(US\$ million)			% of Total Project Cost
	Foreign	Local	Total	Foreign	Local	Total	
	Exchange	Currency	Cost	Exchange	Currency	Cost	
A. Investment Costs							
1 Civil Works							
Section 1 from Balykchy Village to km 43	1,573.4	986.9	2,560.3	22.97	14.41	37.37	41.18%
Section 2A from Kochkor Village to Epkin Village (km 64-km89)	1,085.0	827.5	1,912.4	15.84	12.08	27.92	30.76%
2 Consulting Services							
a. Construction Supervision	229.9	178.0	407.9	3.36	2.60	5.95	6.56%
b. Road Safety Consultant	123.3	13.7	137.0	1.80	0.20	2.00	2.20%
c. RAMS Implementation	114.7	12.7	127.5	1.67	0.19	1.86	2.05%
3 Land Acquisition and Resettlement Cost	4.8	1.4	6.2	0.07	0.02	0.09	0.10%
Subtotal (A)	3,131.2	2,020.2	5,151.4	45.7	29.5	75.2	82.86%
B. Recurrent Costs							
1 Project Management (IPIG)	-	82.2	82.2	-	1.20	1.20	1.32%
Subtotal (B)	-	82.2	82.2	-	1.20	1.20	1.32%
Total Base Cost (A+B)	3,131.2	2,102.4	5,233.6	45.71	30.69	76.40	84.18%
C. Contingencies							
1 Physical	265.5	157.2	422.6	3.87	2.29	6.17	6.80%
2 Price	198.3	122.6	320.9	2.89	1.79	4.68	5.16%
Subtotal (C)	463.8	279.8	743.5	6.77	4.08	10.85	11.96%
D. Financing Charges During Implementation							
1 Interest During Implementation	240.0	-	240.0	3.50	-	3.50	3.86%
2 Commitment Charges	-	-	-	-	-	-	0.00%
Subtotal (D)	240.0	-	240.0	3.50	-	3.50	3.86%
Total Project Cost (A+B+C+D)	3,834.9	2,382.2	6,217.1	55.98	34.77	90.75	100.00%

F. Allocation and Withdrawal of Loan/Grant Proceeds – Additional Financing

Allocation and Withdrawal of Loan Proceeds – Additional Financing

Number	Item	Total Amount Allocated for ADB Financing Category (\$million)	Basis for Withdrawal from the Loan Account
1	Works-Project Project	53.54	82%
2	Consulting Services	1.67	90%
3	Interest Charge	3.50	100%
4	Unallocated	9.79	
	Total	68.50	

Allocation and Withdrawal of Grant Proceeds – Additional Financing

Number	Item	Total Amount Allocated for ADB Financing Category (\$million)	Basis for Withdrawal from the Grant Account
1	Consulting Services	7.16	90%
2	Project Management Support	1.20	100%
3	Resettlement Expenses	0.07	100%
4	Unallocated	1.07	
	Total	9.50	

G. Detailed Cost Estimates by Financier (\$ million) – Additional Financing

		Asian Development Bank				Government of Kyrgyzstan		Total Cost	
		Loan	Grant	Total Financing Amount	% of Cost Category	Amount	% of Cost Category	Amount	Taxes & duties
Item		{A}	{B}	{A+B=C}	{C/E}	{D}	{D/E}	{C+D=E}	{F}
A. Investment Costs									
1	Civil Works								
	Section 1 from Balykchy Village to km 43	30.65		30.65	82.00%	6.73	18.00%	37.37	(6.73)
	Section 2A from Kochkor Village to Epkin Village (km 64-km89)	22.89		22.89	82.00%	5.02	18.00%	27.92	(5.02)
2	Consultants								
	a. Construction Supervision		5.36	5.36	90.00%	0.60	10.00%	5.95	(0.60)
	b. Road Safety Consultant		1.80	1.80	90.00%	0.20	10.00%	2.00	(0.20)
	c. RAMS Implementation	1.67		1.67	90.00%	0.19	10.00%	1.86	(0.19)
3	Land Acquisition and Resettlement Cost		0.07	0.07	77.47%	0.02	22.53%	0.09	
	Subtotal (A)	55.21	7.23	62.44	83.04%	12.75	16.96%	75.20	
B. Recurrent Costs									
1	Project Management (IPIG)		1.20	1.20	100.00%	-	0.00%	1.20	
	Subtotal (B)	-	1.20	1.20	100.00%	-	0.00%	1.20	
	Total Base Cost (A+B)	55.21	8.43	63.64	83.31%	12.75	16.69%	76.40	
C. Contingencies									
1	Physical	5.67	0.50	6.17	100.00%	-	0.00%	6.17	
2	Price	4.11	0.57	4.68	100.00%	-	0.00%	4.68	
	Subtotal (C)	9.78	1.07	10.85	100.00%	-	0.00%	10.85	
D. Financing Charges During Implementation									
1	Interest During Implementation	3.50		3.50	100.00%	-	0.00%	3.50	
2	Commitment Charges								
	Subtotal (D)	3.50	-	3.50	100.00%	-	0.00%	3.50	
Total Project Cost (A+B+C+D)		68.50	9.50	78.00	85.95%	12.75	14.05%	90.75	(12.73)

In the Country Partnership Strategy: Kyrgyz Republic, 2013–2017 stated that ADB can finance taxes and duties. <http://www.adb.org/sites/default/files/linked-documents/cps-kgz-2013-2017-csa.pdf>

H. Detailed Cost Estimates by Outputs/Components (\$ million) – Additional Financing

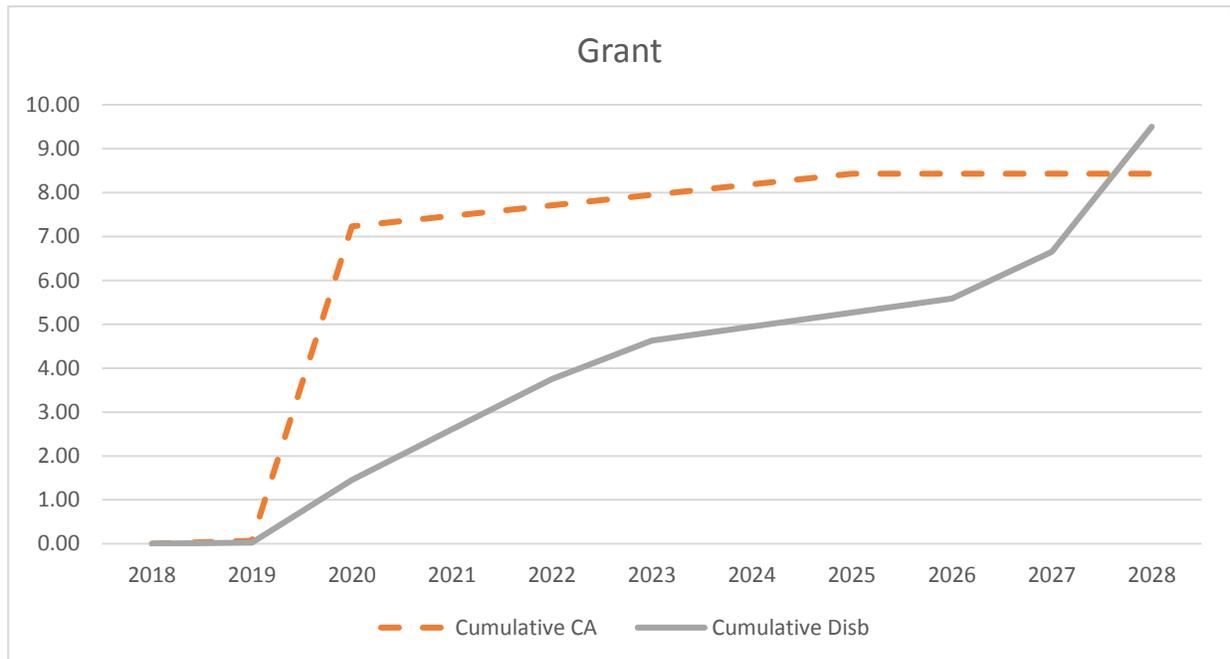
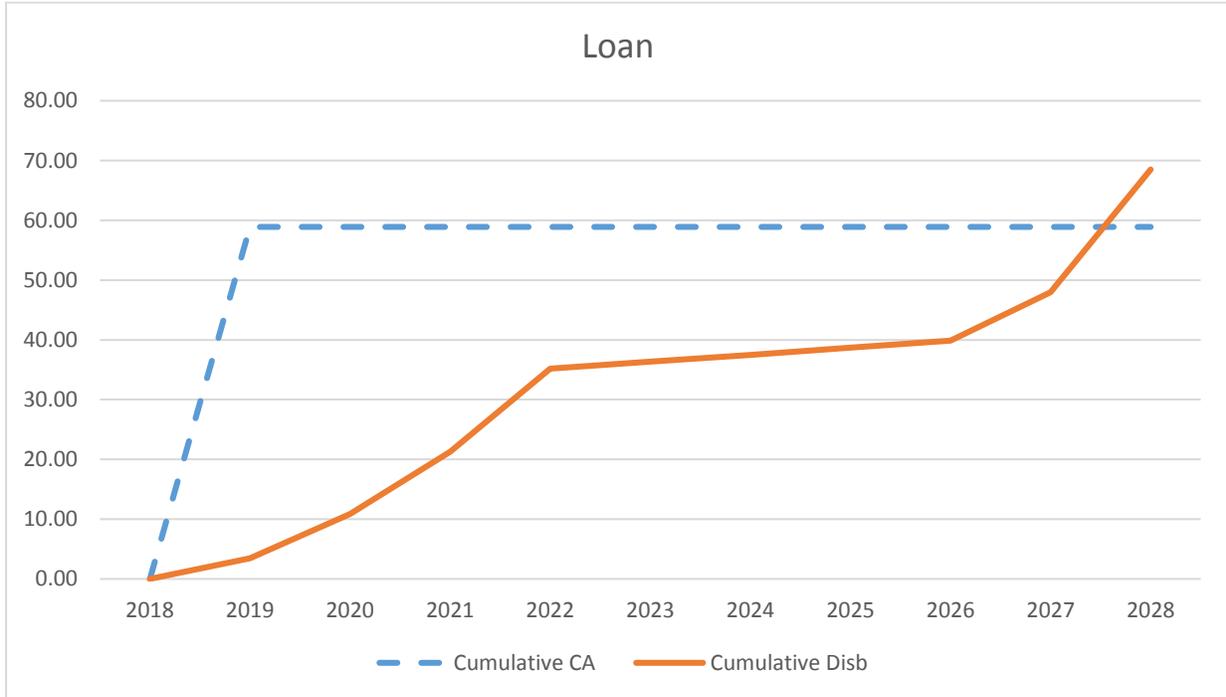
Item	(\$ million)									
	Total Cost	C1: Road Section Balykchi to km-post 43, km 0 - km 43		C2: Road Section Kochkor to Epkin, km 62 - km 89		C3: Consulting Services RAMs & Road Safety		Output 4: Project Management		
		Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	
A. Investment Costs										
1 Civil Works	65.29	37.37	57.24%	27.92	42.76%	-	0.00%	-	0.00%	
2 Consulting Services	9.82	2.98	30.33%	2.98	30.33%	3.86	39.34%	-	0.00%	
3 Land Acquisition and Resettlement Cost	0.09	-	0.00%	0.09	100.00%	-	0.00%	-	0.00%	
Subtotal (A)	75.2	40.4	53.66%	31.0	41.20%	3.9	5.13%	-	0.00%	
B. Recurrent Costs										
1 Project Management (IPIG)	1.20	-	0.00%	-	0.00%	-	0.00%	1.20	100.00%	
Subtotal (B)	1.20	-	0.00%	-	0.00%	-	0.00%	1.20	100.00%	
Total Base Cost (A+B)	76.40	40.35	52.82%	30.98	40.56%	3.86	5.05%	1.20	1.57%	
C. Contingencies										
1 Physical	6.17	3.08	50.00%	3.08	50.00%	-	0.00%	-	0.00%	
2 Price	4.68	2.34	50.00%	2.34	50.00%	-	0.00%	-	10%	
Subtotal (C)	10.85	5.43	50.00%	5.43	50.00%	-	0.00%	-	0.00%	
D. Financing Charges During Implementation										
1 Interest During Implementation	3.50	-	0.00%	-	0.00%	-	0.00%	3.50	100.00%	
2 Commitment Charges	-	-	0.00%	-	0.00%	-	0.00%	-	0.00%	
Subtotal (D)	3.50	-	0.00%	-	0.00%	-	0.00%	3.50	100.00%	
Total Project Cost (A+B+C+D)	90.75	45.78	50.44%	36.41	40.12%	3.86	4.25%	4.70	5.18%	
1. Contingencies were allocated on share of investment cost										
2. IDC were allocated on share of investment cost										

I. Detailed Cost Estimates by Year (\$ million) – Additional Financing

Item		Total Cost ^b	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027
A. Investment Costs												
1	Civil Works	65.29	-	5.83	11.67	17.50	23.33	1.39	1.39	1.39	1.39	1.61
	Section 1 from Balykchy Village to km 43	37.37	-	3.37	6.73	10.10	13.47	0.74	0.74	0.74	0.74	0.74
	Section 2A from Kochkor Village to Epkin Village (km 64-km89)	27.92	-	2.47	4.93	7.40	9.86	0.65	0.65	0.65	0.65	0.87
2	Consulting Services	9.82	-	0.19	2.96	2.00	2.00	1.19	0.37	0.37	0.37	0.37
	a. Construction Supervision	5.95	-	-	1.03	1.23	1.03	1.19	0.37	0.37	0.37	0.37
	b. Road Safety Consultant	2.00	-	-	1.00	0.40	0.60	-	-	-	-	-
	c. RAMS Implementation	1.86	-	0.19	0.93	0.37	0.37	-	-	-	-	-
3	Land Acquisition and Resettlement Cost	0.09	-	0.05	0.05	-	-	-	-	-	-	-
	Subtotal (A)	75.20	-	6.06	14.67	19.50	25.33	2.58	1.76	1.76	1.76	1.98
B. Recurrent Costs												
1	Project Management (IPIG)	1.20	-	-	0.18	0.18	0.18	0.18	0.12	0.12	0.12	0.12
	Subtotal (B)	1.20	-	-	0.18	0.18	0.18	0.18	0.12	0.12	0.12	0.12
	Total Base Cost (A+B)	76.40	-	6.06	14.85	19.68	25.51	2.76	1.88	1.88	1.88	2.10
C. Contingencies												
1	Physical	6.17	-	0.56	1.11	1.67	2.22	0.12	0.12	0.12	0.12	0.12
2	Price	4.68	-	0.10	0.61	1.42	2.55	-	-	-	-	-
	Subtotal (C)	10.85	-	0.66	1.72	3.09	4.77	0.12	0.12	0.12	0.12	0.12
D. Financing Charges During Implementation												
1	Interest During Implementation	3.50	-	0.02	0.10	0.23	0.40	0.51	0.52	0.54	0.56	0.63
2	Commitment Charges	-	-	-	-	-	-	-	-	-	-	-
	Subtotal (D)	3.50	-	0.02	0.10	0.23	0.40	0.51	0.52	0.54	0.56	0.63
Total Project Cost (A+B+C+D)		90.75	-	6.75	16.67	22.99	30.68	3.39	2.53	2.54	2.56	2.86

J. Contract and Disbursement S-curve – Additional Financing

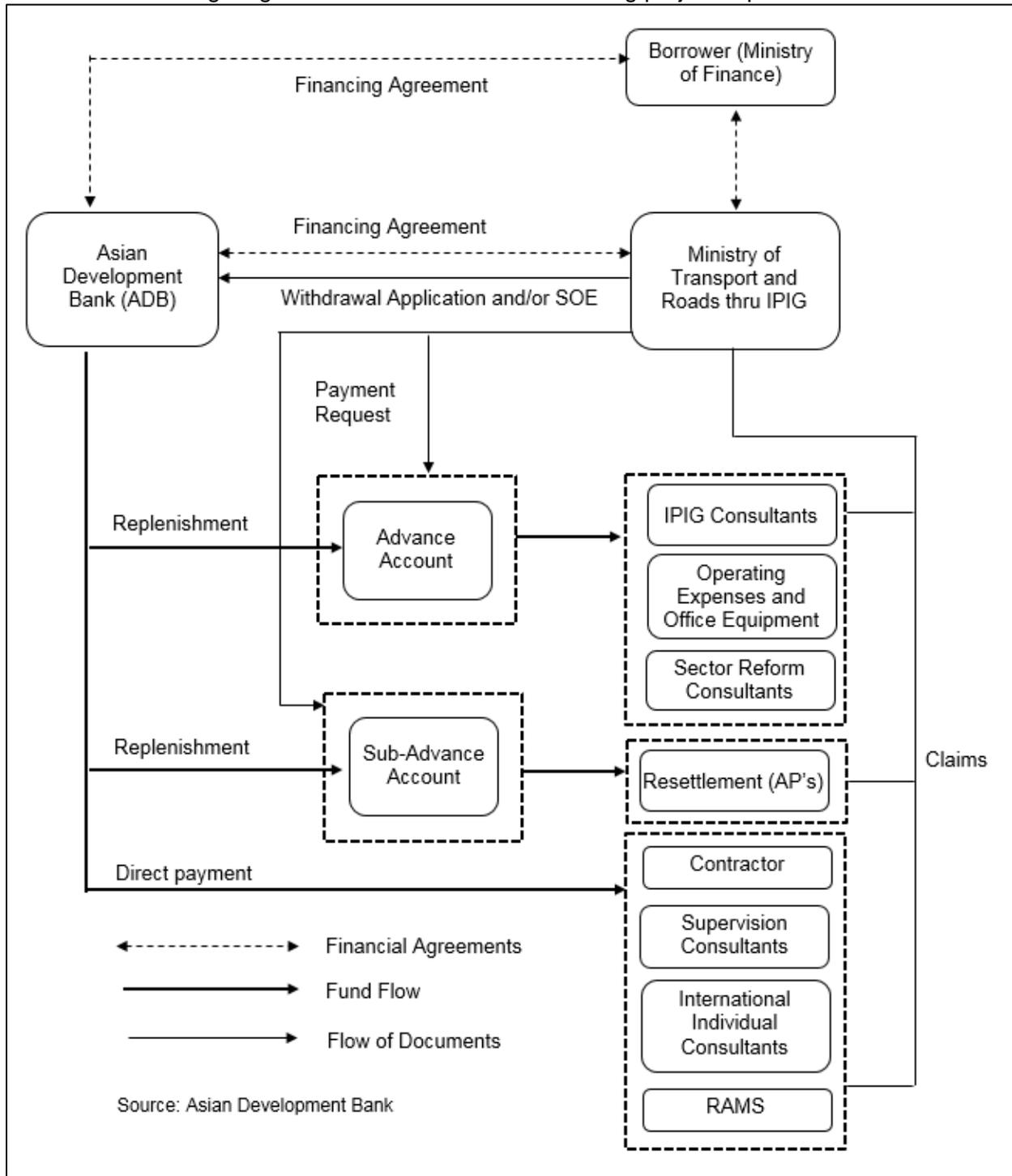
13. The following graph shows the anticipated annual contract awards and disbursements over the life of the project, based on initial projections made.



Loan												
Contract Awards (in USD Millions)						Cumulative	Disbursements (in USD Millions)					Cumulative
	Q1	Q2	Q3	Q4	Total	Contract Award	Q1	Q2	Q3	Q4	Total	Disbursements
2019	0.00	0.00	0.00	58.90	58.90	58.90	0.00	0.00	0.00	3.48	3.48	3.48
2020	0.00	0.00	0.00	0.00	0.00	58.90	0.00	0.00	4.50	2.85	7.35	10.83
2021	0.00	0.00	0.00	0.00	0.00	58.90	0.00	4.50	4.00	1.94	10.44	21.27
2022	0.00	0.00	0.00	0.00	0.00	58.90	2.00	5.00	6.00	0.91	13.91	35.18
2023	0.00	0.00	0.00	0.00	0.00	58.90	0.29	0.29	0.29	0.29	1.16	36.33
2024	0.00	0.00	0.00	0.00	0.00	58.90	0.29	0.29	0.29	0.29	1.16	37.50
2025	0.00	0.00	0.00	0.00	0.00	58.90	0.29	0.29	0.29	0.29	1.17	38.67
2026	0.00	0.00	0.00	0.00	0.00	58.90	0.30	0.30	0.30	0.30	1.19	39.86
2027	0.00	0.00	0.00	0.00	0.00	58.90	0.30	0.30	0.30	7.20	8.09	47.95
2028	0.00	0.00	0.00	0.00	0.00	58.90	10.00	10.55	0.00	0.00	20.55	68.50
Total Contract Award					58.90		Total Disbursements					68.50
Grant												
Contract Awards (in USD Millions)						Cumulative	Disbursements (in USD Millions)					Cumulative
	Q1	Q2	Q3	Q4	Total	Contract Award	Q1	Q2	Q3	Q4	Total	Disbursements
2019	0.00	0.00	0.00	0.07	0.07	0.07	0.00	0.00	0.00	0.02	0.02	0.02
2020	0.00	0.00	0.00	7.16	7.16	7.23	0.30	0.50	0.20	0.43	1.43	1.45
2021	0.00	0.00	0.00	0.24	0.24	7.47	0.30	0.50	0.20	0.15	1.15	2.60
2022	0.00	0.00	0.00	0.24	0.24	7.71	0.30	0.50	0.20	0.15	1.15	3.75
2023	0.00	0.00	0.00	0.24	0.24	7.95	0.30	0.30	0.20	0.08	0.88	4.63
2024	0.00	0.00	0.00	0.24	0.24	8.19	0.10	0.10	0.10	0.02	0.32	4.95
2025	0.00	0.00	0.00	0.24	0.24	8.43	0.10	0.10	0.10	0.02	0.32	5.27
2026	0.00	0.00	0.00	0.00	0.00	8.43	0.10	0.10	0.10	0.02	0.32	5.58
2027	0.00	0.00	0.00	0.00	0.00	8.43	0.10	0.10	0.10	0.77	1.07	6.65
2028	0.00	0.00	0.00	0.00	0.00	8.43	1.00	1.85	0.00	0.00	2.85	9.50
Total Contract Award					8.43		Total Disbursements					9.50

K. Fund Flow Diagram

14. The following diagram shows the flow of funds during project implementation.



IPIG = Investment Projects Implementation Group.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

15. The IPIG's capacity for project financial accounting is satisfactory, and it has a proven track record in ADB's disbursement procedures. Separate project records and accounts will be maintained. The project accounts and related financial statements will be audited annually in accordance with national and international auditing standards. The pre-mitigation risk rating assigned to the project is *substantial* based on the assessment of the existing financial management arrangements including budgeting and planning, accounting and reporting, internal controls and functioning of accounting information system. Mitigation measures include (i) stricter monitoring of the compliance with audit observations, (ii) strengthening the financial management staffing in IPIG, and (iii) strengthening the internal audit functions in IPIG. An international project management consultant will be recruited to support the IPIG in financial management related issues among others.

16. A financial management assessment was undertaken in 2018 in accordance with ADB's Financial Management Technical Guidance Note (2015). Key risk areas include:

Risk	Risk Assessment *	Risk Mitigation Measures
Government Financing		
Delays in timely provision of counterpart funding during project implementation	M	Government assurances to include counterpart funds in the annual budget
Project Costs		
Budget of some project elements are underestimated due to price escalation	M	Provision of contingencies to cover price fluctuations. Budget to be revised where necessary. The FM staff will monitor actual expenditure against budget.
Financial Management		
Break-down of the accounting information system	S	Frequent system back-ups.
Delays in submitting audit reports	M	The audit will be carried out on terms of references (TORs) with submission schedule of audit reports agreed with the ADB.
Weak vetting controls over payments to contractors and consultants	N	Strict adherence to the guidelines and procedures outlined in the PAM and Operational Manual
Weakness in internal control systems	S	In addition to strict adherence to guidelines and procedure, the strengthened PIU internal administrative process will alleviate some financial internal control systems issues.
* H = High, S = Substantial, M = Moderate, N = Negligible or Low		

17. **Implementing Agency.** IPIG within MOTR is responsible for overall project financial management, i.e., planning, accounting, disbursement, replenishment, reporting, maintaining control of the accounting information, and ensuring its proper registration in the accounting system. IPIG will be responsible for (i) collecting and retaining supporting documents, and (ii) preparing and sending withdrawal applications to ADB. The efficiency of the project financial management is backed up by (a) strong experience of the accounting team within IPIG, (b) computerized accounting system, (c) adequate accounting policies and procedures, (d) efficient budgeting arrangements, (e) good external auditing arrangements, and (f) efficient funds flow arrangements. IPIG has already implemented several ADB and other donor funded projects and has proven project implementation and financial management capacities. IPIG is suitable and has the capacity to utilize advance account with the 6 month-expenditure limit and SOE ceiling for individual transaction limit mentioned herein.

18. The following section reflects the project's specific financial management arrangements.

B. Disbursement

1. Disbursement Arrangements for ADB

19. The Loan and Grant proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),⁵ and agreed detailed arrangements between the Government and ADB. Online training for project staff on disbursement policies and procedures is available.⁶ Project staff are encouraged to avail of this training to help ensure efficient disbursement and fiduciary control. According to ADB's Safeguard Policy Statement (SPS),⁷ ADB funds may not be applied to any activity as described on the Prohibited Investment Activities List as listed under Appendix 5 of the SPS.

20. MOTR/IPIG will be responsible for (i) collecting and retaining supporting documents, and (ii) preparing and sending withdrawal applications to ADB for direct payments, and advance fund procedure.

21. **Advance fund procedure.** Separate advance accounts should be established and maintained by MOTR (and IPIG) upon project effectiveness. 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. MOTR/IPIG who administers the advance account is accountable and responsible for proper use of advances to the advance account including advances to any sub-accounts.

22. The total outstanding advance to the advance accounts should not exceed the estimated ADB financed expenditures for the forthcoming 6 months. The MOTR/IPIG may request for initial and additional advances to the advance accounts based on an Estimate of Expenditure Sheet⁸ setting out the estimated expenditures to be financed through the accounts for the forthcoming 6 months. Supporting documents should be submitted to ADB or retained by the borrower, MOTR and IPIG, in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time) when liquidating or replenishing the advance accounts.

⁵ The handbook is available electronically from the ADB website (<http://www.adb.org/documents/loan-disbursement-handbook>)

⁶ Disbursement eLearning. http://wpqr4.adb.org/disbursement_elearning

⁷ Available at: <http://www.adb.org/Documents/Policies/Safeguards/Safeguard-Policy-Statement-June2009.pdf>

⁸ Estimate of Expenditure sheet is available in Appendix 8A of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),

23. **Statement of expenditure procedure.** The SOE procedure may be used for reimbursement of eligible expenditures or liquidation of advances to the advance accounts. The ceiling of the SOE procedure is the equivalent of \$10,000 per individual payment. 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. Reimbursement and liquidation of individual payments in excess of the SOE ceiling should be supported by full documentation when submitting the withdrawal application to ADB.

24. Before the submission of the first withdrawal application (WA), the borrower should submit to ADB sufficient evidence of the authority of the person(s) who will sign the withdrawal applications on behalf of the government, together with the authenticated specimen signatures of each authorized person. The minimum value per WA is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below such amount should be paid (i) by the MOTR/IPIG and subsequently claimed to ADB through reimbursement, or (ii) through the advance fund procedure, unless otherwise accepted by ADB. The borrower should ensure sufficient category and contract balances before requesting disbursements. Use of ADB's Client Portal for Disbursements (CPD)⁹ system is encouraged for submission of withdrawal applications to ADB."

2. Disbursement Arrangement for Counterpart Fund

C. Accounting

25. MOTR/IPIG's Finance Division will be responsible for (i) preparing disbursement projections, (ii) requesting budgetary allocations for counterpart funds from MOF, (iii) collecting supporting documents, and (iv) preparing and sending withdrawal applications to ADB. Before the submission of the first withdrawal application, the MOF (borrower) should submit to ADB 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.

26. MOTR/IPIG will maintain separate project accounts and records by funding source for all expenditures incurred on the Project. Project accounts will follow international accounting principles and practices (including the procedures outlined in the manual prepared for IPIG by the World Bank) and those prescribed under the Government's accounting laws and regulations.

D. Auditing and Public Disclosure

27. The Government will (a) maintain separate accounts and records for the Project, including separate accounts and records for the Loan and Grant; (b) prepare annual financial statements for the Project in accordance with financial reporting standards acceptable to ADB; (c) have such financial statements audited annually by independent auditors whose qualifications, experience and TOR are acceptable to ADB, in accordance with auditing standards acceptable to ADB; (d) as part of each such audit, have the auditors prepare a report, which includes the auditors' opinion(s) on the financial statements and the use of the Loan and Grant proceeds, and a management letter (which sets out the deficiencies in the internal control of the Project that were identified in the course of the audit, if any); and (e) furnish to ADB, no later than 6 months after

⁹ The CPD facilitates online submission of WA to ADB, resulting in faster disbursement. The forms to be completed by the Borrower are available online at <https://www.adb.org/documents/client-portal-disbursements-guide>.

the end of each related fiscal year, copies of such audited financial statements, audit report and management letter, all in the English language, and such other information concerning these documents and the audit thereof as ADB shall from time to time reasonably request. The EA have been informed of ADB's policy on delayed submission of audit reports.¹⁰ ADB reserves the right to verify the project's financial accounts and confirm that ADB's financing share is used in accordance with ADB's policies and procedures.

28. Public disclosure of the audited project financial statement, including the auditor's opinion on the project financial statements, will be guided by ADB's Public Communications Policy 2011.¹¹ After the review, ADB will disclose the annual audited financial statements for the Project and the opinion of the auditors on the project financial statements no later than 14 days of the date of ADB's confirmation of their acceptability by posting them on ADB's website. The management letter, additional auditor's opinions, and audited entity financial statements will not be disclosed.¹²

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting

29. Advance action for procurement of works and services will be undertaken in line with ADB's Procurement Guidelines (2015)¹³ and ADB's Guidelines on the Use of Consultants (2013),¹⁴ as amended from time to time. ADB's approval must be sought before any invitation for bids is issued and request for expressions of interest is sought. MOTR will carry out recruitment of consultants under advance contracting arrangement. Approval of advance contracting does not commit ADB to finance the Project.

B. Procurement of Goods, Works, and Consulting Services

30. International competitive bidding procedures will be used for civil works contracts estimated to cost \$3 million or more. Shopping will be used for contracts for procurement of works and equipment worth less than \$100,000.

31. All consultants (including nongovernment organizations, if any) will be recruited following ADB's *Guidelines on the Use of Consultants*.¹⁵ Consulting firms will be engaged using the quality- and cost-based selection method with a standard quality-cost ratio of 90:10.

C. Procurement Plan

32. All procurement of goods and works will be undertaken in accordance with ADB's Procurement Guidelines. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Annex 1. The Procurement Plan has to be updated regularly by IPIG

¹⁰ When audited project financial statements are not received by the due date, ADB will write to the EA 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 imprest accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.

¹¹ Public Communications Policy: <http://www.adb.org/documents/pcp-2011?ref=site/disclosure/publications>

¹² This type of information would generally fall under public communications policy exceptions to disclosure. ADB. 2011. *Public Communications Policy*. Paragraph 97(iv) and/or 97(v).

¹³ Available at: <http://www.adb.org/Documents/Guidelines/Procurement/Guidelines-Procurement.pdf>.

¹⁴ Available at: <http://www.adb.org/Documents/Guidelines/Consulting/Guidelines-Consultants.pdf>.

¹⁵ Checklists for actions required to contract consultants by method available in e-Handbook on Project Implementation at: <http://www.adb.org/documents/handbooks/project-implementation/>

whenever there is a change in any of the packages and whenever a contract is awarded and completed.

D. Consultants' Terms of Reference

33. The TOR for the construction supervision consultant (CSC), road asset management system, and performance-based maintenance are given in the relevant sections of the TOR in Annex 2.

VII. SAFEGUARDS

A. Environment

34. The project is classified as category B for environment. The environmental assessment established that the project can have potential site-specific environmental impacts related to air and water pollution, noise and vibration, soil erosion, loss of roadside trees, archaeological sites, traffic disruption and community safety during the construction stage. Additionally, it was found that the project could result in increased traffic leading to community safety issues, increased noise levels and air emissions during operation.

35. An initial environmental examination (IEE) and an environmental management plan (EMP) was undertaken in accordance with the ADB Safeguard Policy Statement (2009). The final IEE was disclosed on ADB's website in June 2018. Public consultations were conducted and involved people from roadside villages, nongovernment organizations, and other project stakeholders. Adequate mitigation measures are included as part of the assessment, and will be implemented through, the EMP and Site-specific Environmental Management Plans (SEMP). The project design incorporates measures for preserving community cohesion such as improved road crossings.

36. IPIG will be responsible for environmental management plan (EMP) implementation, see Annex 3 for EMP. IPIG will ensure that EMP will be adequately included in bidding documents and all environmental mitigation measures will be included in construction contracts. IPIG will be responsible to ensure the Contractor prepares SEMP and IPIG will approve all SEMP before start of any construction works.

37. Monitoring of environmental quality and the implementation of mitigation measures will be performed by the IPIG, with support from CSC as required, with sufficient TORs and staff-time for this task. The monitoring results will be included in the project quarterly progress reports and semi-annual environmental reports to be submitted to ADB.

38. IPIG will be responsible for establishing and implementing the Grievance Redress Mechanism (GRM) in accordance with the IEE/ EMP.

39. The cost for implementing EMP will be financed by the loan, specifically the costs of mitigation measures will be included in the construction contracts, and the cost for supporting environmental monitoring will be included in the consulting service of the CSC. Mitigation measures and a monitoring plan have been developed and incorporated into the EMP, which form the basis for the SEMP.

40. Under the guidance of CSC, the contractor will have to submit Site-specific Environmental Management Plans (SEMP), which will contain the method statement for construction, for the following prior to commencing operations: (i) Dust Suppression Plan, (ii) Construction Noise Management Plan, (iii) Vibration Management and Monitoring Plan, (iv) Surface Water Contamination Prevention Plan, (v) Borrow Pits Management Plan, (vi) Batching Plant/ Cement Plant Management Plan, (vii) Soil Management Plan, (viii) Solid and Liquid Waste Management Plan, (ix) Cultural and Historical Sites Management Plan, (x) Safety Management Plan, (xi) Camp and Workshop Management Plan, and (xii) Material Processing Plants/Equipment and Storage Facilities Plan. The SEMP shall be endorsed by the construction supervision consultant before submission to IPIG for approval.

41. IPIG will promptly inform ADB of the occurrence of any risks or impacts, with detailed description of the event and proposed corrective action plan 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 initial environmental examination. IPIG will report any actual or potential breach of compliance with the measures and requirements set forth in the IEE and EMP promptly after becoming aware of the breach.

42. **Safeguards (environment) monitoring.** CSC will submit quarterly project progress report reflecting environmental safeguard compliance. CSC will assist IPIG in compiling and submitting semiannual monitoring reports during project construction within one month after each reporting period. Environmental monitoring reports will be disclosed at ADB website and to local authorities.

B. Land Acquisition and Resettlement and Indigenous Peoples

43. The project is classified as category B for involuntary resettlement impacts. The census carried out during project preparation identified approximately 40 affected households—including private agriculture plots and buildings—with 257 household members affected. Out of the 40 affected households, a total of 13 households with 79 members will experience severe impact on their livelihood and a total of 18 households with 129 members were found to belong to vulnerable groups.

44. A land acquisition and resettlement plan (LARP) has been prepared to mitigate and address all the associated losses in accordance with the ADB Safeguard Policy Statement (2009) and relevant national legislation. The LARP was disclosed on the ADB website in July 2018. Consultations with the project stakeholders and displaced persons were undertaken during LARP preparation and will continue throughout implementation. If modification of the LARP is required, or additional land requirement or involuntary resettlement impacts identified, the LARP will be updated in accordance with applicable laws, and ADB approval obtained prior to any further implementation. All displaced people will receive compensation in accordance with the LARP provisions. The land required for the project will be made free of encumbrances in sections prior to commencement of construction. A grievance redress mechanism is in place in accordance with the LARP to assist affected persons in resolving grievances and complaints.

45. The project has been classified as category C for indigenous peoples safeguard. There are no indigenous people's communities in the project area or in the country in general, as defined in the SPS for operational purposes. Accordingly, no indigenous peoples planning documents will be required.

46. MOTR shall ensure that no civil work contract (for a particular road section) is awarded until the LARP is approved by the ADB, and no notice to proceed is given to contractor(s) until the LARP is implemented. MOTR, through IPIG, will be responsible for the LARP implementation, including ensuring that grievance redress mechanism is operating appropriately.

47. **Safeguards (resettlement) monitoring).** MOTR will prepare semiannual monitoring reports that describe the progress of the implementation of resettlement activities and any compliance issues and corrective actions. These reports will closely follow the involuntary resettlement monitoring indicators agreed at the time of LARP approval. MOTR will, on completion of LARP implementation, submit a compliance report to ADB, to verify that all LAR has been completely implemented in accordance with ADB's SPS 2009.

VIII. GENDER AND SOCIAL DIMENSIONS

48. The Project is classified as SGE (Some Gender Elements) and will indirectly address social and gender issues such as limited access and mobility associated with poor road connectivity. However, the project includes limited actions that directly address specific gender issues such as women's limited participation in the transport sector, and road safety issues.

49. People around the project areas will be able to find employment in physical works and ancillary services during construction. Women can also find income-earning opportunities during road construction, either as direct employees, or as service providers. The civil works contracts will require that contractors (i) comply with the Kyrgyz Republic's applicable labor laws and related international treaty obligations, and not employ child labor; (ii) provide safe working conditions and separate sanitation facilities for male and female workers; (iii) provide equal wages to male and female workers for work of equal value; (iv) provide employment opportunities for women; and (v) carry out road safety, HIV/AIDS, illicit drugs, and human trafficking prevention and awareness programs in workers' campsites. Through the contractor and Engineer, MOTR will disseminate information on prevention of sexually transmitted diseases and to workers employed in road construction and communities living adjacent to the Project road. The project includes mitigation measures to ensure the prevention of human and narcotic trafficking, and other unlawful activities.

50. Community consultation meetings and workshops will be conducted regularly and ensure women's participation, as well as representation from other sectors—the poor, rural population, persons with disabilities, and the youth. The MOTR will ensure women's participation in all road safety campaigns. Women staff of the MOTR will be included in relevant capacity building activities. Project monitoring will include the regular collection of sex disaggregated data and report on gender-relevant achievements.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

51. The following section describes the project's specific monitoring, evaluation, reporting, and communications arrangements.

A. Project Design and Monitoring Framework

DRAFT DESIGN AND MONITORING FRAMEWORK

<p>Impact the Project is Aligned with Current project Regional and national connectivity enhanced (National Sustainable Development Strategy for 2013–2017)^a Overall project Regional and national connectivity enhanced (Development Program of the Kyrgyz Republic–Unity, Trust, Creation, 2018–2022)^b</p>			
Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
<p>Outcome</p> <p>Current Project Improved efficiency and safer movement of goods and people</p> <p>Overall Project Efficiency and safe movement of people and goods improved</p>	<p>Current Project a. Travel time between Naryn and Osh reduced by 50% (11 hours) by 2022 when the entire north–south corridor project is implemented (2015 baseline: 22 hours) b. Daily vehicle traffic from Epkin to Bashkugandy (annual average) increased to 5,572 by 2022 (2015 baseline: 1,621)</p> <p>Overall Project a. Travel time between Naryn and Osh reduced by 50% by 2028 (2015 baseline: 22 hours) b. Daily vehicle traffic from Epkin to Bashkugandy (annual average) increased to 5,572 by 2028 (2015 baseline: 1,621) c. Daily vehicle traffic from Balykchy to Epkin (annual average) increased to 9,112 by 2028 (2017 baseline: 2,061)</p>	<p>Current Project a.-b. MOTR report</p> <p>Overall Project a.-c. MOTR Progress Reports</p>	<p>Current Project Rehabilitation of adjacent sections funded by other development partners experience delays in project implementation.</p> <p>Overall Project Unchanged</p>
<p>Outputs</p> <p>Output 1</p> <p>Current Project 1. Rehabilitated road from Epkin village to Bashkugandy village 70km long (distance marker [Km 89–Km 159])</p>	<p>Current Project 1a. 70 km of road rehabilitated and the pavement international roughness index reduced to 3.00 m/km by 2021 (2015 baseline: 8.33 m/km)</p>	<p>Current Project 1a. MOTR and ADB project completion reports</p>	<p>Current Project Cost overruns caused by unexpected price increases during construction</p>

Results Chain	Performance Indicators with Targets and Baselines	Data Sources and Reporting Mechanisms	Risks
Overall Project 1. Road from Epkin village to Bashkugandy village [Km 89 – Km 159] rehabilitated	Overall Project Unchanged	Overall Project 1a. MOTR Progress Reports, Consultants' Reports	Overall Project Cost overruns caused by unexpected price increases beyond contingency during construction
Output 2 Current Project 2. Institutional capacity strengthened Overall Project Unchanged	Current Project 2a. A RAMS designed and implemented by 2020 (2015 baseline: 0) 2b. The PIU's administrative manual and procedures in place by 2020 (2015 baseline: 0) Overall Project 2a. Unchanged 2b. Road safety reforms, audit and campaigns completed by 2027 (2017 baseline: None) 2c. MOTR staff received the capacity building assistance until 2027 (2015 Baseline: None)	Current Project 2a.-b. MOTR and consultants' reports Overall Project 2a.-c. – MOTR Progress Reports, Consultants' Reports	Current Project Lack of technical expertise and funding to continue the RAMS Lack of understanding of the new administrative process on the part of the PIU and MOTR Overall Project Changing government priorities may delay implementation of institutional changes
Output 3 (New Output) 3. Road from Balykchy village [Km 43] and Kochkor village– Epkin village rehabilitated	3a. 68 km of road rehabilitated and the pavement international roughness index reduced to 3.00 m/km by 2022 (2015 baseline: 8.33 m/km) 3b. Performance based road maintenance contract completed by 2027 (2018 baseline: None) 3c. At least 10% of the employed office staff and project construction workers are women (2018 baseline: None)	3a.-c MOTR Progress Reports	Cost overruns caused by unexpected price increases beyond contingency during construction Procurement delays Insufficient funding allocation for maintenance

Key Activities with Milestones

1. Road from Epkin village to Bashkugandy village [Km 89 – Km 159] rehabilitated
 - 1.1 Recruit detailed design consultants by February 2016 (completed).
 - 1.2 Recruit supervision consultants by September 2018 (completed).
 - 1.3 Award civil works contract by September 2018 (completed).
 - 1.4 Complete civil works by July 2021.
2. Institutional capacity strengthened
 - 2.1 Recruit RAMS consultant by August 2018, and the MOTR will design and apply the RAMS in planning the key road network by June 2020.
 - 2.2 Put in place the PIU's administrative manual and procedures by June 2017 (completed).
 - 2.3 Conduct road safety campaign, audits, and capacity strengthening by 2027.
3. Road from Balykchy village [Km 43] and Kochkor village–Epkin village rehabilitated
 - 3.1 Recruit detailed design consultants by February 2016 (completed).
 - 3.2 Advertise invitation to bid for civil works and call for expression of interest for supervision by October 2018.
 - 3.3 Recruit supervision consultants by March 2019.
 - 3.4 Award civil works contract by March 2019.
 - 3.5 Complete civil works and performance-based road maintenance contract by July 2027.

Inputs**ADB**

Loan	Grant
\$58.39 million equivalent (Current)	\$36.72 million equivalent (Current)
\$68.50 million equivalent (Additional)	\$9.50 million equivalent (Additional)
Total: \$126.89 million (Overall)	Total: \$46.22 million (Overall)
Total ADB Financing: \$173.11 million equivalent	

Government

Counterpart
\$19.24 million (Current)
\$12.75 million (Additional)
Total \$31.99 (Overall)

Total

\$114.35 million (Current)
\$90.75 million (Additional)
\$205.10 million (Overall)

Assumptions for Partner Financing**Current Project:**

Eurasian Development Bank approved a loan for the rehabilitation of 91 km road from Aral village to CAREC Corridor 3 via Suusamyry valley in the amount of \$85 million under collaborative cofinancing with the Asian Development Bank project. Similarly, the Islamic Development Bank approved \$12 million financing, and the Saudi Fund for Development approved \$20 million financing to rehabilitate 24 km of road from Bashkugandy village to Jyldyz village.

Overall Project:

Unchanged.

ADB = Asian Development Bank, CAREC = Central Asia Regional Economic Cooperation, km = kilometer, Km = distance marker, MOTR = Ministry of Transport and Roads, PIU = project implementation unit, RAMS = road asset management system.

Note: The design and monitoring framework covers only the scope to be financed and administered by ADB.

^a National Council for Sustainable Development of the Kyrgyz Republic. 2013. *National Sustainable Development Strategy for the Kyrgyz Republic, 2013–2017*. Bishkek.

^b Kyrgyz Republic. 2018. Development Program of the Kyrgyz Republic–Unity, Trust, Creation. Bishkek

^c Includes the ADB-approved Asian Development Fund grant for a \$3 million project design advance to engage detailed design consultants in 2015.

Source: Asian Development Bank.

B. Monitoring

52. **Project performance monitoring.** MOTR will establish a project performance monitoring system similar to the systems that are already in place for on-going ADB financed projects. The current base data will be updated prior to commencement of civil works. Thereafter, IPIG staff together with the Engineer and contractor will collect data at least once every 12 months and include them in its annual reports. ADB will use the project performance reporting system¹⁶ in monitoring the overall performance of the Project.

53. **Compliance monitoring:** Covenants on policy, legal, financial, economic, environmental, labor standards and others will be monitored regularly through various reports (monthly progress reports, quarterly progress reports, and annual reports), and discussions during review missions.

54. **Safeguards monitoring:** The monitoring and reporting of the activities identified in the environment and resettlement action plans is discussed in Section VII.

55. **Gender and social dimensions monitoring:**¹⁷ Gender and social data will be included by IPIG into the performance monitoring system. Public consultations will be conducted regularly to foster public awareness of the project and its social implications. Implementation of the social summary matrix will be included in the project annual monitoring report.

C. Evaluation

56. Within 6 months of physical completion of the Project, MOTR will submit a project completion report to ADB.¹⁸ In addition to the periodic monitoring, ADB and MOTR will evaluate the Project's impact. Thereafter, ADB will conduct its own evaluation based on MOTR's report and other assessments and prepare a report for discussion with the Government. ADB's Independent Evaluation will also examine the Project within 3 years of completion.

D. Reporting

57. MOTR, through IPIG, will submit to ADB (i) monthly reports: (ii) quarterly progress reports in a format consistent with ADB's project performance reporting system, within 2 weeks of the end of each quarter covered; and (iii) a project completion report within 3–6 months of physical completion of the Project. A project annual report will report on inputs and outputs and start generating information for the outcome and impact indicators of the design and monitoring framework. Implementation of the social summary matrix will be included in the annual monitoring report.

¹⁶ ADB's project performance reporting system is available at: <http://www.adb.org/Documents/Slideshows/PPMS/default.asp?p=evaltool>.

¹⁷ ADB's *Handbook on Social Analysis: A Working Document*, is available at: <http://www.adb.org/Documents/Handbooks/social-analysis/default.asp>, *Staff Guide to Consultation and Participation*: <http://www.adb.org/participation/toolkit-staff-guide.asp>, and, *CSO Sourcebook: A Staff Guide to Cooperation with Civil Society Organizations*: <http://www.adb.org/Documents/Books/CSO-Staff-Guide/default.asp>

¹⁸ Project completion report format is available at: <http://www.adb.org/Consulting/consultants-toolkits/PCR-Public-Sector-Landscape.rar>

E. Stakeholder Communication Strategy

58. MOTR/IPIG will maintain and regularly update its website with information on the Project, and regularly consult with the public and civil society organizations in respect of each of the foregoing matters.

Project Document	Means of Communication	Responsible Party	Frequency	Audience(s)
Project Information Document	ADB's website	ADB	Initial project information document no later than 30 calendar days of approval of the concept paper; quarterly afterwards	General Public
Initial Environmental Examination Report	ADB's and MOTR/IPIG's website, public consultations and brochures/leaflets for affected people	ADB, MOTR	Initial environmental examination to be posted on the websites before project loan approval; documents always available online at ADB and MOTR/IPIG websites; EMP updated regularly	General public and project affected people
LARP	ADB's and MOTR/IPIG's website, public consultations and brochures/leaflets for affected people	ADB, MOTR	LARP to be posted on the websites before project loan approval; documents always available online at ADB and MOTR/IPIG websites; and every time LARP is revised.	General public and project affected people
Report and Recommendation to the President	ADB's website	ADB	No later than 14 days of Board approval of the project	General Public
Loan Agreement	ADB's and MOTR/IPIG's website	ADB	No later than 14 days of Board approval of the project	General Public
PAM	ADB's and MOTR/IPIG's website	ADB	No later than 14 days of Board approval of the project, always available online after update	General Public, project contractors and consultants
Project Performance Management System	MOTR/IPIG's website	IPIG	Routinely disclosed, no specific requirements	General Public and project affected people in particular
Major Change in Scope	ADB's website	ADB	Within 2 weeks of approval of change	General Public
Completion Reports	ADB's and IPIG's website	ADB	Within 2 weeks of circulation to the Board for information	General Public
Evaluation Report	ADB's website	ADB	No later than 14 days from the date of circulation to Management and the Board	General Public

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.¹⁹ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the EA and all Project contractors, suppliers, consultants and other service providers. Individuals/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.²⁰

60. To support these efforts, relevant provisions are included in the financing agreement and the bidding documents for the Project.

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.²¹ The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can 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 resolve any issue with the concerned ADB operations department. If they are not satisfied with the action taken, only then that the complainant should bring the issue to the Accountability Mechanism. MOTR will maintain the present grievance redress mechanism outlined in below, and ensure that:

- (i) all action taken are in full compliance with ADB's SPS requirements;
- (ii) IPIG posts project information together with names and contact information of its focal persons as well as those of the contractor and the engineer (construction supervision consultant) at the project site and in Bishkek; and
- (iii) the consultant's and contractor's safeguards specialists carry out their tasks by regularly consulting with local communities and local authorities. A summary of discussions should be included in the project progress reports to ADB.

XII. RECORD OF CHANGES TO THE PAM

62. All revisions/updates during course of implementation should be retained in this Section to provide a chronological history of changes to implemented arrangements recorded in the PAM.

Version	Creation Date	Revision Date	Reasons of Change	Main Content of Change
1	29 Aug 2018	September 2018	Loan Negotiations	
2				
3				

¹⁹ Available at: <http://www.adb.org/Documents/Policies/Anticorruption-Integrity/Policies-Strategies.pdf>

²⁰ ADB's Integrity Office web site is available at: <http://www.adb.org/integrity/unit.asp>

²¹ For further information see: <http://www.adb.org/Accountability-Mechanism/default.asp>.

PROCUREMENT PLAN

Basic Data

Project Name: CAREC Corridors 1 and 3 Connector Road Project—Additional Financing	
Project Number:	Approval Number:
Country: Kyrgyz Republic	Executing Agency: Ministry of Transport and Roads
Project Procurement Classification: B	Implementing Agency: Investment Projects Implementation Group (IPIG)
Procurement Risk: Substantial	
Project Financing Amount: \$90.75 million ADB Financing: \$78 million Cofinancing (ADB Administered): None Non-ADB Financing: None	Project Closing Date: 31 December 2027 (loan and grant closing date)
Date of First Procurement Plan: 19 July 2017	Date of this Procurement Plan: 18 September 2018

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 (ICB) for Works	\$3,000,000	
International Competitive Bidding for Goods	\$1,000,000	
National Competitive Bidding (NCB) for Works	Beneath that stated for ICB, Works	
National Competitive Bidding for Goods	Beneath that stated for ICB, Goods	
Shopping for Works	Below \$100,000	
Shopping for Goods	Below \$100,000	

Consulting Services	
Method	Comments
Quality and Cost Based Selection (QCBS)	

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 ¹	General Description	Estimated Value	Procurement Method	Review [Prior / Post]	Bidding Procedure	Advertisement Date (quarter/year)	Comments
1	Rehabilitation of CAREC Corridors 1 and 3 Connector Road Balykchy village—Km 43	\$30.65 million	ICB	Prior	Single-Stage Two-Envelope	Q3/2018	Large Works

Package Number ¹	General Description	Estimated Value	Procurement Method	Review [Prior / Post]	Bidding Procedure	Advertisement Date (quarter/year)	Comments
2	Rehabilitation of CAREC Corridors 1 and 3 Connector Road Kochkor village–Epkin village	\$22.89 million	ICB	Prior	Single-Stage Two-Envelope	Q3/2018	Large Works

ICB = International competitive bidding, n = no, y = yes.

Source: Asian Development Bank estimates.

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
1	Construction Supervision	\$9.36 million	QCBS	Prior	Q3/2018	Full Technical Proposal	International 90:10
2	Road Safety	\$1.8 million	QCBS	Prior	Q3/2018	Full Technical Proposal	International 90:10
3	Road Asset Management	\$1.67 million	QCBS	Prior	Q1/2020	Full Technical Proposal	International 90:10

QCBS = quality- and cost-based selection.

Source: Asian Development Bank estimates.

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 groups 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/Post (Sample)]	Bidding Procedure	Advertisement Date (quarter/year)	Comments

Consulting Services								
Package Number	General Description	Estimated Value	Number of Contracts	Recruitment Method	Review (Prior / Post)	Advertisement Date (quarter/year)	Type of Proposal ⁸	Comments ⁹

BTP = biodata technical proposal, CQS = consultant's qualification selection, FTP = full technical proposal, ICS = Individual consultant selection, LCS = least cost selection, PIU = project implementation unit, QCBS = quality- and cost-based selection, STP = simplified technical proposal, Tbd = to be determined.

Source: Asian Development Bank estimates.

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 ⁶	Comments ⁷
	None						

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

C. List of Awarded and On-going, and Completed Contracts

The following tables list the awarded and on-going contracts and completed contracts.

1. Awarded and On-going Contracts

Goods and Works							
Package Number	General Description	Estimated Value	Awarded Contract Value	Procurement Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Comments

Consulting Services							
Package Number	General Description	Estimated Value	Awarded Contract Value	Recruitment Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Comments

2. Completed Contracts

Goods and Works								
Package Number	General Description	Estimated Value	Contract Value	Procurement Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Date of Completion	Comments

Consulting Services								
Package Number	General Description	Estimated Value	Contract Value	Recruitment Method	Advertisement Date (quarter/year)	Date of ADB Approval of Contract Award	Date of Completion	Comments

B. National Competitive Bidding

1. **General.** The procedures to be followed for national competitive bidding shall be for tendering with unlimited participation and the two-stage tendering set forth in Law of the Kyrgyz Republic on Public Procurement of Goods, Works and Services effective on April 2015 with the clarifications and modifications described in the following paragraphs required for compliance with the provisions of the ADB Procurement Guidelines.

2. **Eligibility.** ADB: The eligibility of bidders shall be as defined under section I of ADB's Procurement Guidelines published by ADB in April 2015, as amended from time to time; accordingly, no bidder or potential bidder should be declared ineligible to ADB-financed contracts for other reasons than the ones provided by section I of ADB's Guidelines. Bidders must be nationals of member countries of ADB, and offered goods, works and services must be produced in and supplied from member countries of ADB.

3. **Prequalification.** Normally, post-qualification shall be used unless explicitly provided for in the loan agreement/procurement plan. Irrespective of whether post qualification or prequalification is used, eligible bidders (both national and foreign) shall be allowed to participate.

4. Registration and Licensing

- (i) Bidding shall not be restricted to pre-registered/licensed firms.
- (ii) Where registration or licensing is required, bidders (i) shall be allowed a reasonable time to complete the registration or licensing process; and (ii) shall not be denied registration/licensing for reasons unrelated to their capability and resources to successfully perform the contract, which shall be verified through post-qualification.
- (iii) Foreign bidders shall not be precluded from bidding. If a registration or licensing process is required, a foreign bidder declared the lowest evaluated bidder shall be given a reasonable opportunity to register or to obtain a license.

5. **Bidding Period.** The minimum bidding period is twenty-eight (28) days prior to the deadline for the submission of bids.

6. **Bidding Documents.** Procuring entities should use standard bidding documents for the procurement of goods, works and services acceptable to ADB.

7. **Preferences.** No domestic preference shall be given for domestic bidders and for domestically manufactured goods

8. **Advertising.** Invitations to bid shall be advertised in at least one widely circulated national daily newspaper or freely accessible, nationally-known website allowing a minimum of twenty-eight (28) days for the preparation and submission of bids. Bidding of NCB contracts estimated at US\$500,000 equivalent or more for goods and related services or US\$1,000,000 equivalent or more for civil works shall be advertised on ADB's website via the posting of the Procurement Plan.

9. **Bid Security.** Where required, bid security shall be in the form of a bank guarantee from a reputable bank.

10. Bid Opening and Bid Evaluation

- (i) Bids shall be opened in public.
- (ii) Evaluation of bids shall be made in strict adherence to the criteria declared in the bidding documents and contracts shall be awarded to the lowest evaluated bidder.
- (iii) Bidders shall not be eliminated from detailed evaluation on the basis of minor, non-substantial deviations.
- (iv) No bidder shall be rejected on the basis of a comparison with the employer's estimate and budget ceiling without the Bank's prior concurrence.
- (v) A contract shall be awarded to the technically responsive bidder that offers the lowest evaluated price and who meets the qualifying requirements set out in the bidding documents.
- (vi) No negotiations shall be permitted.
- (vii) Price verification shall not be applied.

11. Rejection of All Bids and Rebidding. Bids shall not be rejected and new bids solicited without ADB's prior concurrence.

12. Participation by Government-owned enterprises. Government-owned enterprises in Kyrgyz Republic shall be eligible to participate as bidders only if they can establish that they are legally and financially autonomous, operate under commercial law and are not a dependent agency of the contracting authority. Furthermore, they will be subject to the same bid and performance security requirements as other bidders.

13. Right to Inspect/Audit. A provision shall be included in all NCB works and goods contracts financed by ADB requiring suppliers and contractors to permit ADB to inspect their accounts and records and other documents relating to the bid submission and the performance of the contract, and to have them audited by auditors appointed by ADB.

14. Fraud and corruption

- (i) The Borrower shall reject a proposal for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the contract in question.
- (ii) ADB will declare a firm or individual ineligible, either indefinitely or for a stated period, to be awarded a contract financed by ADB, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for, or in executing, an ADB-financed contract.

15. National Sanctions List. National sanctions lists may be applied only with prior approval of ADB.

INDICATIVE TERMS OF REFERENCE FOR CONSULTING SERVICES
CONSTRUCTION SUPERVISION CONSULTANT FOR LOTS 1 AND 2

XIII. BACKGROUND

1. The overall project corridor will connect two major CAREC regional corridors by rehabilitating a crucial connector road, part of the North-South Alternate Corridor, a priority in the National Sustainable Development Strategy. It will improve connectivity and mobility in the country and link the economic underprivileged regions with the economic hubs, as well as strengthen road maintenance practices and institutional capacity.

2. The subject Terms of Reference is for a Construction Supervision Consultant for the following road sections to be included in the ADB's proposed "additional financing package":

Lot	Limits	Chainage		ADT Range	Length km
		Start	End		
Lot 1	Balykchy – Kochkor	0+000	43+000	563	43
Lot 2	Kochkor – Epkin	62+400	89+500	1,498	27.1
	Total Length				70.1

3. The works and services to be provided under the proposed Contract by the appointed civil works Contractor(s) consist of two major parts:

- **Part A** – Rehabilitation works with an estimated Contract duration of 2 years with a 12-month DNP;
- **Part B** – Performance Based Maintenance [PBM] of the rehabilitated road(s) for an overall Contract period of 5 years. As indicated above, the PBM and DNP periods will commence at the same time and run concurrently.

4. The civil works Contract(s) will be based upon the FIDIC MDB Harmonized General Conditions of Contract, 2010 edition ("the Pink Book") with modifications in order to accommodate the Performance Based Maintenance (PBM) services, to be provided by the same appointed Contractor(s). This document is obtainable from the following location:

<https://www.adb.org/sites/default/files/page/84077/fidic-gcc-construction.pdf>.

5. The rehabilitation component of the Contract will use a standard 'ad-measurement' approach as described in the FIDIC Pink Book. The PBM component will be based on a series of "lump-sum" payments, based on the approach used by the World Bank for their 'Output and Performance Based Road Contracts' (OPBRC).

XIV. OBJECTIVE(S) OF THE ASSIGNMENT:

6. The Consultant, to be designated as the 'Engineer' for the civil works Contract(s) as defined in the FIDIC General Conditions of Contract, will assist the Ministry of Transport and Roads (MOTR) of the Kyrgyz Republic, the Executing Agency (EA) for the Project and the Employer for the civil works Contracts, in reviewing and approving the Contractor's working

drawings, supervising the civil rehabilitation works and monitoring the maintenance services for the road section(s). Also ensuring compliance with road safety standards, environmental protection measures, and social safeguards.

XV. SCOPE OF SERVICES, TASKS (COMPONENTS) AND EXPECTED DELIVERABLES

Apart from every requirement described below or elsewhere in the TOR and without any limitation to those requirements, the Consultant shall fulfill all obligations set for the Engineer in the civil works Contracts that will be signed between the Employer and the Contractor(s).

7. The specific tasks of the Consultant include the following:

(a) Supervision and Administration – Rehabilitation phase

- (i) Assist the Employer in Contract administration and management of the project and the civil works Contracts.
- (ii) Interpret the Technical Specifications and Contract Documents.
- (iii) Review designs, drawings, BOQ provisions and specifications with respect to actual site conditions both for permanent and temporary works within 60 days after submission of such documents and suggest modifications, if required or deemed appropriate.
- (iv) Review and ensure conformity of Contractor's securities (bank guarantees) with the civil works Contracts in approved formats and track and ensure validity of these securities.
- (v) Review and ensure conformity of Contractor's insurance policies with the civil works Contracts and track and check that the Contractor is maintaining the validity of these insurance policies.
- (vi) Review compliance with the documentation and advance actions requirements, including securing of all statutory clearances and permits as well as handing over of the site.
- (vii) Scrutinize the Contractor's detailed work programme and related logistics, suggest modifications if necessary, to the programme after careful study and ensure that the Contractor complies at all times with the approved programme.
- (viii) Check that the construction methods proposed by the Contractor for carrying out the works, are satisfactory.
- (ix) Inspect the Contractor's construction equipment, results of material and soil tests, safety of the works, property and personnel and the schedule of mitigation measures proposed to prevent adverse environmental impacts. Notify the Contractor to remedy works and materials that fail to comply with the Specifications.
- (x) Confirm the horizontal and vertical alignments for the roads based on reviews of the Contract drawings and the topographic survey carried out by the Contractor. This work will include if required, amending the alignment plan and profile drawings based on the updated topographic surveys.
- (xi) Issue finalized or revised 'Issued for Construction' drawings and prepare and provide additional detailed drawings, if and as necessary, including drainage (inclusive of drainage scheme through the built-up areas), junctions, road signs and markings, safety measures, marker stones, protection works etc. based on the Contractor's survey and setting out data.

- (xii) Identify with the Contractor and public utility agencies, all utility services (i.e. electricity, telecommunication, and water) if any, within the right-of-way that are to be protected and marked to avoid damage or relocated, as required by the works and monitor the facilities re-installation plan of gas and water pipelines, telecommunications systems and electricity services to ensure continued public utility services supply during the construction.
- (xiii) Monitor and supervise (a) progress of the Contractors' works vis-à-vis the approved Contract schedule and (b) the quality of the Contractors' works vis-à-vis the applicable technical specifications and design details.
- (xiv) Check that 'as-built' drawings are prepared by the Contractors for all works as construction progresses. Review and approve those drawings and maintain records of all test data and results and certify them "as constructed" drawings for each component of the works when furnished by the Contractor.
- (xv) Ensure that road safety design requirements are implemented in accordance with the Contract specifications.
- (xvi) Develop a quality assurance system and a quality control plan for provision of asphalt-concrete pavements for road and reinforced concrete for bridges.
- (xvii) Implement a community targeted, awareness raising campaign on human trafficking and sexually transmitted diseases, as well as on road safety.
- (xviii) Establish procedures to verify the Contractor's performance and report progress and problems on time including quality control reports, quantity survey records, requests for variation or change orders and the Contractor's claims and invoices.
- (xix) Conduct weekly Site Meetings (technical matters) and monthly Site Meetings (progress matters) to be attended by representatives of the Employer and the Contractor.
- (xx) Evaluate any changes proposed (e.g. time, scope and cost) by the Contractor during the course of the Project.
- (xxi) Review and certify work volume and process interim and final payments of the Contractor. Arrange for timely submission of interim payment certificates and monitor the release of payments.
- (xxii) Maintain a day-to-day site diary recording all events relevant to the works.
- (xxiii) Ensure project financial management procedures are in place and are strictly followed, specifically relating to payments, financial accounting, any requests for time extension and Contractor's claims and invoices.
- (xxiv) Review the price adjustment data and coefficients included in the Contract and check current index prices as submitted by the Contractor. Recommend to the Employer for approval, any price adjustments found to be justified.
- (xxv) Develop and implement training programs (including workshops and technical guidelines) for MOTR staff and national Consultants at the project site on project management issues including quality assurance, contract administration, quality control, in-situ and laboratory testing, reporting, monitoring and the implementation of environmental and social safeguards, road maintenance plan and other activities as required.

(b) Supervision and Administration – PBM phase

- (i) The Contractor will be required to maintain roads open to traffic and substantially free of interruptions at all times (except for unforeseen events or extreme weather conditions). The Engineer shall monitor the Contractor's performance in this respect and shall use best efforts to ensure that these requirements are fulfilled throughout the project period.
- (ii) The Engineer shall check that the required Maintenance and Service Levels specified for each road section are being complied with in full through an established system of formal and informal inspections described in the Specifications.
- (iii) In the case of any failure by the Contractor to rectify deviations from the required Maintenance and Service Levels within the permitted time or to the required quality, the Engineer shall determine, in accordance with the provisions of the Specifications, what penalties should be deducted from the relevant monthly payment calculation. Also to ensure that these penalties are correctly reflected in the Contractor's Interim Payment Certificate (IPC).
- (iv) The Engineer shall review the Contractor's monthly statements and ensure that the certification to the Employer properly reflects payment due, having regard to all penalties and deductions the Engineer considers appropriate and to the levels of service achieved.
- (v) Review the price adjustment data and coefficients included in the Contract and check current index prices as submitted by the Contractor and recommend to the Employer for approval, those price adjustments which are justified.
- (vi) The Engineer, shall regularly review the roughness of the pavement in each road section. The timing of and intervals between reviews shall be at the discretion of the Engineer and shall be such as to provide adequate confirmation that the surface roughness is in accordance with the Specification requirements or where necessary, determine the appropriate penalties for failure to maintain roughness below the required IRI values.
- (vii) The Engineer shall review any claim for compensation in respect of overloading, after approval of a detailed, comprehensive plan by the Contract for the axle load survey, arrange the collection of data and for its comparison with relevant traffic counts. The Consultant shall recommend to the Employer if the Contractor is entitled to any relief of penalties otherwise due as a result of overloading of third party vehicles having due regard to the provisions contained in the Specifications.
- (viii) The Engineer shall assist with the collection, organization and management of road data collection IRI, visual inspection and the general details of maintenance activities executed. This to include the checking of collected data for accuracy and completeness and analysis of the collected data against the prescribed service level performance measures. This to be

followed by the incorporation of the relevant data into the Employer's Asset Management Database system.

- (ix) The Engineer shall maintain at the project site, orderly files for correspondence, reports of site meetings, product and material submissions, reproductions of original Contract documents including all addenda, variation orders, site instructions, information and drawings issued subsequent to the start of works Contract etc. Also, details of the Consultant's clarifications and interpretations of the Contract documents, progress reports and other related documents.
- (x) Keep a diary or log book, recording the Contractor's activities on the job site including hours worked, weather conditions, data relative to questions of extras to or deductions from Pay Items, list of visiting officials, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures.
- (xi) Ensure that the Contractor maintains records of all details of the work as actually executed with reference to distance along the roads.
- (xii) The Consultant will contribute actively to the learning process of Government staff and the personnel of the Contractor in all aspects of the PBM concept. This constitutes an essential element of the Consultant's assignment and should be complied with through the organization and delivery of formal training sessions and workshops.

Maintenance Verification

8. The Engineer shall clearly understand that the Contractor is responsible for the maintenance of the road, which must be reviewed, commented upon and approved by the Engineer. Since the liability rests fully with the Contractor, the Engineer may only suggest necessary improvements to meet the specified level of service conditions. The remedy for non-compliance, if the specifications/service levels are not met, will result in the reduction of monthly payments otherwise due to the Contractor.

9. The following represents typical maintenance checks to be undertaken by the Engineer. If faults or deficiencies are noted, the Engineer must inform the Contractor in writing, as soon as possible.

- Check the quality of materials and works and verify compliance with all requirements of the Specifications through intermittent, random testing and inspection of the maintenance undertaken.
- Check that the road section complies with respective Technical Specifications and/or service levels set out in the Contract.

10. Reporting during the Maintenance Phase shall require the preparation of monthly progress reports which must contain all the relevant financial and technical details of the Maintenance undertaken including the revision and confirmation of the Contractor's Invoicing and details of any non-compliance.

11. These reports should include (but not be limited to) status of achievement of all service

levels defined from the road user's point of view, including road usability and road user service and comfort, durability of the road and other elements of road service.

(c) Documentation and Reporting

- (i) Report and update the works implementation schedule, highlight any unforeseen delays and propose corrective measures.
- (ii) Undertake project performance monitoring and evaluation²² and reporting up to project completion. Collect baseline survey data based on the indicators in the project's design and monitoring framework; and measure the indicators over time during the assignment period. Design a simple MS Excel or similar system for recording the baseline and periodic data.
- (iii) Prepare and submit reports as indicated in Section F (Reporting Requirements) of this TOR.
- (iv) Develop and maintain a storage and retrieval system of records to document information supplied by the field teams, decisions made at meetings, progress on civil works, certified achievements and milestones, financial records, any deviations from or changes to the Contract plans (scope, cost, materials, time), correspondences, site diaries, test data and quality control reports, quantity survey records, as-built drawings, and progress reports.

12. Environmental Safeguard Supervision. The consultant will:

- (i) undertake a cumulative assessment of the potential environmental impact of the Project;
- (ii) update the EMP detailing environmental mitigation measures to address each identified impact, and recommend appropriate environmental mitigation measures;
- (iii) assist IPIG in implementation of EMP to ensure compliance;
- (iv) assess the cost, responsibilities, schedule, location, and monitoring framework associated with the implementation of the mitigation measures and the EMP;
- (v) assist IPIG in incorporating EMP in bidding documents and bid evaluation;
- (vi) provide guidance and quality assurance in undertaking the environmental monitoring as outlined in the EMP;
- (vii) prepare a section in Project quarterly progress report on environmental safeguard compliance;
- (viii) assist IPIG in compiling semi-annual environmental monitoring reports;
- (ix) monitor compliance with environmental mitigation and management plans, Contractor health and safety plan;
- (x) conduct consultation with groups to be affected by the project;
- (xi) undertake the environmental monitoring as outlined in the EMP;
- (xii) prepare all related certificates or other relevant papers or documentation.

13. Social Development and Resettlement Supervision. The consultant will:

- (i) assist in monitoring and reporting of the land acquisition and resettlement plan (LARP) implementation;

²² Following the project framework and ADB's Project Performance Management System Handbook.

- (ii) monitor the Contractor's compliance with and performance of required actions regarding HIV/AIDS, human trafficking, and core labor standards in accordance with the Contract documents, such as awareness and education of laborers and workers;
- (iii) ensure that the Contractor does not recruit child labor in the execution of the civil works Contracts in accordance with the provisions of the Contract agreement;
- (iv) support the implementation of the social summary matrix and its implementation progress reporting.

XVI. TEAM COMPOSITION & QUALIFICATION REQUIREMENTS FOR THE CONSULTANT'S KEY EXPERTS

14. **Inputs.** The Employer will select an international firm, in association with national consultants, to carry out the tasks described in this TOR. The QCBS selection method will be used. Consulting services require a total of 138 person-months of international experts and 294 person-months of national experts and will cover a total period of 84 months (24 months of rehabilitation and 60 months of PBM).

i. International Experts	No. of Experts	No. of Person-Months Rehabilitation Component	No. of Person-Months PBM Component
Resident Engineer/Team Leader	1	36	
Pavement and Materials Engineer	1	14	
Bridge/Structural Engineer	1	14	
Quality Assurance Engineer	1	14	
Road Safety Engineer	1	4	
Social Development and Resettlement Specialist	1	10	
Environment Specialist	1	10	3
Resident Engineer/Team Leader (PBM)	1		36
		102	36
ii. National Experts			
Highway Engineer/Deputy Team Leader	1	60	
Pavement and Materials Engineer	1	18	
Structural Engineer	1	30	
Quality Assurance Engineer	1	36	24
Quantity Surveyor	1	30	
Road Safety Engineer	1	18	6
Social and Resettlement Specialist	1	12	6
Environment Specialist	1	42	6
Trainee Resident Engineer (PBM)	1		36
		216	78
	Total	432	

15. **Requirements for Key International Staff.** Staff should have expertise, knowledge and skills as described below.

1. Resident Engineer/Team Leader

The Team Leader must have expertise in all aspects of road design and construction supervision with experience in leading a team of multi-discipline experts. The team leader will have overall responsibility for implementing the project and managing the team of consultants with expertise in bridge and road engineering, cost estimation and Contract documentation, geology, traffic engineering, road safety, social development, environment, and construction supervision. He/she should be a senior engineer with preferably 15 years of relevant experience covering road design and construction projects He should have good communication and reporting skills.

2. Pavement / Materials Engineer

The Pavement / Materials Engineer should be a senior engineer with university degree in his/her field, or higher with preferably 10 years of relevant experiences in pavement design and works supervision of road projects with extensive knowledge in materials of roads and pavement and materials investigations. He/she should be familiar with international pavement design guidelines and state-of-the art pavement construction technologies. He/she should be familiar with the preparation of Contract Specifications for materials and testing.

3. Bridge/Structural Engineer

The Bridge/Structural Engineer should have a civil engineering degree with preferably 15 years of work experience including preferably 7 years in structural engineering, design and supervision of Construction of bridges, culverts and other structures. The Bridge/Structural Engineer should possess knowledge and skills in bridge and structural engineering, seismic retrofitting, bridge loading tests, investigations of bridge failures, bridge design review, and bridge assessment and maintenance. Shall have experience in similar geographic areas, and is proficient in both written and spoken English.

4. Quality Assurance Engineer

The international Quality Assurance Engineer should have a civil engineering degree or related field with preferably 15 years of work experience including preferably 7 years in quality assurances and quality control in construction works, and materials testing. The Quality Assurance Engineer should possess knowledge and skills in supervision of works, and laboratory and in-situ testing. He/she should have experience in similar geographic areas and is proficient in both written and spoken English. Knowledge of local languages is an advantage, but not required.

5. Road Safety Engineer

The international Road Safety Engineer should have a bachelor's degree in civil engineering, road safety or related field with preferably 10 years of work experience including 5 years in implementing and monitoring road safety in road construction projects. The Road Safety Engineer should have knowledge and skills in road safety aspects in design, road safety standards, preparing a road safety and traffic management plan in road construction sites, and development of road safety campaigns. Shall have experience in similar geographic areas and is proficient in both written and spoken English. Knowledge of local languages is an advantage, but not required.

6. Contracts Specialist

The Contract Specialist should have preferably 5 years' experience in the preparation of Contract Documents and claim management on major road or infrastructure projects using FIDIC. He/she should be familiar with ADB standard bidding documents and procurement guidelines. The

Contracts Specialist shall possess knowledge and skills in Contractor's claims management, resolution of disputes, arbitration proceedings in any project involving FIDIC general conditions, and application of price adjustment provisions. Shall have experience in similar geographic areas and is proficient in both written and spoken English.

7. Social Development / Resettlement Specialist

The Social Development / Resettlement Specialist should have a master's degree in social science with preferably 10 years of work experiences. Up-to-date knowledge of ADB's safeguards policies and procedures, particularly on social impact assessment, poverty assessment, core labor standards, land acquisition, and resettlement, and its implementation are desirable. Experiences in ADB funded projects or projects funded by multilateral agencies in the transport sector will be preferable. The specialist shall also have experience in working in multidisciplinary teams with good communication skill.

8. Environmental Specialist

The Environmental Specialist should have preferably 10 years' experience and familiarity with all aspects of environmental management and with significant experience in environmental management and monitoring of projects, environmental assessment and/or implementation of environmental mitigation measures on construction projects. The Environmental Specialist shall also have experience in working in teams of multi-discipline experts.

9. Resident Engineer / Team Leader [PBM]

The PBM RE/Team Leader should have preferably 10 years of experience in management of OPRC (Output and Performance Based Road Contracts) including road rehabilitation and maintenance. In addition, the TL shall have experience in Supervision of Performance Based Maintenance road Contracts. Other experience in road maintenance and general Road Asset Management will be an advantage as will training of support staff. Fluency in the English language is required.

16. **Requirements for Key National Staff.** The key national staff should have expertise, knowledge and skills as described below.

1. Highway Engineer/Deputy Team Leader

The Highway/ Engineer deputy Team Leader must have expertise in road design and construction supervision with experience in working with a team of multi-discipline experts. The Deputy Team Leader will have responsibility for implementing the project and managing the team of consultants in support of the international Resident Engineers. He/she should be a senior engineer with preferably 15 years of relevant experience covering road design and construction projects He should have good communication and reporting skills and be proficient in both written and spoken English and in local languages.

2. Pavement / Materials Engineer

The Pavement / Materials Engineer should be a senior engineer with at least 10 years of relevant experiences in pavement design and works supervision of road projects with extensive knowledge of local materials for road construction. He/she should be familiar with international pavement design guidelines and pavement construction technologies and in the interpretation of Technical Specifications for materials and testing.

3. Structural Engineer

The National Structural Engineer should be a senior engineer with preferably 15 years of work experience including 7 years field supervision of the construction of bridges and culverts. The

engineer should possess skills in general bridge and structural engineering including design review and maintenance techniques. He/she shall must be proficient in both written and spoken English.

4. Quality Assurance Engineer

The national QA Engineer should have a degree in civil engineering or a related field with preferably 15 years of work experience including preferably 7 years in quality assurance / quality control for highway and bridge construction works and materials testing. The Quality Assurance Engineer should possess extensive knowledge of laboratory and in-situ testing. He/she should be proficient in both written and spoken English and knowledge of local languages.

5. Quantity Surveyor

The national QS must have a degree in civil engineering or a related field and preferably 8 years of work experience on highway projects of a similar size. The QS must be proficient in both written and spoken English - knowledge of local languages is an advantage.

6. Road Safety Engineer

The national Road Safety Engineer should have a bachelor degree in civil engineering with a focus on road safety and preferably 10 years of work experience in in monitoring road safety in road construction projects. The Road Safety Engineer should have knowledge and skills in road safety aspects in design, road safety standards, preparing a road safety and traffic management plans for road construction sites and the development of road safety campaigns. He/she shall be proficient in both written and spoken English and knowledge of local languages.

7. Social Development / Resettlement Specialist

This Specialist should have a degree in a social science with preferably 10 years of work experiences on safeguards work on major highway projects. Knowledge of ADB's policies and procedures on social impact and poverty assessment, land acquisition, and resettlement issues is required. Experience on ADB-funded projects or those funded by other multilateral agencies in the transport sector will be preferred. The specialist shall also have experience in working in multidisciplinary teams and good communication skills in both English and local languages.

8. Environmental Specialist

This Specialist should have preferably 10 years' experience and familiarity with all aspects of environmental impact assessment and environmental management procedures and the implementation of environmental management plans for major construction projects. The Specialist shall also have experience in working in teams of multi-disciplinary experts and proficiency with English and local language.

9. Trainee Resident Engineer [PBM]

The Trainee RE [PBM] should preferably have had exposure to PBM procedures but otherwise 5 years of experience in the management of road rehabilitation and particularly road maintenance operations with a public sector agency or with a private Contractor. Experience with Road Asset Management systems will be considered an advantage. Fluency in the English language is preferred.

XVII. REPORTING REQUIREMENTS AND TIME SCHEDULE FOR DELIVERABLES

17. The Consultant shall prepare the following reports in English and Russian and distribute them in the number of copies indicated below to MOTR and ADB. The format and content of each report is to be agreed with MOTR and ADB. For each report submitted an electronic copy will be provided. Standard software shall be used for preparation of the reports.

- (i) a traffic management and road safety plan within 2 months after commencement,
- (ii) Monthly progress reports by 10th day of each following month,
- (iii) Detailed quarterly progress reports by 15th day of each following quarter, reflecting safeguards compliance,
- (iv) Semi-annual safeguard monitoring reports (environment, social and land acquisition and resettlement), during project construction, within one month after each reporting period,
- (v) Performance monitoring and evaluation reports as required under the Loan Agreement,
- (vi) Road safety audits reports at issuance of construction and traffic management drawings, at about 50% physical completion, and at reopening of the project road,
- (vii) A detailed draft project completion report at 90% physical completion and a final project completion report within 2 months after physical completion of the Project, or on an alternative date as agreed with MOTR, and

Taking any action under a civil works Contract designating the Consultant as “Engineer”, for which action, pursuant to such civil works Contract, the written approval of the Client as “Employer” is required.

XVIII. CLIENT’S INPUT AND COUNTERPART PERSONNEL

The Client will arrange to provide the following items for the Consultant’s use through the Civil Works Contract[s] to be awarded to the Contractor in accordance with the Technical Specifications contained therein:

- Site office with furniture, equipment and consumables;
- Site laboratory with furniture, equipment and consumables;
- Living accommodation with furniture and consumables;
- Survey equipment;
- Vehicles of Types 2, 3 and 4 with drivers, fuel and repair/maintenance services.

XIX. CLIENT WILL PROVIDE THE FOLLOWING INPUTS, PROJECT DATA AND REPORTS TO FACILITATE PREPARATION OF THE PROPOSALS**XX. EQUIPMENT TO BE PROVIDED BY THE CONSULTANT AND HANDED OVER TO THE CLIENT AT THE END OF THE ASSIGNMENT**

18. Class 1 Laser Roughness Measurement equipment (IRI);

Development of Road Safety Engineering Capacity Development and Education/Awareness Campaigns

Indicative Terms of Reference

A. Rationale and Context

1. Road safety is a significant issue for the Kyrgyz Republic. In 2014, 1,022 people died in road crashes across the country and more than 10 times that number were injured. The Government of the Kyrgyz Republic has made a commitment to improving the road safety and, in 2016, together with the other CAREC member countries, the Government endorsed the CAREC road safety strategy titled *Safely Connected: A Regional Road Safety Strategy for CAREC Countries (2017–2030)*. This strategy aims to reduce number of road crash fatalities on the CAREC road corridors by 50% by 2030 (compared to 2010). Under the ethos of “think regionally, act nationally”, the strategy provides a benchmark for all CAREC member countries to address regional safety issues through tackling national road safety issues in their own jurisdictions.

2. Improving road safety in the Kyrgyz Republic requires actions across a broad range of areas, including:

- effective management and coordination of road safety efforts
- building safer roads using international best practice road safety engineering principles and practices
- ensuring that people use the road safely as drivers, passengers, pedestrians and cyclists
- ensuring the safety of vehicles across the road network
- that timely and good medical care is provided to crash victims.

3. The Connector Road Project that involves the rehabilitation of the road that CAREC Highways 1 and 3 provides an opportunity to improve road safety for all those who use this route, including the communities that live along and near the route. The Connector Road Project will involve three road sections:

- Section 1: From Balykchy village (Km 0) to Km 43 (at the junction with the Bishkek–Naryn–Torugart Road). Section 1 length is approximately 43 km.
- Section 2: From Kochkor village to Jyldyz village. This length has been divided further into two sub-sections:
 - Sub-section 2A: From Km 64+000 (the junction with Bishkek–Naryn–Torugart Road) to Km 89+500. Section 2A length is approximately 25km.
 - Sub-section 2B: From Km 89+500 to Km 159+200. Length of Section 2B is approximately 70 km.

4. Traffic speeds and volumes will increase significantly once the project is completed, and this will likely include more heavy vehicles (e.g., trucks and buses). This will potentially increase crash risks not only for drivers and passengers travelling on the road, but also for pedestrians and cyclists using the road, particularly in an around settlements and schools along the road.

5. Ensuring that the road incorporates safer road engineering infrastructure and features will go a long way to mitigating this crash risk and the use of international best practice road safety engineering principles and practices is essential. A Road Safety Audit at the design stage has already been carried out and recommendations for improving the safety of the road design and infrastructure have been made. Further application of road safety engineering principles and practices throughout the construction phase will be required by contracted engineers engaged to work on the project and engineers who work for the Ministry of Transport

and Roads (MOTR). The project provides an opportunity to build the skills of these engineers and others working for MOTR and local authorities along the route in safe road engineering and the Road Safety Audit process. There is also the potential to engage with technical universities and institutes that run courses for engineers and build their capacity to provide training on an ongoing basis in safe road engineering and the Road Safety Audit process as part of the project.

6. Other measures will need to be undertaken to ensure that the different road users use the road safely. These measures need to include raising awareness of the risks and educating road users how to use the road safely, and ensuring that road rules are actively enforced along the route, especially in relation to speed. Development of a targeted community road safety campaign along the route that takes into consideration safety-issues related to high-speed traffic and the likely implication to both the road-users and road side communities.

7. There is also a chance to explore use of some of the latest technology to manage traffic and control vehicle speeds along the route, such as:

- variable message signs that could be used during and after the Connector Road construction phase to improve safety
- variable speed limit signs around settlements and schools
- speed detection devices to enhance enforcement efforts.

B. Scope of Services

8. There are three key components:

- Road safety engineering capacity development
- Road safety education and awareness campaign
- Use of the latest technology in speed and traffic management

9. Road Safety Engineering Capacity Development

Capacity development in safe road engineering has been identified through the CAREC road safety strategy as a significant key priority. Some of the road engineering practices in the Kyrgyz Republic and other CAREC member countries do not reflect international best practice in road safety, and can in some situations increase crash risk. There is a need to build skills and knowledge in road safety engineering.

The Connector Road Project provides an ideal opportunity to skill up those engineers directly involved in the project, but also others working with MOTR and in local authorities. Several training workshops would be conducted in the four essential components of the road safety engineering profession:

- Treating hazardous road locations (blackspots)
- Road safety audits
- Roadside hazard management
- Safety at road work sites

The training programs would use the three CAREC road safety engineering manuals that have been produced on:

- Road safety audit
- Traffic management at road works sites
- Roadside hazard management.

The capacity development program can also engage with technical universities and institutes that run courses for engineers. The aim would be to build the capacity of professors, lecturers and teachers to be able to incorporate international road safety engineering principles and practices and the Road Safety Audit process into their courses on an ongoing basis. This has

the potential to establish road safety engineering as a profession in the Kyrgyz Republic with significant long-term benefits.

10. Road Safety Campaign

The focus of the campaign would be on raising awareness and educating the local community and the drivers who travel along the route about the key crash risks, and how they can make it safer for themselves and others using this road.

There would need to be a focus on pedestrian safety along the route especially in and around settlements and schools. Pedestrians are at high risk of death or injury if involved in a crash. About 40% of crashes involve a pedestrian and 32% of fatalities in 2013 in Kyrgyz Republic were pedestrians.

Speeding vehicles are often directly related to crashes involving pedestrians, but are also a significant cause of other crashes. Speed is a significant cause of crashes in Kyrgyz Republic and along the route of the Connector Road Project. A significant proportion of drivers travel over the speed limit, including in areas with high numbers of pedestrians. There is some police enforcement of speed limits along the route.

Many heavy vehicles (trucks and public passenger vehicles) use the route throughout the day. Heavy vehicles can be involved in crashes because they are large and it is difficult for them to stop quickly. Drivers need to be targeted in the campaign and this could include training.

There are many farming activities undertaken along the route and in many places livestock may wander on to the road, or farmers may occasionally take animal herds across the road. This can cause a significant risk of a serious road crash, especially at night or along some of the mountainous or winding stretches of road on the route. Farmers may also drive agricultural machinery across or along the road and this can cause a hazard for other vehicles. As a result, both farmers and drivers who use the route will need to be targeted in the campaign in order to raise awareness of risks and what can be done to minimize these.

The campaign would target:

- Local communities along the road, including villagers and farmers
- Local schools along the road – children, parents and teachers
- Drivers using the road
- Drivers of heavy vehicles – buses and trucks – and passenger mini-vans.

The campaign would use a variety of methods to reach the different audiences and there would be two key components:

- Public road safety awareness and education campaign around the key road safety issues for this route
- Road safety education to children and their parents through schools along the route.

The public road safety awareness and education campaign would use different methods to communicate key road safety messages to the different target audiences. These could include:

- Advertising on bus stop shelters and on the outside of buses
- Roadside billboards and signs
- Posters and leaflets that are visual and easy to understand
- Video material for use at village meetings and in schools
- Training and information sessions for passenger bus and mini-van drivers
- Potential to use social media
- Potential to engage traditional media (television, radio, newspapers, etc.) through promotional activities.

The road safety education materials to be developed for delivery through schools along the route would include:

- School lesson materials for teachers to use with different age children
- Presentations to children in schools
- Posters with key road safety messages for children for display in classrooms
- Information for parents.

11. Use of the Latest Technology in Speed and Traffic Management

The Connector Road Project provides an opportunity to use some of the latest technology to improve management of traffic and to control vehicle speeds along the route. This could help to significantly improve safety for all road users along the route.

- variable message signs that could be used both during and after the Connector Road construction to improve safety
- variable speed limit signs around settlements and schools
- speed detection devices to enhance enforcement efforts along the route.

Such technologies have been proven to be effective internationally and their use within the Connector Road route could serve as a valuable demonstration project for future use in Kyrgyz Republic.

Examples of variable message signs:



Examples of variable speed limit signs:



ENVIRONMENTAL MANAGEMENT PLAN

A. Section 1

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
General	Submittal of applications/ site specific management plans before commencement of work	Project impacts will be minimized	To submit General Site Specific Management Plan, which will present the method statement for construction, including following 13 annexes: (i) Dust Suppression Plan (ii) Blasting Works Management Plan (iii) Construction Noise Management Plan (iv) Vibration Management and Monitoring Plan (v) Surface Water Contamination Prevention Plan (vi) Borrow Pits Management Plan (vii) Batching Plant/ Cement Plant Management Plan. (viii) Soil Management Plan (ix) Solid and Liquid Waste Management Plan (x) Cultural & historical sites Management Plan (xi) Safety Management Plan (xii) Camp and Workshop Management Plan (xiii) Material Processing Plants/Equipment and Storage Facilities Plan SSEMP shall comply all standards from the general and toll roads WB Group EHS Guidelines	Contractor	CSC, SETI, IPIG of MOTR
Environmental Specialist of CSC	Supervising of Contractor's environmental activity and reporting to IPIG	To follow the EMP	Mandatory half year report on monitoring of the environment should be prepared and submitted to IPIG/MOTR. Data for this report will be collected by the results of the quarterly reports of environmental specialist of CSC. Once a year International environmental specialist will conduct the complex control	CSC/ Contractor	CSC/IPIG
Committee of Grievance Redressing	Establishment and organizing the CGR	Solve disputes immediately	Prompt dissolvent of disputes/issues/complains from the construction works, incorporating all requirement in the Bid Document.	CSC	CSC, SETI, IPIG/MORT
Method of statements	Construction of bridges, culverts, road etc.	Clarifying what are the possible risk/environmental impacts to be caused	Describe construction details such as sequences, material used, size, duration etc.	Contractor	CSC, SETI, IPIG of MOTR
Air Pollution	Operation of construction machinery	Air pollution due to exhausted gases emission from the	Sensitive receptor sites of Balykchy (km 00+000) and Tash-Saray (km 11 + 000) should be considered as areas of mitigation in terms of air quality, noise/vibration. To reduce emission levels of both of exhausted gases and noise in general, the contractor must implement the following	Contractor	CSC

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
		operation of construction machinery	mitigating measures (i) keep construction equipment in good condition (ii) prevent idling of engines by shutting off machineries not in use for more than 3 minutes (iii) prohibit use of machinery or equipment that cause excessive smoke emissions (iv) utilize low-emission type machineries and (v) install tentative noise (air pollution) barrier, if necessary.		
		Dust rising by earth work and lorry running over unpaved road in sensitive area (km 0-3 industrial zone, km 11 Tash-Saray village)	Dust Suppression Plan shall be submitted to CSC. Spray water over the surface of unpaved road every 2 hours around sensitive receptors area when it is dry and wind is strong, based on the Site-Specific Dust Suppression Plan to be submitted before construction. Hauling truck shall be covered always. Material transport route shall be planned properly incorporating to Dust Suppression Plan. Estimates from the preliminary design for the section show those 688,000 cubic meters will be the cut volume and 135,800 cubic meters for fill volume for the road section. Truck traffic will considerably impact local roads as well as the communities they traverse. Haul routes should be planned with CSC in coordination with IPIG and local authorities, providing sufficient maintenance to minimize dust, noise generation and disturbance to residents by restricting the hauling time between 07:00 and 18:00.	Contractor	CSC, SETI, IPIG/MORT
	Blasting works	Air quality	Blasting Work Plan shall be prepared and approved by all agencies concerned. Blasting works will be conducted at the site from km 19+500 and km 41 (along the Chu River); the sites are in mountainous area. Type and time of blasting works should be agreed with General Directorate of Biosphere Reserve. The main measures are hydro-dust suppression and conduct of blasting works for breaking of rocks in small volumes stratified (top to bottom) horizontal blasting hole charges in small diameter with a preliminary pre-splitting along the contour of the explosive volume. The Contractor for explosives works must have a valid license and a passport of blasting works. Blasting works are conducted based on the application and situational plan, in coordination with local authorities and with SETI permission for works. For blasting activities, it is also necessary to develop a Blasting Works Management Plan. It is required to consider prevention of fragmentation of species during the blasting operations A mitigation measure for power line protection is an obligatory installation of shields.	Contractor	CSC; IPIG of MoTR
Noise	Asphalt breaking, earth filling, sub-base compaction, asphalt laying	Disturbance of adjacent settlements due to elevated noise and vibration levels. (km 0-3 industrial zone, km 11 Tash-Saray village)	Construction Noise Suppression Plan shall be submitted based on the Recommendation of Noise Assessment report for Section 1 in 2018. Good communication with affected communities is often the most effective way to manage potential construction noise effects. Therefore, the Contractor should keep local residents informed of the progress of the works, including when and where the noisiest activities will be taking place and how long they are expected to last. All noise complaints should be effectively recorded, investigated and addressed. Account should be taken of the needs of residents in choice of working hours and where possible these should be chosen to: • Avoid night time and weekend working.	Contractor	CSC; IPIG of MoTR,

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			<ul style="list-style-type: none"> Avoid working near mosques during prayer time; and to Carry out works near schools during holiday periods <p>In addition, the Contractor should consider general good working practices including the following which are particularly relevant to road construction:</p> <ul style="list-style-type: none"> Modern, silenced and well-maintained plant and construction equipment should be used; All vehicles and plant should be fitted with effective exhaust silencers which should be maintained in good and efficient working order. Fitted acoustic covers should be kept in a good state of repair and should be kept closed when plant is in use. vehicles should not wait or queue on the road with engines running and plant in intermittent use should be shut down when not in use or where this is impracticable, throttled down to a minimum. If a site compound, or materials storage area is to be used, both it and any static plant within it should be sited as far as is practicable from noise sensitive buildings. Where activities, including delivery of material to site, cannot take place during normal working hours they should be carried out as close to normal working hours as is reasonably practicable. Concrete mixers should not be cleaned by hammering the drums. When handling materials, care should be taken not to drop materials from excessive heights 		
Vibration	Compaction	Structural damage/cosmetic damage	<p>Vibration suppressing plan shall be submitted based on the recommendation of Vibration Assessment Report for Section 1in 2018.</p> <p>Following mode shall be chosen for vibration roller to prevent any damage to buildings:</p> <ul style="list-style-type: none"> Option 1 – No Vibration Option 2 <ul style="list-style-type: none"> Areas with houses within a 9m corridor – use of rollers with no vibration Areas with houses between 9m and 22m corridor: <ul style="list-style-type: none"> use of rollers with minimum vibration use of ditches to reduce vibration at the houses monitoring at the houses to ensure vibration at the houses does not go over 3mm/s. If vibration exceeds 3mm/s work to stop and continue with no vibration Areas with houses at a distance of more than 22m: <ul style="list-style-type: none"> Use of high vibration 	Contractor	CSC; IPIG of MoTR,

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			<ul style="list-style-type: none"> use of ditches to reduce vibration at the houses monitoring at the houses to ensure vibration at the houses does not go over 3mm/s. If vibration exceeds 3mm/s work to stop and continue with no vibration Areas with sensitive archaeological/ ancient monuments within a 22m corridor – use of rollers with no vibration. When areas with sensitive archaeological/ ancient monuments are over 22m and low vibration is used, monitor at the monuments and ensure vibration does not exceed 2mm/s Option 3 <ul style="list-style-type: none"> Areas with houses within a 16m corridor – use of rollers with no vibration Areas with houses between 16m and 36m corridor : <ul style="list-style-type: none"> use of rollers with minimum vibration no ditches monitoring at the houses to ensure vibration at the houses does not go over 3mm/s. If vibration exceeds 3mm/s work to stop and continue with no vibration Areas with houses at a distance of more than 36m: <ul style="list-style-type: none"> use of high vibration no ditches monitoring at the houses to ensure vibration at the houses does not go over 3mm/s. If vibration exceeds 3mm/s work to stop and continue with no vibration <p>Areas with sensitive archaeological/ ancient monuments within a 22m corridor – use of rollers with no vibration. When areas with sensitive archaeological/ ancient monuments are over 22m and low vibration is used, monitor at the monuments and ensure vibration does not exceed 2mm/s</p>		
Surface Water	69 culverts and 3 bridges reconstruction at watercourses at: (i) (km 12.055) (ii) (Km 22.207) (iii)	Pollution form construction area runoff, and change in surface hydrology due to increased sediment load	<p>Surface water Contamination Prevention Plan shall be submitted to CSC.</p> <p>To mitigate negative impacts on the waterways, the following must be implemented: (i) store stockpiles of topsoil and other such materials at a safe distance from surface waters; (ii) long term stockpiles must be covered with grass or other suitable coverings; (iii) create settlement ponds where construction activities are near natural waterways.</p> <p>Unsustainable construction practices such as improper handling and storage of construction materials (e.g., concrete, asphalt, lubricants, fuels, and solvents etc.) can pose risk of contaminating the waterways crossed by the project road. Embankments and construction materials like fill, sand and gravel can be washed out by rainwater into watercourses during downpours. Oil and grease from leaks in engines can also accumulate in surface waters and should be properly controlled. To prevent these, appropriate mitigation measures must be taken</p>	Contractor	CSC, IPIG/MOTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Areal Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
	(Km 31.750)		<p>such as (i) regular maintenance of all construction equipment, (ii) chemicals and oil must be properly stored into impermeable and bounded areas away from surface waters.</p> <p>Within the section, the critical spot is the Chu River. The Contractor should be extra careful in these spots as construction activities can directly contaminate the surface water and consequently affect the biological species in these areas. Contamination should be avoided and disturbance to biota be minimized. Water quality measurements should be done during actual periods of construction at these sites.</p> <p>During the construction of bridges, dimensions of construction site shall be the minimum necessary. It should be placed at levels that minimize flooding as much possible.</p> <p>The contractor shall submit a method statement or plan for the execution of bridge construction works including measures that will be undertaken to address adverse environmental impacts such as erosion of river embankment and siltation of watercourses that may result from such activities. The plan shall be submitted to the Construction Supervision and IPIG, which include: (i) installing of water diversion structures upslope for reducing gully erosion, (ii) installation of retention structures (e.g. shallow basins) during construction activities near river for capturing of sediments, and (iii) the watering of stockpiles during dry season to avoid wind erosion</p> <p>The discharge of polluted water, landfills, parking cars and the construction of temporary facilities shall be located not within the water protection zones (not less than 150m) on the banks of rivers. On construction sites should provide capacity for the collection of sewage and garbage.</p> <p>The roads within the water protection zones should include the collection of mud water from the roadway surface with its subsequent treatment or sewage to eliminate the pollution of water sources. The quality of discharges into water bodies must meet the established requirements. In the water protection zones of rivers. It prohibits contamination of the earth surface, including the garbage dump, waste production, as well as parking, cleaning and repair of motor vehicles and road construction machinery, fueling. All works in water protection zone must be carried out based of permission from local authorities.</p> <p>The project documentation should include the restoration work after the construction of the bridge: the removal of the bed of the river banks, backfilled during the construction of supporting structures; cleaning of the river bed and the flood plain from cluttering their objects, extracting and hauling piles of scaffolding and temporary supports; dismantling of temporary facilities on the construction site and land reclamation, including borrow area and access roads.</p>		
	Blasting	Contamination of surface water	<p>Blasting works will be conducted at the site from km 19+500 and km 41 (along the Chu River), the sites are in mountainous area.</p> <p>The main measures for preventions are mitigation measures for fragmentation of species during the blasting works, hydro-dust suppression and conduct of blasting works for breaking of rocks in small volumes stratified (top to bottom) horizontal blasting hole charges in small diameter with a preliminary pre-splitting along the contour of the explosive volume.</p> <p>The Contractor for explosives works must have a valid license and a passport of blasting works. Blasting works are conducted based on the application and situational plan, in coordination with</p>	Contractor	CSC, IPIG/MOTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Areal Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			<p>local authorities and with SETI permission for works. For blasting activities, it is also necessary to develop a Blasting Works Management Plan.</p> <p>A mitigation measure for power line protection is an obligatory installation of shields.</p> <p>In order to prevent negative impacts from blasting works is necessary to protect water bodies with wooden boards (5m x 5m) mounted on poles. Used methods of drilling and blasting works such as the drilling short-hole method and theirs blast. Drilling small blast holes are prevented the explosion of a large expansion of the rock material. By scale such method is characterized as a small explosion and use wooden boards on these sites will be enough</p>		
Borrow areas	Exploitation of material such as sand, gravel and clay.	Potential disturbance of landscape, infliction of harm to vegetation and damage of approach roads. Increasing of dust emission	<p>Prior to the development of borrow pits, it is required to submit to CSC the Borrow Area Management Plan</p> <p>Opening up new borrow sites, is not allowed inside the Issy-Kul reserve and it is required careful environmental assessment and special permission, together with restoration plan including followings;</p> <ul style="list-style-type: none"> - capacity and operation hours of a borrow pit; - development and extraction sequence of borrow pit; - technique and mechanisms for stripping and excavation of top soil; - operation and time schedule for borrow pit development; - extraction method and transport plan, including route(s); - safety rules and hours of operation; - expected quality of extracted materials; - topsoil storage/protection and environment protection steps; and, - rehabilitation of disturbed lands when site is decommissioned. - calculation of mobile sources' emission charge. 	Contractor	CSC, IPIG/MOTR
Soil Management	Improper top soil preservation	Loss of top soil	<p>Soil management Plan shall be submitted to CSC.</p> <p>Removing of top soil occurring within site clearing corridor. It shall be stored for reuse. Long-term stockpiles of topsoil will immediately be protected to prevent erosion or loss of fertility. For erosion protection, it will be sown with a rapidly growing vegetation, e. g. grass</p> <p>Topsoil on the sections to be used as a stockpile for surplus construction material shall be removed and stockpiled to reuse them to cover these areas upon completion of works. In addition, a soil management plan shall be provided detailing measures to be undertaken to minimize effects of wind and water erosion on stockpiles, measures to minimize loss of fertility of top soil, timeframes, haul routes and disposal sites.</p>	Contractor	CSC, IPIG/MOTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
Solid and Liquid Wastes Management	Siltation of surface waters and/or impact on soils due to improper disposal of excess materials	Contamination of water and soil	Prevention of indiscriminate dumping of waste into river/open spaces Solid and liquid wastes generated during construction shall be properly treated as per SSEMP prepared. Any material including excess soil excavated, chemical, liquid waste, construction rubbishes shall not be dumped into river all time. Only the runoff water, after removal of muddy particles, can be released into river.	Contractor	CSC
Cultural and historical site	Cultural and historical sites protection.	Potential Construction works impacts on cultural and historical sites and monuments finding chance.	To prepare Cultural & Historic Site Management Plan considering: Recommendation of Archaeological Survey and Assessment Report and Proposed Plan for Section 1 in 2018 shall be followed (see Appendix O). In accordance with the Law of the Kyrgyz Republic on historical cultural heritage in the event of cultural monuments found, Contractor must stop all construction works and report the findings to the local executive authorities or any other competent organization (Institute of History and Cultural Heritage, National Academy of Sciences; Department of History, Kyrgyz National University after Balasagyn), MoCIT KR. Construction workers shall be strictly instructed that any disturbance of site is not allowed. Physical cordon around identified sites should be installed to minimize construction impact and alert workers/people from disturbing archaeological sites. Physical cordon around identified sites should be installed to minimize construction impact and alert workers/people from disturbing cultural and historical sites.	Contractor	CSC, IPIG of MoTR, MoCIT KR
Flora and fauna	Road alignment in areas of tree plantations. Embankment filling of the tree stem area.	Tree losses due to embankment fill.	A maximum fill up of the tree stem area of 30 cm can be accepted. Fill up material in the tree stem area has to be organic soil. A filling up of more than 30 cm will damage the tree. In this case cutting can't be prevented and a new tree is to be planted as a compensation measure at the respective location within the existing RoW. Species to be planted are walnuts, maple ash tree, elm tree, white poplars, white willow, white acacia. Plantings shall be conducted after technical works have been completed. Planting time shall be restricted to spring (March till April) and/or autumn (September till October). Quality of newly to be planted trees shall be 10 to 18 cm of stem circumference at least in 1,5 m height.	Contractor	CSC, SETI, IPIG of MoTR
	Bottom of embankment of designed road lying very close to tree rows	Potential damaging of trees during construction activities	Implementation of a temporary vegetation protection fence during construction activities.	Contractor	CSC, SETI, IPIG of MoTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
	Environmental training	Prevent disturbance of habitat	Training of workers on the importance of the biosphere territory "Issyk-Kul", on prohibition and responsibility for poaching, preventive measures for biodiversity conservation in the given territory. Include in the monitoring plan monitoring of species that are on the verge of extinction	Contractor	CSC, IPIG of MoTR
	Road width expansion works	Loss of trees and bushes	Do not carry out the cutting of bushes in the river floodplain at km 12-14, the expansion to carry out to the mountains.	Contractor	CSC, IPIG of MoTR
		Impact biodiversity to	Together with the Specialist from General Directorate of Biosphere Reserve the pre-project monitoring of birds within the territory of project road	Contractor	CSC, IPIG / MoTR
		Impact Biodiversity to	In order to contribute to the fight against poaching, to establish additional signs for km29 with the designation of the beginning of the biosphere territory, and also within the Balykchy Section from km 0 to km 43, to establish signs of a ban on hunting (restriction for hunting to Caprioms and quails, etc.) are required. The design (content of the text) of informational signs, as well as the place of their installation, will be worked out at a later stage.		IPIG of MoTR
Safety	Traffic safety management	To improve traffic safety for pedestrians and vehicles	Traffic safety program for especially around the sensitive receptors by installing necessary safety measures specified in the design or in the Technical Specifications to ensure that community and traffic safety issues during the construction phase of the Project, including incorporation of: (i) Safety barriers; (ii) Traffic signs; (iii) Road crossings; (iv) Speed bumps, (v) Speed limits and (vi) Flagman when necessary. (vii) information to the public about the scope and schedule of construction activities and expected disruptions and access restrictions	Contractor	CSC, IPIG of MoTR, MoCIT KR
	Occupational safety management	For protection safety of workers and adjacent communities	For occupational safety, following shall be provided: (i) Adequate health care facilities (including first aid facilities) within construction sites with a nurse shall be stationed while a doctor who shall visit regularly and when necessary.; (ii) Training of all construction workers in basic sanitation and health care issues, general health and safety matters, and on the specific hazards of their work; (iii) Personal protection equipment for workers, such as safety boots, helmets, gloves, protective clothing, goggles, and ear protection in accordance with KR legislation; (iv) Clean drinking water to all workers; (v) Adequate protection to the general public, including safety barriers and marking of hazardous areas;	Contractor	CSC, IPIG of MoTR, MoCIT KR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			(vi) Safe access across the construction site to people whose settlements and access are temporarily severed by road construction; (vii) Adequate drainage throughout the camps so that stagnant water bodies and puddles do not form; (viii) Sanitary latrines and garbage bins in construction site, which will be cleared when reaching capacity by the contractors to prevent outbreak of diseases.		
	Maintenance of Access	Traffic congestion	Detour roads need to be maintained for connectivity and safety purposes. Traffic plan incorporating these detour roads should be formulated by the contractor and shall be included in Safety Management Plan	Contractor	CSC; IPIG of MoTR
	Blasting works	Safety problem	Blasting works will be conducted at the site from km 19+500 and km 41 (along the Chu River), the sites are in mountainous area. Contractor shall properly control the traffic so that no passenger/vehicle is involved in the blasting itself or rock falling. A mitigation measure for power line protection is an obligatory installation of shields.	Contractor	CSC; IPIG of MoTR
Asphalt, Concrete and Crushing Plant	Installation of Asphalt, concrete and crushing plants	Air pollution, noise, vibration and surface water contamination	Material processing Plants/Equipment and Storage Facilities Plan shall be prepared and implemented as per the plan after approval of the plan by CSC/IPIG During the selection of a site for bitumen plant, concrete plant, stone crusher equipment, which emit pollutants, noise and transmits vibrations, the contractor will need to comply with SanPIN 2.2.1/2.1.1 and SanPIN 2.2.1/2.1.1.006-03, and establish a specific buffer zone around any such facility. In the KR this is referred to as a sanitary-hygienic zone, and is a mandatory element of any facility that affects habitats and human health. The sanitary-protection zone (SPZ) separates the area of an industrial site from residential areas, landscape and recreation areas, parks, and health resorts with mandatory demarcation of boundaries by using specialized information signs.	Contractor	CSC; IPIG of MoTR
	Site selection, Operation of aggregate crusher	Increased dust and noise emission	Careful site selection of aggregate crusher in order not to interfere with any sensitive receptor. Distance to next settlement and residential houses at least 300 m downwind. Site selection for aggregate crusher has to be approved by the Safeguard Department in the IPIG of the MoTR.	Contractor	CSC; IPIG of MoTR
	Site selection, Operation of asphalt plant	Odor emission and safety risks	Asphalt plants shall be 500 m downwind from any settlements and residential houses and outside the core/ buffer/ transitional zones of the biosphere protected area. Provide spill and fire protection equipment and submit an emergency response plan (in case of spills, accidents, fires and the like) to the authority in responsibility prior to operation of the plant. Secure official approval for installation and operation of asphalt plants from MoTR.	Contractor	CSC; IPIG of MoTR

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/ Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
		Water pollution due to spilled bitumen	Bitumen will not be allowed to enter either running or dry streambeds nor shall it be disposed of in ditches or small waste disposal sites prepared by the contractor. Bitumen storage and mixing areas must be protected against spills and all contaminated soil must be properly handled according to legal environmental requirements. Such storage areas must be contained so that any spills can be immediately contained and cleaned up.	Contractor	CSC, IPIG of MoTR
	Construction activities in close vicinity to existing infrastructure such as water supply pipes and other facilities, waste water discharge facilities, electricity lines etc.	Damage to infrastructures	Measures will be ensured in engineering designing to avoid any disturbance to the existing infrastructure. Prior to construction start the respective service agencies shall be informed about the construction work. Coordinate with respective agencies and provide prior information to the public in case of any required disruption in services during construction	Contractor	CSC; IPIG of MoTR
Camp and Workshop management	Construction of camp/workshop	Surface water contamination, disease transmission	The contractor shall submit documents for approval (short statement and site plan in appropriate scale) which indicate: Site location, surface area required and layout of the work camp. The layout plan shall also contain details of the proposed measures to address adverse environmental impacts resulting from its installation. Sewage management plan for provision of sanitary latrines and proper sewage collection and disposal system to prevent pollution of watercourses – discharge of wastewater into the surface water is prohibited and septic tanks to be located at least 100m from surface water. Drainage system to be designed with soakway to avoid contaminated road runoff to enter any surface water; Waste management plan covering provision of garbage tons, regular collection and disposal in a hygienic manner, as well as proposed disposal sites for various types of wastes (e.g., domestic waste, used tires, etc.) consistent with appropriate regulations; Description and layout of equipment maintenance areas and lubricant and fuel storage facilities including distance from water sources and irrigation facilities. Storage facilities for fuels and chemicals will be located away from watercourses. Such facilities will be bounded and provided with impermeable lining to contain spillage and prevent soil and water contamination. Prior to the commencement of works the site installations shall be inspected for approval. The selected site will not be on top of ground water area or near surface waters.	Contractor	CSC, IPIG of MoTR, local health units of the Ministry of Health
		Enhance the safety and health of workers	To provide an Environmental and Safety Officer (ESO), under which a Environmental Officer (EO) and a Safety Officer (SO) also be provided. Their roles are to provide environmental and safety training to the employees and surrounding residents according to the requirements of the individual	Contractor	CSC, IPIG of MoTR, local health units of

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
CONSTRUCTION PHASE					
			work place. Prior to the commencement of works, the work site personnel shall be instructed about safety rules for the handling and storage of hazardous substances (fuel, oil, lubricants, bitumen, paint etc.) and also the cleaning of the equipment. In preparation of this the contractor shall establish a short list of materials to be used (by quality and quantity) and provide a rough concept explaining the training / briefing that shall be provided for the construction personnel. The contractor shall provide information to workers, encouraging changes in individual's personal behavior and encouraging the use of preventive measures. The goal of the information is to reduce the risk of HIV / STD transmission among construction workers, camp support staff and local communities.		the Ministry of Health
Utilization of Wasted Asphalt	Removal of asphalt	Water/soil contamination	Old asphalt pavement will be removed and be replaced in the new pavement. Storage or stockpile areas of old asphalt should be situated where they pose no risk of contamination to the environment. In coordination with local authorities, location of old asphalt stockpile areas will be identified, with a minimal distance of 500m from any settlement. Preferably, storage areas should be in state-owned land. If private lands will be used, a negotiated rent on the property should be established with the land owner. All temporary asphalt pavement storage and processing areas shall be agreed upon with the regional departments of SAEPP under the Government of KR. Old asphalt should be trucked away in blocks and stockpiles should be no higher than 2.5 m. Using old asphalt – The hacked asphalt old asphalt waste shall be transferred to Local RMU of MoTR tentatively. Then the old asphalt is used to strengthen the surface of existing second road in the villages. The top coating of the shoulders with the addition of gravel-sand mixture with 15 cm thickness is recommended.	Contractor	CSC/IPIG
Other social issues	Irrigation water	Competition for water resources	Conduct consultation with local authorities to identify sources of water (for spraying and other construction requirements) that should not compete with the local population.	Contractor	B
	Farm land	Disturbance of farm land by passing of heavy equipment mistaken	Equipment can move only in side predetermined area only. Taping and barrier fence shall be installed between working site and private land.	Contractor	CSC/IPIG
	Damage to road pavement, bridges and culverts	Overloading of heavyweight transport may damage the road pavement, bridges and culverts	Contractor should ensure that the weight of the loaded transport should not exceed the road specifications with control at weigh bridges. Contractor should control the checking the material transportation by controlling the traffic movement.	Contractor	Consultant (CSC)

MITIGATION MEASURES DURING DESIGN, CONSTRUCTION AND OPERATION					
Area/Component	Activity	Potential Impact	Mitigation measures	Institutional Responsibility	
				Implement	Monitor
OPERATION PHASE					
Air quality	Increase of traffic volume	Air pollution	Although no traffic air pollution is estimated until 2034, monitoring may be necessary if residents complain about air pollution.	RMU-10 of MoTR	MoTR, SETI
Noise	Increase of traffic volume	Noise nuisance	Limit driving speed to 60 km/h just around the settlements. To be enforced by traffic police. Monitoring may be necessary if residents complain about traffic noise. Based on the monitoring results and consultation with residents, mitigation measure such as installation of noise barrier shall be studied.	Traffic Police	MoTR
Soil and surface water	Increased traffic volumes and higher vehicle speeds	Increased risk of accidents with possible spills of harmful substances	Spill-contingency plan, contingency plan or emergency response plan is a set of procedures to be followed to minimize the effects of an abnormal event on the Project roads, such as a spill of oil, fuel or other substances that may harm agricultural land and drinking/irrigation water resources or have adverse effects on the natural balance of sensitive areas. Additional measures to mitigate risk of accidents and spill of harmful substances are speed control.	RMU-10 of MoTR	MoTR, SETI
	Damaged drainage or uncontrolled erosion.	Uncontrolled erosion.	Routine monitoring of drainage and erosion control at least twice a year.	RMU-10 of MoTR	MoTR, SETI
Fauna and Flora	Negligence of tree maintenance along the road	Loss of trees	Maintenance of newly planted trees	RMU-10 of MoTR	MoTR, SETI
	Poaching	Poaching of fauna/flora	Installation of signs not to poaching	RMU-10 of MoTR	MoTR, SETI
Safety	Increased traffic flow	increased pedestrian vs. vehicle accidents due to increment of traffic volume and higher speed as a result of improved road design	Integrate in the engineering design safety features such as speed control signs, proper road markings, streetlights, pedestrian crossing, livestock crossing and other visual means.	RMU-10 of MoTR, Traffic police service	MoTR
	Road crossing	Traffic accident for Livestock and Pedestrians	Need to install the road sign indicating the places of transition of people and livestock. The crossing of people in the residential areas will be installed through every 200-250 m.	RMU-10 of MoTR	MoTR, SETI
Climate Change	Daily activities	Water flood	Precaution and immediate announcement of disasters to residents/drivers	RMU-10 of MoTR	MoTR, SETI

B. Section 2A

Issue	What parameter is to be monitored?	Where is the parameter to be monitored	How is the parameter to be monitored?	When is the parameter to be monitored? Frequency	Institutional responsibility
Construction stage					
Air Quality	Dust, SO ₂ , NO ₂	At sensitive receptors within settlement. (i) Kok – Zhar, near the Rakhat shop, LHS (ii) Chekildek village, near the shop Ak Jol, RHS (iii) Epkin village, near the mosque, LHS	By means of suitable portable measurement device.	Just before construction start. and every 2 monthly basis	CSC
	Check certificate of vehicles and equipment	At asphalt and crushing plants.	Visual inspection	Unannounced inspections during construction works	CSC
	Are the truck loads covered or wetted?; Compliance with SSEMP	Material transport route in front of sensitive receptors	Visual inspection Supervision spot checks	Unannounced inspections during work	CSC
Noise	Noise Level	At sensitive receptors within settlements <ul style="list-style-type: none"> Kok-Zhar village, near the school on the road, LHS; Chekildek village, near the school LHS; Epkin village, near the mosque, LHS; Cultural sites (cemeteries, vibration only)	By means of portable noise / vibration measurement device	Second round of baseline monitoring measurements to be conducted before construction start. Than a monthly basis during construction stage.	CSC
Vibration (when vibration will be part of construction)	Vibration levels	At sensitive receptors within settlement (i.e. houses and any structures)	Threshold not to exceed 3mm/s at the receptors (i.e. houses and structures). Threshold not to exceed 2mm/s at the archaeology sites/ assets	Throughout entire construction stage simultaneous with vibration occurring on the site	CSC
Water quality in surface waters (rivers)	Oil products, Turbidity, pH, DO, TSS, Ec and Temperature	Upstream and downstream where the Project road crosses the main watercourse Zhon-Aryk (87+000) and other bridges points Mukan, Epkin, Zharkoomdu.	Measurement either directly in river water with a suitable measurement device or sample taking and measurement in a certified laboratory	Second round of baseline monitoring measurements to be conducted before construction start. Than on a monthly basis during construction stage	CSC
Equipment servicing and fuelling	Prevention of spilling of oil and fuel	Contractor's yard	Inspections; observations	Unannounced inspections during construction	CSC control by IPIG of MoTR

Issue	What parameter is to be monitored?	Where is the parameter to be monitored	How is the parameter to be monitored?	When is the parameter to be monitored? Frequency	Institutional responsibility
Construction stage					
Borrow areas	Possession of official approval or valid operation license	<ul style="list-style-type: none"> Sand and gravel borrow pit and / or quarry 	Inspection	Before work begins	CSC control by IPIG of MoTR
Top soil preservation	Stockpiling and means of protection	Stock pile yard Job site	Inspections ; observation	Once a month	CSC control by IPIG of MoTR
Physical damage of the Cultural sites (cemeteries)	Cultural sites (cemeteries)	Cultural sites (cemeteries): <ul style="list-style-type: none"> 68 km Cemetery on the (RHS) 2-3 m away from the road. 70 km Cemetery (LHS) 2-3 m away from the road. 83 km Cemetery (LHS) 50-70 m from the road. 	Visual observation	Visual observation before construction start and in construction period where the cemeteries are indicated (in the km). Document the condition of the cemeteries and mausoleums before constructions works.	CSC
Worker's safety and health	Record of clinic with number of visitors/treatment done Official approval for worker's camp; Availability of appropriate personal protective equipment; Record of safety training to the staff	Job site and worker's camp	Inspection; interviews; comparisons with the Contractor's method statement	Weekly site visits by the hired Health and safety expert. Unannounced inspections during construction and upon complaint.	Contractor, CSC
Worker's education on AIDS and STD	Has relevant education been provided?	Record (minutes of seminar, attendance list) and photos of attendances of training, awareness campaign of prevention of HIV/AIDS	To be determined by assigned Construction Supervision	After beginning of works and at appropriate intervals throughout construction	CSC, local health units of the Ministry of health
Asphalt plant	Possession of official approval or valid operation license	Asphalt plant	Inspection	Before work begins	Construction Supervision (CS)
Potential tree losses	Status of trees. Thickness of fill at the root of trees	At respective tree locations.	Inspections; observation. An embankment fill of up to 30 cm at the bottom of the tree stem area can be accepted. A filling up of more than 30 cm will damage the tree and cutting will be necessary.	During construction phase.	CSC control by IPIG of MoTR

Annex 3

Issue	What parameter is to be monitored?	Where is the parameter to be monitored	How is the parameter to be monitored?	When is the parameter to be monitored? Frequency	Institutional responsibility
Operational stage					
Traffic noise	Equivalent Noise Level	Sensitive receptors	Handy type level meter	Once a year and when requested	Local MoTR departments
Traffic accident	Number of injury and death of animals	Along the new road	Interview to police	Once a Year	Regional Departments of State Road Administration (UAD, LUAD, and GDAD BO)
	Accidents that cause spills of harmful substances	Along the new road	Counting of accidents	Once a Year	MoTR jointly with Road police service of the KR Ministry of home affairs and KR Ministry of emergency situations
Damaged drainage or uncontrolled erosion	Leakages in drainage system and damages due to erosion	Location of culverts and drainage facilities	Visual inspection	Once a Year	Local MoTR departments
Tree maintenance along the road	Status of trees	In locations of newly planted trees	Visual inspection	Throughout the Year	Local MoTR departments joint with local authorities