

Project Administration Manual

Project Number: 52298-002

Loan Number: {LXXXX}

October 2022

**India: Connecting Economic Clusters
for Inclusive Growth in Maharashtra**

ABBREVIATIONS

ADB	–	Asian Development Bank
APFS	–	audited project financial statements
COVID-19	–	coronavirus disease 2019
CRN	–	core road network
EMOP	–	environmental monitoring plan
EMP	–	environmental management plan
EWCD	–	elderly, women, children, and people with disability
GDP	–	gross domestic product
GESI	–	gender equity and social inclusion
GOM	–	Government of Maharashtra
GRM	–	grievance redress mechanism
IEE	–	initial environmental examination
km	–	kilometer
LFIS	–	Loan Financial Information System
MPWD	–	Maharashtra Public Works Department
NGO	–	nongovernment organization
PAM	–	project administration manual
PIU	–	project implementation unit
PMS	–	project management services
PMU	–	project management unit
SOE	–	statement of expenditure
SPS	–	Safeguard Policy Statement
TOR	–	terms of reference

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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 the policies and procedures of the government and the Asian Development Bank (ADB). The PAM should include references to all available templates and instructions either through linkages to relevant URLs or directly incorporated in the PAM.

The Maharashtra Public Works Department (MPWD), through the project management unit, is wholly responsible for the implementation of ADB-financed projects, as agreed jointly between the borrower and ADB, and in accordance with the policies and procedures of the government and ADB. ADB staff is responsible for supporting implementation including compliance by the MPWD of their obligations and responsibilities for project implementation in accordance with ADB's policies and procedures.

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

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

I. PROJECT DESCRIPTION

1. The Government of India requested assistance from the Asian Development Bank (ADB) to support further development of the Maharashtra state's strategic core road network in line with the state's Vision 2030 and to (i) connect underdeveloped rural communities, in particular women and disadvantaged groups, with off-farm opportunities in city centers and nearby markets; (ii) provide direct and indirect opportunities to the primarily agrarian population, in particular women and disadvantaged groups, through improved access to health and social services; (iii) boost the road connectivity of border districts such as Nanded to neighboring states; (iv) improve agricultural value chains for small- and medium-sized enterprises by reducing transportation costs; and (v) enhance safety and climate and disaster risk resilience.¹

2. The Government of Maharashtra (GOM), through its Vision 2030 strategic plan, aims to achieve sustainable, balanced, and all-inclusive growth across Maharashtra. Vision 2030 presents a five-pillar strategy with focus on (i) agriculture, (ii) infrastructure, (iii) industry, (iv) the social sector, and (v) governance (footnote 1). The plan specifically targets the Marathwada and Vidarbha regions to address poverty in lagging districts and tackle climate change vulnerability. Transformation of the agriculture and horticulture sectors is envisaged through diversification, improved profitability, and higher yields and quality of horticulture products. Economic corridors and market links must be strengthened to improve transport efficiency and safety through improved national and state highways and rural road networks to fill infrastructure gaps in transport, accompanied by enhanced storage, cold chain, and agro-processing.

3. Vision 2030 envisions quality, reliable, sustainable, safe, and affordable roads that are accessible to all. The strategic plan seeks to improve national and state highways and rural road networks to establish major economic corridors. It also includes addressing the binding constraints to development for the GOM's priority agriculture, horticulture, and allied activity economic clusters, which include traffic congestion, inadequate road widths, road surface roughness, all-weather access as well as road safety concerns. The GOM has identified targeted interventions in road transport to address these constraints and to provide necessary links by improving over 18,000 kilometers (km) of the core road network (CRN). A detailed framework to systematically prioritize state roads was prepared using criteria that considers (i) climate change vulnerability; (ii) poor and disadvantaged population served; (iii) connectivity to priority economic clusters and industrial, agricultural, and horticultural areas; (iv) transport network connectivity; (v) existing traffic volumes; (vi) existing road width; (vii) economic internal rate of return; and (viii) land, environment, and social impacts.

4. To finance the road subsector development needs, the GOM is exploring external funding sources including raising debt, multilateral and/or bilateral funding, and developing public-private partnerships.² Approximately 8,600 km of CRN improvements are already being delivered under the hybrid annuity model. Opportunities for further private sector involvement in non-revenue generating road projects in rural areas are limited, and the GOM is considering other ways to involve the private sector, such as in the maintenance of the state road network. An additional 450 km of CRN upgrades are under implementation through ADB financing.³ The GOM plans to finance the balance of improvements through regular state budget provisions and multilateral development bank assistance.

¹ Government of Maharashtra, Planning Department. 2017. [Vision 2030](#). Mumbai.

² The Road Development Plan 2021–2041 for Maharashtra is currently under preparation with financing support from ADB under the ongoing Maharashtra State Road Improvement Project and it is expected to be finalized in 2022.

³ ADB. 2020. [Report and Recommendation of the President to the Board of Directors: Proposed Loan to India for Maharashtra State Road Improvement Project](#). Manila.

5. The project is aligned with the following impacts: sustainable, balanced, all-inclusive growth achieved across Maharashtra; and growth and industrialization promoted in the Marathwada and Vidarbha regions (footnote 1). The project will have the following outcome: transport efficiency, safety, and access to markets and basic social services in Maharashtra improved and sustained.

6. **Output 1: State highways and major district roads of the core road network upgraded and maintained.** The project will (i) upgrade at least 319 km of state highways and 149 km of major district roads with climate- and disaster-resilient features as well as features that respond to the needs of the elderly, women, children, and people with disability; and (ii) commence 10-year performance-based maintenance contracts.

7. **Output 2: New interstate roads connecting Nanded and Telangana developed and maintained.** The project will (i) construct 5 km of major district roads with climate- and disaster-resilient features as well as those that respond to the needs of the elderly, women, children, and people with disability to connect Nanded with Telangana; and (ii) commence 10-year performance-based maintenance contracts.

8. **Output 3: Capacity for project monitoring, road safety, and maintenance strengthened.** The project will complement the central government's state road incentive program and contribute to replicable road safety and maintenance improvements: it will (i) implement automated traffic survey and traffic direction systems on project roads; (ii) establish and manage a project-specific web interface and dashboard with real-time information to monitor traffic, design, contracting and construction progress, land acquisition, and compensation disbursement; (iii) establish road safety demonstration corridors on project roads with advanced technology, improved standards for road design and construction, and strengthened enforcement; (iv) reach villages in project areas with road safety awareness campaigns by self-help groups led by women; (v) develop at least two modalities for road maintenance involving the private sector using output and performance or area-based maintenance contracts for other roads forming the core road network; and (vi) develop and implement a good practice handbook for climate change adaptation and disaster risk reduction in road design and maintenance.

9. **Output 4: Gender equality and social inclusion promoted in highway works, schools, health and social services.** The project will (i) prepare and implement guidelines for gender equality and social inclusion (GESI)-responsive state highway works programs; (ii) provide enterprises led by women of poor and disadvantaged groups with certified skills training for livelihood opportunities as wayside service providers; (iii) establish water and sanitation facilities at schools along project roads; (iv) develop the *janasuvudha kendras* (integrated service centers) for women cane cutters and migrant populations to provide basic health, sanitation, education, and other services; and (v) train people from self-help groups led by women in knowledge and skills to operate the *janasuvudha kendras*.

II. IMPLEMENTATION PLANS

A. Project Readiness Activities

10. Detailed project reports are complete and safeguards documents are being prepared by the Maharashtra Public Works Department (MPWD) using its own funds. Bid documents for civil works and authority engineer consultancy services are prepared. Advance contracting and retroactive financing are proposed to allow an earlier start of project implementation. With

advance contracting, high readiness criteria will be met before loan approval. The project readiness activities and the indicative timelines are presented in Table 1.

Table 1: Project Readiness Activities

Table 11: Project Readiness Activities															Responsible Unit/ Agency/Government
		2021			2022										
Indicative Activities		Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	
	Advance contracting actions														
Posting of consulting services recruitment notice			X												MPWD
Publication of bidding documents				X											MPWD
Technical bid evaluation						X									ADB/MPWD
Financial bid evaluation							X								ADB/MPWD
Award of civil works and consulting services contracts								X							MPWD
Signing of contracts									X						MPWD
Commence implementation										X					MPWD
Establish project implementation arrangements		X													MPWD
	Processing														
Concept paper approval			X												ADB
Consultation mission and pre-fact-finding mission completed					X										ADB
Fact-finding mission						X									ADB
Management review meeting									X						ADB
Loan negotiations												X			ADB/GOI/MPWD
ADB Board approval														X	ADB
Loan signing															ADB/GOI/MPWD
Government budget inclusion						X									GOI/MPWD
Government legal opinion provided														X	GOI/MPWD
Loan effectiveness														X	ADB

ADB = Asian Development Bank, GOI = Government of India, MPWD = Maharashtra Public Works Department.

Source: Asian Development Bank.

Table 2: Project Implementation Plan

No.	Activities	2021 Q4	2022 Q1 Q2 Q3 Q4	2023 Q1 Q2 Q3 Q4	2024 Q1 Q2 Q3 Q4	2025 Q1 Q2 Q3 Q4	2026 Q1 Q2 Q3 Q4	2027 Q1 Q2 Q3 Q4
A.	Design and Monitoring Framework							
	Output 1: State highways and major district roads of the core road network upgraded and maintained							
1.1	Issue invitations for bids.							
1.2	Award civil works contracts and complete construction.							
1.3	Mobilize authority engineer. ^a							
1.4	Commencement of road maintenance activities ^b							
	Output 2: New interstate roads connecting Nanded and Telangana developed and maintained							
2.1	Issue invitations for bids.							
2.2	Award civil works contracts and complete construction.							
2.3	Mobilize authority engineer. ^a							
2.4	Commencement of road maintenance activities ^b							
	Output 3: Capacity for project monitoring, road safety, and maintenance strengthened							
3.1	Recruit and mobilize quality infrastructure investment support consultant.							
3.2	Recruit project management services consultants.							
3.3	Hold road safety awareness campaign sessions.							
3.4	Prepare the design of priority safe system measures for road safety corridors.							
3.5	Develop specifications for real-time technology and traffic systems.							
3.6	Prepare refined contract modalities and bidding documents for private sector participation.							
3.7	Develop good practice handbook for climate change adaptation and disaster risk reduction in road design and maintenance.							
3.8	Establish and manage automated traffic survey and directions systems as well as project-specific web							

No.	Activities	2021	2022				2023				2024				2025				2026				2027			
		Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
	interface and dashboard.																									
3.9	Issue invitation for bids for demonstration corridors.																									
3.10	Implement road safety demonstration corridors and advanced technology.																									
Output 4: Gender equality and social inclusion promoted in highway works, schools, and health and social services																										
4.1	Prepare guidelines for GESI-responsive works program.																									
4.2	Develop livelihood skills for people from poor and disadvantaged groups from women-led enterprises as wayside service providers.																									
4.3	Construct water and sanitation amenities at schools.																									
4.4	Develop <i>janasuvudha kendras</i> .																									
B.	Project Management Activities																									
1.	Procurement plan key activities to procure contract packages																									
2.	Consultant selection procedures																									
3.	Environment management plan key activities																									
4.	Gender equality and social inclusion action plan key activities																									
5.	Annual and/or midterm review																									
6.	Project completion report																									
7.	Financial closure of loan account																									

DMF = design and monitoring framework, GESI = gender equity and social inclusion, Q = quarter.

^a Authority engineer inputs will be intermittent during the maintenance period.

^b Maintenance is fully funded by the Government of Maharashtra. Activities commence during implementation and extend beyond the loan account closing date.

Source: Asian Development Bank.

III. PROJECT MANAGEMENT ARRANGEMENTS

A. Project Implementation Organizations: Roles and Responsibilities

Table 3: Implementation Roles and Responsibilities

Project Implementation Organizations	Management Roles and Responsibilities
Executing agency Maharashtra Public Works Department	(i) Overall coordination and supervision of project implementation activities, including social and environmental safeguards compliance (ii) Selection of subproject roads (iii) Procurement of civil works contracts (iv) Recruitment and administration of consulting services (v) Project sustainability at post implementation stage (vi) Preparation and submission of withdrawal applications (vii) Submission of the audited annual report and financial statements (viii) Submission of semi-annual monitoring reports on resettlement plan implementation (ix) Submission of semi-annual monitoring reports on environment (x) Maintaining project accounts and loan financial records (xi) Keeping supporting documents for project financial statements and project accounts (xii) Preparation of regular progress reports, monitoring reports, and a project completion report and their timely submission to ADB
Implementing agency Project Management Unit in the Maharashtra Public Works Department	(i) Preparation of detailed project reports of subproject roads (ii) Day-to-day project preparation and supervision of project implementation activities (iii) Administration of civil works contracts (iv) Quality assurance of works and services of consultants and counterpart staff (v) Compliance with safeguards requirements (vi) Involving beneficiaries, affected persons, and their representatives in all stages of project development and implementation (vii) Information disclosure (viii) Implementation of gender equality and social inclusion action plan (ix) Compliance with loan covenants (road safety, social and environmental safeguards, financial, economic, others) (x) Preparation of regular progress reports and monitoring reports
Asian Development Bank (ADB)	(i) Monitoring and review of overall project implementation in consultation with the executing agency, including, but not limited to, progress toward the achievement of project outputs, progress of contract awards and disbursements, procurement and performance audits, and compliance with loan covenants (ii) Relevant coordination as required with other ADB projects/programs (iii) Posting on the ADB website of updated project data sheets and safeguards documents as per the disclosure provision of the ADB Safeguard Policy Statement (2009) and Access to Information Policy (2018) (iv) Ensuring compliance with loan covenants (road safety, social and environmental safeguards, financial, economic, and others) (v) Timely processing of withdrawal applications and release of eligible funds

Source: Asian Development Bank.

B. Key Persons Involved in Implementation

Executing Agency

Maharashtra Public Works
Department

Sharad Rajbhoj
Position: Project Director
Telephone: +91 95 0302 1111
Email address: cepd.mpwd@gmail.com
Office address: Office of the Chief Engineer (Konkan)
Fourth Floor, Bandhkam Bhavan, 25 Marzban Road, Fort,
Mumbai 400001

Asian Development Bank

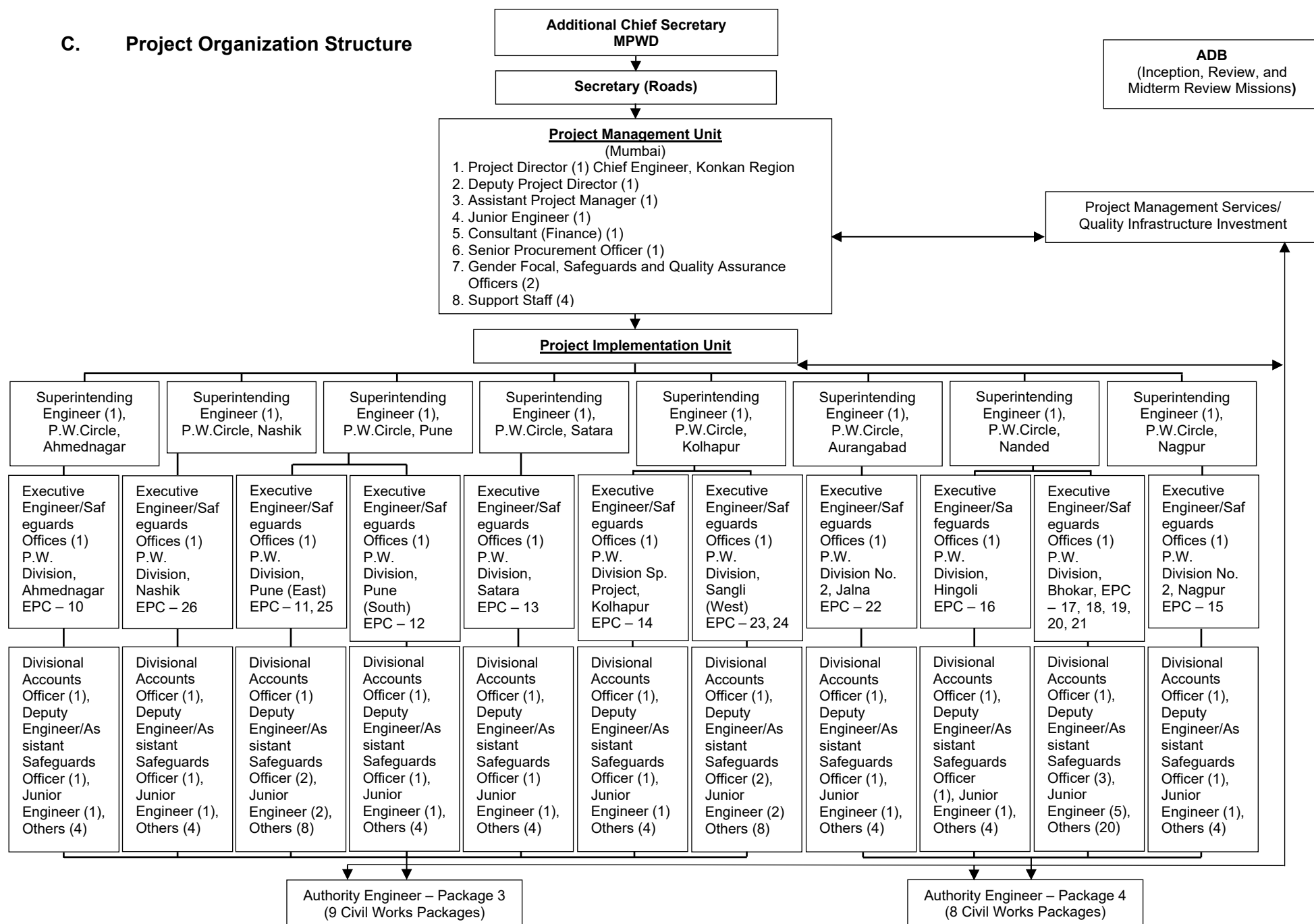
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C. Project Organization Structure



IV. COSTS AND FINANCING

11. The project is estimated to cost \$505 million, inclusive of taxes and duties, physical and price contingencies, interest, and other charges during implementation (Table 4).

Table 4: Summary Cost Estimates
(\$ million)

Item	Amount ^a
A. Base Cost^b	
1. State highways and major district roads of the core road network upgraded and maintained	400.40
2. New interstate roads connecting Nanded and Telangana developed and maintained	11.35
3. Capacity for project monitoring, road safety, and maintenance strengthened	15.87
4. Gender equality and social inclusion promoted in highway works, schools, health and social service facilities	1.64
Subtotal (A)	429.26
B. Contingencies^c	
1. Physical	21.24
2. Price	29.38
Subtotal (B)	50.62
C. Financial Charges During Implementation^d	
1. Interest during construction	23.65
2. Commitment charges	1.47
Subtotal (C)	25.12
Total (A+B+C)	505.00

^a Numbers may not sum precisely because of rounding. Includes taxes and duties of \$54.06 million funded by the government and the Asian Development Bank (ADB). The ADB share does not represent an excessive share of the project cost.

^b In prices as of March 2022.

^c Physical contingencies are computed at 6.84% for civil works. Price contingencies computed at average cost escalation factor of 4.30% on local currency costs.

^d Includes interest and commitment charges. Interest during construction for the ordinary capital resources loan has been computed at the 5-year United States dollar fixed swap rate plus an effective contractual spread of 0.50% and a maturity premium of 0.10%. Commitment charges for the ordinary capital resources loan are 0.15% per year to be charged on the undisbursed loan amount.

Source: Asian Development Bank estimates.

12. The government has requested a regular loan of \$350 million from ADB's regular ordinary capital resources to help finance the project. ADB will finance part of the civil works and consulting services. The government will finance land acquisition, utility shifting, social and environmental mitigations, and the 10-year road maintenance contracts.

A. Cost Estimates Preparation and Revisions

13. The cost estimates were prepared by the MPWD. The project cost includes provisions for road safety and climate change adaptation measures. The project cost will be reviewed and updated during construction based on changing quantities and application of the price escalation clause in the civil works contract.

B. Key Assumptions

14. The following key assumptions underpin the cost estimates and financing plan:
- (i) Exchange rate: ₹79.1845 = \$1.00 (as of 1 August 2022)
 - (ii) Price contingencies based on expected cumulative inflation over the implementation period are shown in Table 5.

Table 5: Escalation Rates for Price Contingency Calculation

(%)							
Item	2022	2023	2024	2025	2026	2027	Average
Foreign rate of price inflation	5.8	5.0	4.5	4.0	4.0	4.0	4.3
Domestic rate of price inflation	1.7	1.7	1.8	1.8	1.8	1.8	1.8

Source: Asian Development Bank estimates.

C. Detailed Cost Estimates by Expenditure Category

Table 6: Detailed Cost Estimates by Expenditure Category

	Total Cost (\$ million)	% of Total Cost
A. Investment Costs		
1. Civil works ^a	387.82	76.80
2. GESI action plan (works)	0.21	0.04
3. Maintenance	18.72	3.71
4. Land acquisition	4.85	0.96
5. Utility shifting	8.87	1.76
6. Social mitigation	1.01	0.20
7. Environmental mitigation	0.21	0.04
8. Consultants		
a. Authority engineers	5.75	1.14
b. Project management services	0.56	0.11
c. Quality infrastructure investment	0.97	0.19
d. Management services (internal audit)	0.24	0.05
e. Resettlement plan implementation (Nanded)	0.05	0.01
	429.26	85.00
B. Contingencies		
1. Price	21.24	4.21
2. Physical	29.38	5.82
Subtotal (B)	50.62	10.03
C. Financial Charges During Implementation		
1. Interest during construction	23.65	4.68
2. Commitment charges	1.47	0.29
	25.12	4.97
Total Project Cost (A+B+C)	505.00	100.00

GESI = gender equity and social inclusion.

Note: Numbers may not sum precisely because of rounding.

^a Climate adaptation is estimated to cost \$113.0 million of the project's civil works cost while climate change mitigation is estimated to cost \$5.8 million. The Asian Development Bank will finance 80% of these adaptation and mitigation costs.

Source: Asian Development Bank estimates.

D. Allocation and Withdrawal of Loan Proceeds

15. Table 7 sets forth the categories of expenditure items to be financed out of the proceeds of the loan and the allocation amounts of the loan to each category.

Table 7: ADB Regular Ordinary Capital Resources Loan

Category			ADB Financing
Number	Item	Amount Allocated (\$ million)	Percentage and Basis for Withdrawal from the Loan Account
1	Works	310.42	80% of total expenditure claimed
2	Consulting services	5.84	77% of total expenditure claimed
3	Unallocated	33.74	
	Total	350.00	

ADB = Asian Development Bank.

Source: Asian Development Bank.

E. Detailed Cost Estimates by Financier

Table 8: Detailed Cost Estimates by Financier
(\$ million)

Item	ADB		GOM		Total Amount
	Amount	% of Cost Category	Amount	% of Cost Category	
A. Investment Costs					
1. Civil works ^a	310.25	80.00	77.56	20.00	387.82
2. GESI action plan (works)	0.17	80.00	0.04	20.00	0.21
3. Maintenance	0.00	0.00	18.72	100.00	18.72
4. Land acquisition	0.00	0.00	4.85	100.00	4.85
5. Utility shifting	0.00	0.00	8.87	100.00	8.87
6. Social mitigation	0.00	0.00	1.01	100.00	1.01
7. Environmental mitigation	0.00	0.00	0.21	100.00	0.21
8. Consulting services					
a. Authority engineers	4.02	70.00	1.72	30.00	5.75
b. Project management services	0.56	100.00	0.00	0.00	0.56
c. Quality infrastructure investment	0.97	100.00	0.00	0.00	0.97
d. Management services (internal audit)	0.24	100.00	0.00	0.00	0.24
e. Resettlement plan implementation (Nanded)	0.05	100.00	0.00	0.00	0.05
Subtotal (A)	316.26	73.68	113.00	26.32	429.26
B. Contingencies	33.74	66.64	16.89	33.36	50.63
C. Financial Charges During Implementation	0.00	0.00	25.12	100.00	25.12
Total Project Cost (A+B+C)	350.00		155.00		505.00
% Total Project Cost		69.31		30.69	100.00

ADB = Asian Development Bank, GESI = gender equity and social inclusion, GOM = Government of Maharashtra.

Note: Numbers may not sum precisely because of rounding.

^a Climate adaptation is estimated to cost \$113.0 million of the project's civil works cost while climate change mitigation is estimated to cost \$5.8 million. ADB will finance 80% of these adaptation and mitigation costs.

Source: Asian Development Bank estimates.

F. Detailed Cost Estimates by Outputs and/or Components

Table 9: Detailed Cost Estimates by Outputs
(\$ million)

Item	Total Cost	Output 1		Output 2		Output 3		Output 4	
		Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category	Amount	% of Cost Category
A. Investment Costs									
1. Civil works ^a	387.82	368.48	95.01	4.44	1.15	14.90	3.84	0.00	0.00
2. GESI action plan (works)	0.21	0.00	0.00	0.00	0.00	0.00	0.00	0.21	100.00
3. Maintenance	18.72	18.30	97.76	0.42	2.24	0.00	0.00	0.00	0.00
4. Land acquisition	4.85	0.00	0.00	4.85	100.00	0.00	0.00	0.00	0.00
5. Utility shifting	8.87	8.59	96.84	0.28	3.16	0.00	0.00	0.00	0.00
6. Social mitigation	1.01	0.89	87.93	0.12	12.07	0.00	0.00	0.00	0.00
7. Environmental mitigation	0.21	0.09	43.55	0.12	56.45	0.00	0.00	0.00	0.00
8. Consulting services									
a. Authority engineers	5.75	3.74	65.00	0.86	15.00	0.00	0.00	1.15	20.00
b. Project management services	0.56	0.17	30.00	0.14	25.00	0.00	0.00	0.25	45.00
c. Quality infrastructure investment	0.97	0.00	0.00	0.00	0.00	0.97	100.00	0.00	0.00
d. Management services (internal audit)	0.24	0.15	65.00	0.06	25.00	0.00	0.00	0.02	10.00
e. Resettlement plan implementation (Nanded)	0.05	0.00	0.00	0.05	100.00	0.00	0.00	0.00	0.00
Subtotal (A)	429.26	400.41	93.28	11.35	2.64	15.87	3.70	1.64	0.38
B. Contingencies									
1. Price	21.24	19.82	93.28	0.56	2.64	0.79	3.70	0.08	0.38
2. Physical	29.38	8.81	30.00	8.81	30.00	8.81	30.00	2.94	10.00
Subtotal (B)	50.62	28.64	56.56	9.38	18.52	9.60	18.96	3.02	5.96
C. Financial Charges During Implementation									
1. Interest during construction	23.65	22.06	93.28	0.62	2.64	0.87	3.70	0.09	0.38
2. Commitment charges	1.47	1.37	93.28	0.04	2.64	0.05	3.70	0.01	0.38
Subtotal (C)	25.12	23.43	93.28	0.66	2.64	0.93	3.70	0.10	0.38
Total Project Cost (A+B+C)	505.00	452.47		21.38		26.40		4.75	
% Total Project Cost	100.00		89.60		4.23		5.23		0.94

GESI = gender equity and social inclusion.

Note: Numbers may not sum precisely because of rounding.

^a Climate adaptation is estimated to cost \$113.0 million of the project's civil works cost while climate change mitigation is estimated to cost \$5.8 million. The Asian Development Bank will finance 80% of these adaptation and mitigation costs.

Source: Asian Development Bank estimates.

G. Detailed Cost Estimates by Year

Table 10: Detailed Cost Estimates by Year
(\$ million)

Item	Total Cost	2022	2023	2024	2025	2026	2027
A. Investment Costs							
1. Civil works ^a	387.82	0.00	77.56	155.13	116.35	38.78	0.00
2. GESI action plan	0.21	0.00	0.04	0.08	0.06	0.02	0.00
3. Maintenance	18.72	0.00	3.74	7.49	5.62	1.87	0.00
4. Land acquisition	4.85	0.00	0.97	1.94	1.45	0.48	0.00
5. Utility shifting	8.87	0.00	1.77	3.55	2.66	0.89	0.00
6. Social mitigation	1.01	0.00	0.20	0.40	0.30	0.10	0.00
7. Environmental mitigation	0.21	0.00	0.04	0.09	0.06	0.02	0.00
8. Consultants							
a. Authority engineers	5.75	0.00	1.15	2.30	1.72	0.57	0.00
b. Project management services	0.56	0.00	0.11	0.22	0.17	0.06	0.00
c. Quality infrastructure investment	0.97	0.00	0.19	0.39	0.29	0.10	0.00
d. Management services (internal audit)	0.24	0.00	0.05	0.09	0.07	0.02	0.00
e. Resettlement plan implementation (Nanded)	0.05	0.00	0.01	0.02	0.02	0.01	0.00
Subtotal (A)	429.26	0.00	85.85	171.70	128.78	42.93	0.00
B. Contingencies							
1. Price	21.24	0.00	4.25	8.50	6.38	2.13	0.00
2. Physical	29.38	0.00	5.88	11.75	8.81	2.94	0.00
Subtotal (B)	50.62	0.00	10.13	20.25	15.19	5.06	0.00
C. Financial Charges During Implementation							
1. Interest during construction	23.65	0.00	4.73	9.46	7.09	2.36	0.00
2. Commitment charges	1.47	0.00	0.29	0.59	0.44	0.15	0.00
Subtotal (C)	25.12	0.00	5.02	10.05	7.54	2.51	0.00
Total Project Cost (A+B+C)	505.00	0.00	101.00	202.00	151.50	50.50	0.00
% Total Project Cost	100	00.0	20.00	40.00	30.00	10.00	0.00

GESI = gender equality and social inclusion.

Note: Numbers may not sum precisely because of rounding.

^a Climate adaptation is estimated to cost \$113.0 million of the project's civil works cost while climate change mitigation is estimated to cost \$5.8 million. The Asian Development Bank will finance 80% of these adaptation and mitigation costs.

Source: Asian Development Bank estimates.

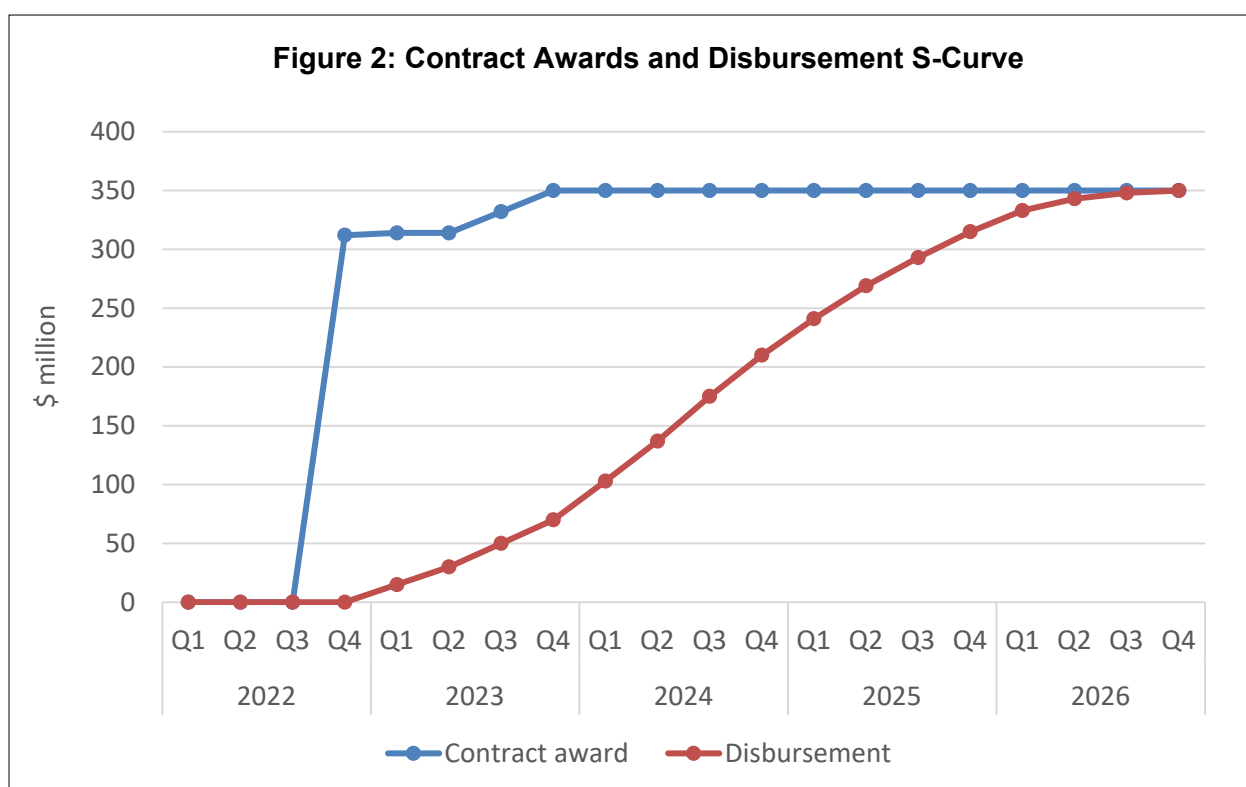
H. Contract and Disbursement S-Curve

Table 11: Contract Awards and Disbursement Baseline Projections
(\$ million)

Year	Contract Award					Disbursement				
	Q1	Q2	Q3	Q4	Total	Q1	Q2	Q3	Q4	Total
2022	0.00	0.00	0.00	312.00	312.00	0.00	0.00	0.00	0.00	0.00
2023	2.00	0.00	18.00	18.00	38.00	15.00	15.00	20.00	20.00	70.00
2024	0.00	0.00	0.00	0.00	0.00	33.00	34.00	38.00	35.00	140.00
2025	0.00	0.00	0.00	0.00	0.00	31.00	28.00	24.00	22.00	105.00
2026	0.00	0.00	0.00	0.00	0.00	18.00	10.00	5.00	2.00	35.00
	Total Contract Awards					Total Disbursements				
	350.00					350.00				

Q = quarter.

Source: Asian Development Bank estimates.

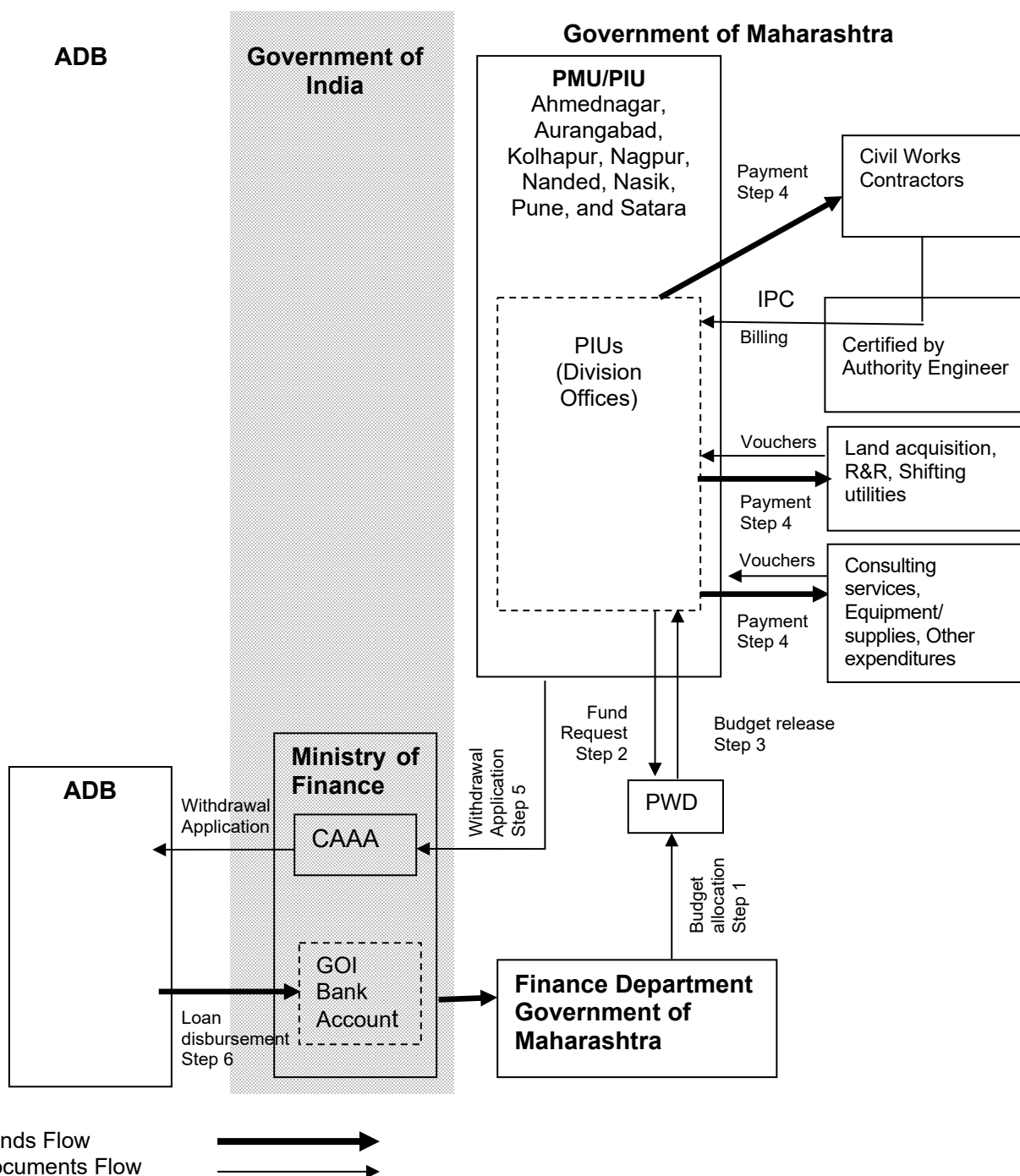


Q = quarter.

Source: Asian Development Bank estimates.

I. Fund Flow Diagram

Figure 3: Fund Flow Diagram



Step 1 – Budget allocation; Step 2 – Budget release request; Step 3 – Budget release; Step 4 – Project related payments; Step 5 – Sending of withdrawal application to CAAA for reimbursement from ADB; Step 6 – Disbursement by ADB under reimbursement procedure.

ADB = Asian Development Bank, CAAA = Controller of Aid Accounts and Audit, GOI = Government of India, GOM = Government of Maharashtra, IPC = interim payment certificate, MPWD = Maharashtra Public Works Department, PIU = project implementation unit, PMU = project management unit, PWD = Public Works Department, R&R = resettlement and rehabilitation.

Source: Asian Development Bank.

V. FINANCIAL MANAGEMENT

A. Financial Management Assessment

16. The financial management assessment (FMA) was completed in March 2022 in accordance with ADB's Guidelines for the Financial Management and Analysis of Projects and the Financial Due Diligence: A Methodology Note. The FMA considered the capacity of the MPWD, including fund-flow arrangements, staffing, accounting and financial reporting systems, financial information systems, and internal and external auditing arrangements. Based on the assessment, it was concluded that the MPWD has adequate financial management capacity to: (i) record the required financial transactions; (ii) provide reliable annual financial statements and audit reports in a timely manner; (iii) safeguard the financial assets and (iv) administer the statement of expenditure (SOE) procedure in accordance with ADB's disbursement procedures. The key financial management risks identified are continuity of adequate finance and accounting resources at the PMU and PIU levels, lack of internal audit arrangement, and financial information included in periodic progress reporting require strengthening. It is concluded that the overall pre-mitigation financial management risk of the MPWD is *moderate*. The financial management and internal control risk assessment is listed below.

Table 12A: Financial Management and Internal Control Risk Assessment

Risk Area	Risk Rating	Risk Description	Mitigation Measures or Action Plans	FMAP Reference
Inherent Risk				
1. Country/ state specific risks	M	Country and/or state specific financial management risks	There is no Public Expenditure and Financial Accountability Report or Report on the Observance of Standards and Codes that is publicly available for Maharashtra. However, as part of a recent project design (World Bank Project Appraisal document: Maharashtra Project on Climate Resilient Agriculture, February 2018), the World Bank identified the following challenges in implementing its portfolio in the state of Maharashtra: (i) low disbursement in initial years caused by implementation challenges; (ii) capacity strengthening required in various internal controls such as reconciliations, control over payments, physical verification of assets, and adequacy of FM supervision; (iii) occasional delays in provision of funds to implementing agencies. These challenges are being addressed by (i) following the applicable state and country systems (including budgetary and treasury systems), and (ii) adding additional requirements where needed such as interim financial reporting and an internal audit function. These findings are also in line with the conclusions and recommendations of this assessment.	N/A
		Pandemic situation persists in the country and has slowed	ADB has projected a growth rate of 9.7% in fiscal year 2021 which ends March 2022 and India's outlook for FY2022 is maintained at 7.5%, as domestic demand is expected to	

Risk Area	Risk Rating	Risk Description	Mitigation Measures or Action Plans	FMAP Reference
		down the economy	normalize. The World Bank projects India's gross domestic product growth at 8.3% for FY2022 and 8.7% for FY2023. In terms of the impact of the COVID-19 pandemic, the Indian economy is slowly and steadily recovering from the crisis. Therefore, no major country/state specific risk is envisaged for this project,	
2. Entity-specific risks	M	Experience of the executing and implementing agency for implementing the project	The MPWD of the Government of Maharashtra is the executing and implementing agency and the PMU and PIU are responsible for day-to-day implementation and reporting of the project on behalf of the MPWD. The MPWD and PMU are currently implementing ADB-funded projects and are familiar with ADB financial management requirements and disbursement procedures. Training in ADB policies and procedure will strengthen the capacity of the MPWD-PMU in managing the project.	1.1
3. Project-specific risks	M	Geographical dispersion of the project might pose challenges to effective internal controls execution	Effective controls are in place to supervise project execution at the PIUs. The government's budgetary and treasury management controls are in place for ensuring proper expenditure management.	
Overall Inherent Risk	M			
Control Risk				
1. Fund flow	M	Timely release of funds to the project	ADB disbursement will follow the reimbursement procedure. Timely availability of funds will be ensured with proper annual budgeting for implementing the proposed fund-flow arrangements. No systematic problems related to funds have been reported in the current government projects and the ADB-funded MSRIIP handled by the MPWD. Budget allocation for the ADB project in 2022/2023 is INR5,030 million.	3.1
2. Staffing	M	Dedicated finance and accounting staff for the PMU and PIUs	At the PMU level, project accounting and financial reporting will be managed by a financial advisor. The financial management team of the PMS consultants will assist the financial advisor in maintaining project accounting records, preparation of quarterly progress reports (FM sections), maintaining management information system for project management, preparation of APFS, preparation of withdrawal applications, carrying out periodic reconciliation of project expenditure with ADB's LFIS, etc. The PMS consultants will assign one financial management specialist and two finance assistants for supporting the financial advisor.	2.1

Risk Area	Risk Rating	Risk Description	Mitigation Measures or Action Plans	FMAP Reference
			<p>There are sufficient staff at PIUs headed by a divisional accounting officer with support staff. At least one divisional accounting officer will be assigned to each PIU.</p> <p>The MPWD will ensure to keep key finance and accounts staff until the end of the project.</p>	
3. Accounting policies and procedures	L	The accounting policies and procedures and its updating	<p>The MPWD and PMU follow the Maharashtra Governmental Accounting System that is on cash basis governmental accounting system. The Maharashtra Public Works Department Code, Account Code, Finance Rule, and Treasury Code are followed for the preparation of its accounts.</p> <p>A comprehensive project financial management manual to supplement FM policies with project specific procedures, including reporting templates and TORs, is in place to ensure ADB's requirements are met at all levels. The manual was developed under the existing ADB-funded MSRIP.</p>	N/A
4. Internal audit	M	Arrangement of internal audit	<p>There are appropriate internal control arrangements within the MPWD. The existing finance staff headed by the divisional accounting officer reviews the transactions before passing any payment to contractors and verifies financial data on the interim payment certificate before making payment at the field implementing unit.</p> <p>The PMS consultants' finance team is also carrying out internal audit of the existing ADB-funded MSRIP. However, to ensure independence of the internal audit function, the MPWD will outsource internal audits of the project as well as the existing MSRIP project to a professional audit firm. The firm will (i) conduct internal audit on semi-annual basis, (ii) submit a report directly to the project director for review, and (iii) implement recommended remedial measures.</p>	4.1
5. External audit	M	The audit of the project financial statements	<p>Audit of project financial statements is carried out by a firm of chartered accountants on behalf of the CAG. The first APFS submitted for the existing ADB-funded project was of acceptable quality, submitted within time, and had unqualified audit opinion. ADB provided some suggestions for improvements in the future, including following a proper template for the management letter and clear identification of basis of accounting used in preparation of the APFS.</p>	6.1
6. Reporting	M	Frequency and	The PMU will issue quarterly financial reports	5.1

Risk Area	Risk Rating	Risk Description	Mitigation Measures or Action Plans	FMAP Reference
and monitoring		timeliness of periodic financial reporting require strengthening	within 45 days after the reporting period in a format agreed with ADB, including physical vs. financial progress, disbursement reports, reconciliation with ADB's loan financial information system, status of compliance with FM action plan, and summary of internal and external audit observations along with actions taken by management.	
7. Information systems	M	Optimal use of technology by the finance and accounts wing in preparation for accounts and reporting requirements	Presently, financial records and accounts are prepared by the PIU with BEAMS and AMS software. In addition, the PMU has installed Tally accounting software for consolidation of accounting records, preparation of withdrawal applications, as well as project financial statements at centralized level.	N/A
Overall Control Risk	M			

Risk rating: L = low, M = moderate.

ADB = Asian Development Bank, AMS = accounts management software, APFS = audited project financial statement, BEAMS = budget allocation, estimation, and management system, CAG = Comptroller and Auditor General, FM = financial management, FMAP = financial management action plan, FY = fiscal year, INR = Indian rupee, IT = information technology, MPWD = Maharashtra Public Works Department, MSRIP = Maharashtra State Road Improvement Project, N/A = not applicable, PIU = project implementation unit, PMS = project management services, PMU = project management unit, TOR = terms of reference.

Source: Asian Development Bank.

17. The Government of India and the MPWD have agreed to implement an action plan as key measures to address the deficiencies. The financial management action plan is provided in Table 12B.

Table 12B: Financial Management Action Plan

Risk Area	Risk Mitigating Activity	Timeline	Responsibility
1. Familiarity with ADB requirements	1.1 Trainings will be conducted on ADB disbursement procedures and financial management requirements for all financial management staff of the PMU and field offices.	Within 6 months of the project start date	ADB
2. Financial management staffing	2.1 For each PIU, one of the existing accounting staff of the field offices will be assigned financial management responsibilities on exclusive basis. The PMU will also engage a financial advisor for providing financial management support until the end of the project.	By April 2022	PMU/MPWD
3. Timely release of funds	3.1 ADB disbursement will follow the reimbursement procedure. Timely availability of funds will be ensured with proper annual budgeting for implementing the proposed fund-flow arrangements. The PMU will be responsible for submitting detailed budget proposals based on the project workplan on annual basis. The MPWD is to ensure adequate budgetary allocations and timely release of funds for the project on an annual basis.	Throughout the project period	PMU/MPWD
4. Absence of	4.1 A chartered accountant firm, independent of	Hiring of internal	PMU/MPWD

Risk Area	Risk Mitigating Activity	Timeline	Responsibility
internal audit within the PMU	the financial advisor, PMS consultants, MPWD, and any other firms/individuals responsible for accounting and financial reporting of the project, will be engaged to conduct internal audits and report to the Project Director, and Secretary (Roads), MPWD within 45 days after the end of the reporting period.	audit firm by June 2022 Conduct internal audit semi-annually throughout the project period	
5. Insufficient reporting and monitoring of project's financial progress	5.1 Submission to ADB of quarterly progress reports, including physical and financial progress with variance analysis and disbursement reports, will take place from the onset of the project. Reports will include reconciliation with the ADB LFIS system, status of financial management action plan compliance, and summary of internal and external audit findings along with actions taken by management. Reports are to be submitted within 45 days of the end of each quarter.	At project start and throughout the entire duration of the project	PMU/MPWD
6. Delayed submission of APFS	6.1 Submission of project financial statements to the auditor will take place within 3 months of the end of the financial year. The APFS is to be submitted to ADB within 6 months from the end of the fiscal year. The APFS will ensure compliance with audit TORs agreed with CAG in India.	Annually	PMU/MPWD

ADB = Asian Development Bank, APFS = audited project financial statement, CAG = Comptroller and Auditor General, LFIS = Loan Financial Information System, MPWD = Maharashtra Public Works Department, PIU = project implementation unit, PMU = project management unit, TOR = terms of reference.

^a Agreed internal audit TORs are included in Appendix E.

^b An indicative template for financial information to be included in the quarterly progress reports is in Appendix D.

^c Available electronically at https://dea.gov.in/sites/default/files/16-Audit-TOR_0.pdf.

Source: Asian Development Bank.

B. Disbursement

1. Disbursement Arrangements for ADB Funds

18. The loan proceeds will be disbursed in accordance with ADB's *Loan Disbursement Handbook* (2017, as amended from time to time),⁴ and detailed arrangements agreed upon between the government and ADB.

19. **Statement of expenditure procedure.**⁵ The SOE procedure may be used for reimbursement of eligible expenditures. Supporting documents and records for the expenditures claimed under the SOE should be maintained (in accordance with ADB's *Loan Disbursement Handbook*, project financial management manual and applicable government rules and regulations), 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 of individual payments should be supported by full

⁴ The handbook is available electronically from the ADB website at <https://www.adb.org/documents/loan-disbursement-handbook>.

⁵ Statement of expenditure forms are available in Appendix 7B and 7D of ADB's *Loan Disbursement Handbook* (2017, as amended from time to time).

documentation when submitting the withdrawal application to ADB.

20. Before the submission of the first withdrawal application, 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 withdrawal application is stipulated in the *Loan Disbursement Handbook* (2017, as amended from time to time). Individual payments below such amount should be paid by the MPWD and subsequently claimed to ADB through reimbursement. The borrower should ensure sufficient category and contract balances before requesting disbursements. Use of ADB's Client Portal for Disbursements (CPD)⁶ system is mandatory for submission of withdrawal applications to ADB. The project staff is encouraged to obtain proper training on the use of the CPD platform.

2. Disbursement Arrangements for Counterpart Fund

21. The counterpart funds will be sufficiently allocated in the annual budget since the project is under reimbursement procedure. The PMU will prepare the disbursement projections and transmit these to the government to earmark the required funds for budgeting purposes. The PMU will be responsible for preparing disbursement projections and requesting budgetary allocations for the project, including counterpart funds to the PMU. The PMU will submit to ADB annual project contract awards and disbursement projections at least a month before the start of each financial year.

C. Financial Management Arrangements

22. **Financial management capacity enhancement plan.** To ensure sufficient knowledge about ADB's financial management requirements, including procedures and related systems, the MPWD through its PMU and PIU should ensure that each financial and accounts resource assigned to the project undertakes the following actions within the first 3 months of their assignment to the project:

- (i) familiarize with ADB and national anticorruption policy and whistleblowing mechanisms;
- (ii) obtain copies and develop understanding of project legal agreements including the financial covenants, relevant sections of this project administration manual, and the ADB *Loan Disbursement Handbook*;
- (iii) obtain user/reader rights (as required) to ADB's systems including the Client Portal for Disbursements (CPD) and the Loan Financial information Service (LFIS); and
- (iv) familiarize with ADB's reporting requirements including the agreed format for project financial statements and audit terms of references for the audit of ADB-assisted projects agreed with the Comptroller and Auditor General (CAG), the Department of Economic Affairs (DEA), and ADB.

23. In addition, the PMU should on a yearly basis liaise with ADB to take advantage of other financial management resources and training events organized by ADB, especially in the first 2 years of project implementation.

⁶ The CPD facilitates online submission of the withdrawal application 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>.

24. **Accounting and financial reporting.** The MPWD will maintain, or cause to be maintained, separate books and records by funding source for all expenditures incurred on the project following cash-based accounting principles and practices prescribed by the Government of India's accounting laws and regulations.⁷ The MPWD will prepare project financial statements in accordance with the government's accounting laws and regulations that are consistent with international accounting principles and practices. Project financial statements shall include at a minimum a statement of receipts and payments with accompanying notes and schedules. The template financial statements provided in the terms of reference for the audit of ADB-assisted projects, agreed with the Comptroller and Auditor General of India, Department of Economic Affairs, and ADB, can be referred to as a guide.

25. The expenditure categories and outputs used in the financial reports will be aligned with the expenditure categories of the PAM.

26. **Financial information in quarterly progress reports.** To provide timely information on the project's financial progress and the status of financial management to the project management, the PMU will ensure that the detailed financial information is included in the quarterly progress reports (QPRs) to be submitted to ADB within 45 days after the end of the quarter. The information will include at least the following:

- (i) Cumulative contract awards financed by the ADB loan, and counterpart funds (commitment of funds to date), and comparison with time-bound projections (compare actual contract awards with the contract award curve included in the PAM). Any significant variances between planned and actual contract awards are to be explained.
- (ii) Cumulative disbursements from the ADB loan, and counterpart funds (expenditure to date), and comparison with time-bound projections. Any significant variances between planned and actual disbursements are to be explained.
- (iii) Re-estimated costs to completion, need for reallocation within the ADB loan, and whether an overall project cost overrun is likely
- (iv) Reconciliation of project records and ADB disbursement records for the ADB loan for the financial year to date and cumulative from project inception to the end of the reporting period. Any discrepancies and outline follow-up actions required are to be explained.
- (v) Variance analysis including budget vs. actual expenditures and physical vs. financial progress, with significant deviations explained
- (vi) Summary of the status of financial covenants (if any) as outlined in the legal agreement
- (vii) Summary of the status of financial management in the project including (a) any problems in the existing financial management arrangements and/or flow of funds, and (b) any significant changes that occurred during the reporting period (e.g., financial management staff turnover, implementation of new financial systems, emerging financial management related risks, etc.)
- (viii) Summary of the status of (a) the financial management action plan outlined in the PAM, (b) recommendations and actions raised by ADB as part of the audited project financial statements (APFS) review (if any), and (c) financial management related recommendations agreed during ADB review missions (if any)
- (ix) Summary of the status of past audit observations (resolved and/or pending)

27. Detailed financial reports may be included as an annex to the progress report as agreed

⁷ Government laws and regulations and following Indian Generally Accepted Accounting Principles.

with ADB. Sample template for the financial information to be included in the quarterly progress report is included as Appendix D.

28. To ensure the correctness and completeness of the project's disbursement records, the PMU will conduct quarterly reconciliation of the project accounts, and ADB's disbursement data available in the Loan Financial Information Services (LFIS). Any discrepancies and/or reconciliation items will be promptly followed up to ensure these are resolved in a prompt manner. The differences between amounts claimed and the amounts disbursed will be disclosed and explained in the withdrawal application register, the quarterly progress reports, and the notes of the project financial statements.

D. External Auditing and Public Disclosure

29. The MPWD will cause the detailed project financial statements to be audited by an independent auditor⁸ acceptable to ADB and in accordance with international standards on auditing (ISA) or national equivalents⁹ and the audit TORs agreed between ADB, CAG, and DEA. The audited project financial statements together with the auditor's opinion will be presented by the MPWD in the English language to ADB within 6 months from the end of the fiscal year.

30. The audit report for the project financial statements will include a management letter and auditor's opinions, which cover (i) whether the project financial statements present an accurate and fair view or are presented fairly, in all material respects, in accordance with the applicable financial reporting standards; (ii) whether the proceeds of the loan were used only for the purpose(s) of the project; and (iii) whether the borrower or executing agency was in compliance with the financial covenants contained in the legal agreements (where applicable). The annual project financial statements should include withdrawal application-wise reconciliation between amounts reported in the project financial statements and disbursement amounts appearing in the Loan Financial Information System (LFIS) of ADB. The LFIS can be accessed online and ADB will provide LFIS access to project staff on request.

31. Records on statement of expenditures should be maintained and made readily available for review by ADB's disbursement and review missions or upon ADB's request for submission of supporting documents on a sampling basis, and for independent audit.

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

33. The government and the MPWD have been made aware of ADB's approach to delayed submission, and the requirements for satisfactory and acceptable quality of the audited project financial statements.¹⁰ ADB reserves the right to require a change in the auditor (in a manner

⁸ CAG or a chartered accountant firm empaneled by CAG.

⁹ Audit standards promulgated by the CAG or the Institute of Chartered Accountants of India (ICAI).

¹⁰ ADB's approach and procedures regarding delayed submission of audited project financial statements:

- (i) When audited project financial statements are not received by the due date, ADB will write to the executing agency advising that (a) the audit documents are overdue; and (b) if they are not received within the next 6 months, requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters will not be processed.
- (ii) When audited project financial statements are not received within 6 months after the due date, ADB will withhold processing of requests for new contract awards and disbursement such as new replenishment of advance accounts, processing of new reimbursement, and issuance of new commitment letters, the extension of the

consistent with the Constitution of the borrower), or for additional support to be provided to the auditor, if the audits required are not conducted in a manner satisfactory to ADB, or if the audits are substantially delayed, ADB reserves the right to verify the project's financial accounts to confirm that the share of ADB's financing is used in accordance with ADB's policies and procedures.

34. Public disclosure of the audited project financial statements, including the auditor's opinion on the project financial statements, will be guided by ADB's Access to Information Policy (2018).¹¹ After the review, ADB will disclose the audited project financial statements and the opinion of the auditors on the project financial statements no later than 14 days 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

35. In addition to the external audit described above, an audit firm will be hired to conduct semi-annual internal audits and reporting to the MPWD Secretary (Roads) after receiving comments from the Project Director, PMU within 45 days after the end of the reporting period. The scope of the internal audit will focus in particular on the financial activities carried out by the PMU and the PIUs. An outline of terms of reference for the internal audit firm to be hired is provided in Appendix E. The MPWD shall consider key issues pointed out by the auditors and ensure timely resolution of observations by the project management.

VI. PROCUREMENT AND CONSULTING SERVICES

A. Advance Contracting and Retroactive Financing

36. All advance contracting and retroactive financing will be undertaken in conformity with the ADB Procurement Policy (2017, as amended from time to time), and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time). The issuance of invitations to bid under advance contracting and retroactive financing will be subject to ADB approval. The borrower, the MPWD, has been advised that approval of advance contracting and retroactive financing does not commit ADB to finance the project.

37. **Advance contracting.** Advance contracting will be undertaken for civil works and consulting services.

38. **Retroactive financing.** After loan effectiveness, withdrawals from the loan account may be made for the reimbursement of eligible expenditures in connection with civil works and consulting services up to \$70.0 million, the equivalent of 20% of the total ADB loan, incurred before loan effectiveness, but not earlier than 12 months before the signing of the loan agreement.

B. Procurement of Goods, Works, and Consulting Services

39. All procurement of goods and works will be undertaken in accordance with ADB's

loan closing date and the submission of new loan proposals for approval by the ADB Board of Directors or Management. ADB will (a) inform the executing agency of ADB's actions, and (b) advise that the loan may be suspended if the audit documents are not received within the next 6 months.

- (iii) When audited project financial statements are not received within 12 months after the due date, ADB may suspend the loan.

¹¹ Access to Information Policy: <https://www.adb.org/documents/access-information-policy>.

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

Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time).

40. Open competitive bidding with national advertisement will be used for civil works contracts estimated to cost less than \$40,000,000. The state government's electronic procurement system will be used.¹³

41. **Value for money.** Optimization for value for money has been sought through strategic procurement planning and risk-managed approach, as follows.

- (i) The procurement plan has been developed considering the project's needs and objectives.
- (ii) Procurements are being done through multiple-contract open competitive bidding, using national advertisements, with due consideration of geographic locations and domestic market capacity, in sizing packages.
- (iii) Contract modality with single source of responsibility for engineering, procurement, and construction (EPC) with 10-year performance-based maintenance (EPC + 10-year PBM) is being applied in procuring works contracts. This is expected to promote innovation and reflect it in more competitive bid price.
- (iv) Contracts packages are being procured using the e-procurement system to promote efficiency, transparency, and lower procurement transaction costs.
- (v) Requirements of technical specifications have been aligned with the project objectives.
- (vi) Evaluation criteria are being applied considering essential conditions to ensure bidders' capability and resources to successfully perform the contracts.
- (vii) Following standard industrial practice in India, procurement is being done through the single-stage two-envelope procedure.
- (viii) The model of the EPC contract developed by the Ministry of Road Transport and Highways with necessary modification to comply with ADB's requirements is being applied for procurement of works.
- (ix) All the civil works contracts are being procured following prior review procedure to avoid any risks of noncompliance in the procurement process.
- (x) Consulting firms are being procured using the quality- and cost-based selection (QCBS) method with a quality–cost ratio of 90:30, to ensure high quality consulting services input.

42. The MPWD will ensure consistency between the public procurement laws of the central and state governments to ensure consistency with ADB's Procurement Policy (2017, as amended from time to time).

43. An 18-month procurement plan indicating threshold and review procedures, goods, works, and consulting service contract packages and national competitive bidding guidelines is in Section C.

44. All consultants and nongovernment organizations (NGO) will be recruited according to ADB's Procurement Policy (2017, as amended from time to time) and the Procurement Regulations for ADB Borrowers (2017, as amended from time to time).¹⁴ The terms of reference for all consulting services are detailed in Section D.

¹³ The e-procurement system was approved by ADB on 30 April 2019.

¹⁴ Checklists for actions required to contract consultants by method are available in the *Loan Disbursement Handbook* (2017) on project implementation at <http://www.adb.org/documents/loan-disbursement-handbook>.

45. The MPWD will recruit two international or national firms as the authority engineers to facilitate the implementation of 17 civil works packages. The total time inputs of the authority engineers are estimated at 3,224 person-months for international and national experts. The MPWD will also recruit one national firm as the PMS to support the PMU in the overall monitoring of safeguard implementation, financial management and reporting, and capacity support for road safety and road maintenance. The total time inputs of the PMS are estimated at 258 person-months for national experts, while the quality infrastructure investment consulting has 180 person-months. Consulting firms will be mostly engaged using the quality- and cost-based selection (QCBS) method with a standard quality-to-cost ratio of 90:10 and a few packages using the consultant's qualifications selection (CQS) method. Consultants will also be recruited by the MPWD to support internal audit as well as resettlement plan implementation and monitoring.

C. Procurement Plan

46. The procurement plan is in Appendix B and describes all procurement of works and consulting services to be undertaken.

D. Consultant's Terms of Reference

47. The terms of reference (TOR) of the consultants engaged under the project are provided in the following appendixes:

- (i) TOR for authority engineers (AE-3 for Packages EPC 10–14 and 23–26; AE-4 for Packages EPC 15–22): Appendix C
- (ii) TOR for the internal audit firm: Appendix E
- (iii) TOR for project management services: Appendix F
- (iv) TOR for quality infrastructure investment (QII) support: Appendix G
- (v) TOR for resettlement plan implementation support agency: Appendix H
- (vi) TOR for involuntary resettlement external monitoring expert: Appendix I

VII. SAFEGUARDS

48. **Prohibited investment activities.** Pursuant to ADB's Safeguard Policy Statement (2009), ADB funds may not be applied to the activities described on the ADB Prohibited Investment Activities List set forth at Appendix 5 of the Safeguard Policy Statement (2009).

A. Environmental Safeguards

49. The project is categorized *B* in accordance with the ADB SPS. No significant, irreversible environmental impacts are anticipated and none of the roads are located inside any critical habitats. One road (EPC 10) will pass through one section of the Great Indian Bustard Sanctuary. This area has been assessed previously under an ongoing ADB-financed project, and it was ruled out as critical habitat for this species. However, the project requires environment clearance per national regulations and further wildlife assessment is necessary as part of this process. The MPWD will ensure that appropriate assessment is conducted. Mitigation measures were proposed in the initial environmental examination (IEE) for the observed movement of wildlife in other packages.¹⁵ A consolidated IEE based on detailed design reports has been prepared for the project in accordance with the ADB SPS and disclosed in the ADB website. While all roads will be under EPC contracts, no significant design updates are envisaged. Nevertheless, should

¹⁵ EPC Packages 11–13, 18, and 23–26.

changes in project scope be necessary or unanticipated impacts arise that would necessitate updating the IEE, the MPWD shall inform ADB promptly and submit the updated IEE for review to ADB. The updated IEE will be disclosed in the ADB and the MPWD websites and in the Gram Panchayat offices upon approval by ADB. The MPWD will not allow road construction to commence without obtaining the necessary permits and clearances.

50. Individual environmental management plans (EMP) have been prepared for each EPC package covering mitigation measures for all anticipated environmental impacts during project construction and operation. The EMPs have been approved by ADB and included in the contract agreement with the respective civil works contractors. Specific mitigation measures with details on location, time, and responsible agency for implementation are given in these EMPs. Accompanying environmental monitoring plans (EMOP) for each road were also prepared to guide the monitoring of various environment quality parameters, such as air and water quality, noise and vibration, and checking the effectiveness of the EMP. The EMOP comprises activities on testing the quality of air and water through laboratory tests, measuring levels of noise and vibration, and physical monitoring of problems of soil erosion, tree plantations, and occupational health and safety issues. In the event of breaches of performance standards or non-compliance with safeguards requirements, a time-bound and budgeted corrective action plan will be prepared and agreed between ADB and the borrower. Consultations with communities will continue throughout project implementation following COVID-19 related protocols as prescribed by the Ministry of Health and local health offices.

B. Social Safeguards

51. **Involuntary resettlement.** The project is categorized A based on the ADB classification system. A total of 634 households (4,172 persons) will be affected, 193 households (1,284 persons) of which will lose 10% or more of agricultural land. The project will require about 19.27 hectares of private land. This will be acquired using the India's Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act (2013), the Government of Maharashtra Direct Purchase Act (2016), and the ADB Safeguard Policy Statement (2009).¹⁶ Resettlement plans (15) have been prepared and disclosed on the ADB website. Social safeguard focal points in the PMU (1) and PIUs (10), social experts with the authority engineers (2), and a resettlement plan implementation support agency (1) will implement and monitor involuntary resettlement safeguards. An external monitor will verify internal monitoring and advise the MPWD on compliance with national laws and the ADB SPS as required. The cost of direct purchase and resettlement and rehabilitation activities will be entirely borne by the Government of Maharashtra.

52. **Indigenous people's safeguards.** The social impact assessment conducted by the MPWD indicates that the project will not affect indigenous people's communities within the meaning of the ADB SPS. Therefore, the project is categorized C based on the ADB classification system and no indigenous people's plans have been prepared.

¹⁶ SPS Appendix 2, paragraph 25, p. 48: "Safeguard Requirements 2 does not apply to negotiated settlements, unless expropriation would result upon the failure of negotiations. Negotiated settlements help avoid expropriation and eliminate the need to use governmental authority to remove people forcibly. The borrower and/or client is encouraged to acquire land and other assets through a negotiated settlement wherever possible, based on meaningful consultation with affected persons, including those without legal title to assets. A negotiated settlement will offer adequate and fair price for land and/or other assets. The borrower and/or client will ensure that any negotiations with displaced persons openly address the risks of asymmetry of information and bargaining power of the parties involved in such transactions. For this purpose, the borrower and/or client will engage an independent external party to document the negotiation and settlement processes. The borrower and/or client will agree with ADB on consultation processes, policies, and laws that are applicable to such transactions; third-party validation; mechanisms for calculating the replacement costs of land and other assets affected; and record-keeping requirements."

C. Implementation Arrangements for Environmental and Social Safeguards

53. The responsibilities of various agencies and parties for implementing environmental and social safeguards are provided in this section.

54. **Project management unit.** The PMU is headed by a project director and supported by a deputy project director, assistant project manager, and two focal safeguards officers. Eight field offices have been established under the PIU to support the PMU operation. Each field office is headed by a superintending engineer and supported by one, two, or three executive engineers, deputy engineers, and junior engineers. The executive engineer will serve as the social and environmental safeguards focal at the site level. The PMU and field offices will be responsible for ensuring the timely processing of forestry clearances, tree cutting permits, and other similar clearances and permits required for the project. They will also ensure timely and effective planning and implementation of resettlement and social development activities. The PMU and the field offices will conduct site visits at least every 2 months and ensure that reports submitted by the contractor and the authority engineers are consistent with site conditions. The PMU with the support of the PMS will review all social and environmental monitoring reports prepared by the contractor and the authority engineers. The PMU will also ensure that (i) semi-annual environmental monitoring reports, and (ii) semi-annual social monitoring reports are submitted within 3 calendar months from the end of the respective reporting period to ADB for disclosure in the ADB website. Local disclosure will be done through PIUs and directly to affected persons during consultations, as necessary.

55. **Project management services.** Project implementation support, including safeguards implementation, will be provided to the PMU by the PMS. The PMS team will include an environmental specialist whose role will be to support the PMU in monitoring the implementation of environmental safeguards under the project and the review of environmental monitoring reports submitted by the authority engineers and the contractor. The PMS will also conduct capacity building activities on the implementation of social and environmental safeguards, including sustainability and climate change adaptation measures, through training workshops and on-site training for the PMU, authority engineers, and contractor, as necessary. The PMS will have a gender and social development specialist to assist the PMU in overseeing the implementation of the resettlement plans, gender-related actions, and other social development activities. The PMS will prepare safeguards monitoring templates to be used by the authority engineers.

56. **Authority engineers.** Two authority engineer consultants will be engaged under the project and will be responsible for supervising the implementation of the EMP and EMOP by the contractor, and the resettlement and social development activities in all EPC packages except EPC 17 and EPC 18.

57. Each authority engineer will include an environmental specialist supported by an environmental specialist cum safety officer who will be responsible for at least fortnightly site-level supervision and monitoring using the standard safeguards monitoring templates prepared by the PMS. All subplans such as the construction camp layout, waste management, borrow area management, traffic management, tree plantation, and others prepared by the contractor will be reviewed and approved by the authority engineer. The authority engineer will also provide guidance to the contractor on corrective measures that must be taken and monitor their compliance and ensure that proposed climate and disaster risk adaptation measures are properly implemented. The environmental expert will review and verify all environmental reports prepared by each of the contractors. Based on site inspections and environmental reports from the contractors, the environmental expert will prepare quarterly environmental monitoring reports for

submission to the PMU. The quarterly reports will be consolidated into a semi-annual environmental monitoring report and submitted to the PMU for their review and endorsement for further submission to ADB.

58. Each authority engineer will also include a social development specialist. The specialist will be responsible for the following: (i) guide the implementation of the resettlement plans, (ii) help set up an internal monitoring system, (iii) participate and monitor the project-level grievance redress committee, and (iv) support the preparation of the semi-annual social monitoring reports.

59. **Contractor.** The contractor will prepare and implement the site-specific contractor's environmental management plan (EMP) and environmental monitoring plan (EMOP) based on the EMP and EMOP attached to the bidding documents. Qualified environmental health and safety experts will be recruited within 30 days of contract signing and maintained throughout the construction period. These personnel will have presence in all construction and campsites and ensure proper day-to-day implementation of the EMP. The EMOP will include data collection on air, water, noise, and vibration following protocols as provided in the initial environmental examination (IEE), to be done by approved laboratories and/or testing centers as verified by the authority engineer. Quarterly environmental monitoring reports will be prepared for review and approval by the authority engineer. The contractor will coordinate closely with the authority engineer on climate and disaster risk adaptation measures. Each contractor will also nominate one social development focal person for the project.

60. **Resettlement plan implementation support agency for EPC 17 and EPC 18.** One resettlement implementation NGO will be recruited to facilitate the implementation of the 15 resettlement plans. The NGO will work as a link between the PMU's field offices and the affected community, and conduct the following key tasks: (i) identify, verify, and update the census of affected households; (ii) develop micro plans in consultation with the project-affected persons and the PMU staff; (iii) educate project-affected persons on the entitlement matrix; (iv) assist affected households in identifying suitable alternate land for resettlement and rehabilitation purpose; (v) prepare and distribute entitlement identity cards; (vi) assist affected persons in getting benefits from various government development programs; (vii) conduct the livelihood development program; (viii) help establish and set up the grievance redress committees; (ix) conduct ongoing consultations with affected persons with special attention to women and vulnerable groups; and (x) set up and manage the internal monitoring system.

D. Grievance Redress Mechanism

61. The detailed description of the grievance redress mechanism (GRM) is in the IEE and resettlement plans of all project roads. The purpose of the GRM will be to receive and facilitate the resolution of affected people's concerns, complaints, and grievances about the social and environmental performance at the project level. The GRM will aim to provide a time-bound and transparent mechanism to voice and to resolve social and environmental concerns linked with the project. The project-specific GRM is not intended to bypass the government's own redress process but to address project-affected people's concerns and complaints promptly, making the GRM readily accessible to all segments of affected persons and scaled to the risks and impacts of the project. Hence, depending on the nature and significance of the grievances or complaints, the GRM will comprise procedures to address grievances at the project site, the PIU, and at the PMU level. More serious complaints that cannot be addressed at the PIU level will be forwarded to the PMU grievance redress committee. Complainants may access the formal legal system at any time.

62. Site-level grievance redressal will be handled by the authority engineer as the mediating party between the contractor and the aggrieved. The PIU-level grievance redress committee (GRC) will be chaired by the superintending engineer and composed of representatives from the contractor, authority engineer, PIU, women's representative, local community, and local forestry authority, as necessary. The PMU level will be chaired by the project director and comprise members from the MPWD, PMS, authority engineer, contractor, and women's representative.

63. The local communities in the project area will be informed by the PIU of the grievance redress procedure and the contact persons for lodging complaints. Provisions shall also be made for lodging complaints at the respective MPWD offices. Contractors, the PIU, and the PMU will maintain logbooks and/or database of grievances and will report on formal and informal complaints and feedback received as part of regular safeguards reporting.

VIII. GENDER AND SOCIAL DIMENSIONS

64. The project is categorized as *effective gender mainstreaming* based on the Guidelines for Gender Mainstreaming Categories of ADB Projects (2021). A gender equity and social inclusion (GESI) action plan is attached to the project (Table 13) and outlines activities and measurable indicators: (i) promoting gender responsive infrastructure by ensuring road design features for the elderly, women, children, and people with disability (EWCD); (ii) training self-help groups (SHG) to conduct training on road safety awareness and campaigns at villages; (iii) organizing health camps for community women; (iv) implementing GESI-responsive state highways works program at identified locations along with capacity building of the MPWD staff; (v) providing water and sanitation facilities in schools; (vi) providing people from poor and disadvantaged groups from women-led enterprises with certified skills for livelihood opportunities as wayside service providers; (vii) developing demonstration *janasuvidha kendras* in project districts for women cane cutters and migrant population to provide basic health and sanitation, education, and other services; and (viii) training persons from women-led SHGs to operate the *janasuvidha kendras*.

65. The project will maintain sex-disaggregated data on staff, consultants, construction workforce participation, labor, and project-related trainings.

66. The PMU in the MPWD, with support from the PMS and QII consultants, will be responsible for the implementation and monitoring of the GESI action plan. To oversee and monitor its implementation, gender focal points will be nominated: one in the MPWD and one in each of the PIU's eight field offices.

Table 13: Gender Equality and Social Inclusion Actions

Activities	Indicators and Targets	Responsibility	Timeline
Output 1: State highways and major district roads of the core road network upgraded and maintained			
1.1 Include EWCD-responsive features at appropriate locations of state highways and major district roads.	1. EWCD-responsive features ^a installed along the state highways and major district roads at 50 appropriate locations (2022 baseline: 0)	MPWD, PMS	Years 2–4
Output 2: New interstate roads connecting Nanded and Telangana developed and maintained			
2.1 Include EWCD-responsive features at appropriate locations of new interstate roads connecting Nanded and Telangana.	2. EWCD-responsive features installed along the roads in at least 2 appropriate locations (2022 baseline: 0)	MPWD, PMS	Years 2–4

Activities	Indicators and Targets	Responsibility	Timeline
Output 3: Capacity for project monitoring, road safety, and maintenance strengthened			
3.1 Hold road safety awareness campaigns of women-led self-help groups.	3. One training module prepared for training of trainers on road safety (2022 baseline: 0) 4. Training of trainers conducted for identified 5 SHG units (with total 20 women members) (2022 baseline: 0) 5. At least 54 villages in the project area reached by road safety awareness campaigns led by women's SHGs (2022 baseline: Not applicable)	MPWD, QII	Years 1–4
Output 4: Gender equality and social inclusion promoted in highway works, schools, health and social services			
4.1 Organize health camps at villages alongside the highway with equal representation of women community members.	6. At least 18 health camps ^b organized for community members at villages alongside the project roads with representation of 50% women and girls (2022 baseline: Not applicable)	MPWD, QII	Years 1–4
4.2 Conduct gender-based awareness for contractors, especially on engaging female workforce and enhancing their participation across skilled and unskilled categories.	7. Contractors provided with an advisory on enhancing female workforce participation and maintaining sex-disaggregated data on construction workers 8. At least 50 contractors' personnel, including 25 women, report increased awareness of road safety and sexually transmitted infections (including HIV) (2022 baseline: Not applicable) 9. Post-training survey conducted to assess enhanced awareness of road safety and sexually transmitted infections (including HIV) (2022 baseline: Not applicable)	MPWD, QII	Years 1–4
4.3 Prepare and implement guidelines for GESI-responsive state highway works programs.	10. Guidelines for GESI-responsive state highway works programs ^c prepared and implemented at 8 locations (2022 baseline: Not applicable) 11. GESI readiness assessment for the MPWD to implement GESI-responsive state highways works program conducted and standard operating procedures prepared (2022 baseline: Not applicable) 12. At least 80% of eligible male and female MPWD staff oriented on GESI-responsive state highway works program (2022 baseline: Total=87, Male=70, Female=17) ^d 13. A post training assessment survey conducted to assess participants' acquired knowledge and skills	MPWD, QII	Years 2–3

Activities	Indicators and Targets	Responsibility	Timeline
	(2022 baseline: Not applicable)		
4.4 Conduct livelihood skills training for people from poor and disadvantaged groups of enterprises led by women as wayside service providers.	14. At least 36 people (of whom 80% are female) from 18 women-led enterprises ^e from poor and disadvantaged groups provided with certified skills training for livelihood opportunities as wayside service providers (2022 baseline: Not applicable)	MPWD, QII	Years 3–4
4.5 Construct water and sanitation facilities in schools identified along project roads.	15. At least 18 water and sanitation facilities ^f provided at schools along project roads (2021: Not applicable)	MPWD, QII	Years 3–4
4.6 Establish the <i>janasuvudha kendras</i> in project districts for women cane cutters and migrant population to provide basic health and sanitation, education, and other services.	16. Feasibility study and O&M model prepared for development and management of <i>janasuvudha kendras</i> ^g 17. At least 3 demonstrations <i>janasuvudha kendras</i> in 3 project districts ^h established for women cane cutters and migrant population to provide basic health and sanitation, education, and other services (2022 baseline: Not applicable) 18. At least 15 people, of whom 90% are female from women-led ⁱ SHGs, ^j reported increased knowledge and skills on operating the <i>janasuvudha kendras</i> (2022 baseline: Not applicable)	MPWD, QII	Years 2–4
Project Management Activities			
The MPWD oversees implementation, monitoring, and reporting of the GESI action plan.	1. Sex-disaggregated data on project staff, consultants, workforce participation, labor, and project related orientation and training programs maintained and reported in progress reports (2022 baseline: Not applicable) 2. GESI action plan progress monitored regularly and reported every quarter with the project quarterly progress reports (2022 baseline: Not applicable) 3. Combined GESI completion report highlighting lessons learned submitted upon project completion (2022 baseline: Not applicable)	MPWD, PMS	Years 1–5

EWCD = elderly, women, children, and people with disability, GESI = gender equality and social inclusion, MPWD = Maharashtra Public Works Department, O&M = operations and maintenance, PMS = project management services, QII = quality infrastructure investment, SHG = self-help group.

^a EWCD-responsive features may include well-marked crossings, safety signage, pedestrian walkways, railings along roads, covered drains, paved shoulder (hard shoulder) and earthen shoulder (soft shoulder), speed bumps, rumble strips, guard stones, and solar blinkers. Other gender-responsive features include streetlights; well-lit bus stops, and with closed-circuit television (CCTV) cameras at warranted locations; and separate toilets suitable for women,

- children, and differently abled persons.
- ^b Based on the findings of the road safety audits.
 - ^c GESI-responsive program includes GESI mainstreaming mechanism in planning, construction, and maintenance of state highway works. This will include but not be limited to (i) integration of GESI issues and concerns in project planning and design; (ii) mechanism for women's participation in project planning and design; (iii) elements for safety for women and children during construction, and integration of requisite advisory and provisions in contractor's contract for the same; and (iv) GESI elements integrated into maintenance contracts.
 - ^d Source: GESI Quarterly Progress Report October–December 2021, Maharashtra State Roads Improvement Project.
 - ^e Woman-owned/led enterprise is defined using the International Finance Corporation's definition: (a) $\geq 51\%$ of the enterprise is owned by a woman/women, OR (b) $\geq 20\%$ of the enterprise is owned by a woman/women; AND (i) has ≥ 1 woman as CEO/COO/President/Vice President, AND (ii) has $\geq 30\%$ of the board of directors composed of women, where a board exists. Source: Asian Development Bank. 2021. Guidelines for Gender Mainstreaming Categories of ADB Projects. Manila.
 - ^f Water and sanitation facilities include (i) separate toilets for girls and disabled with running water, handwashing station with soap and water; (ii) space for change of clothes, dustbins, or incinerators for safe disposal of menstrual products; and (iii) safe piped drinking water facilities.
 - ^g The *janasuvidha kendra* based on the feasibility study may include health services such as women's reproductive health care; primary health care; water and sanitation services; early childhood care, creche facilities, and education facilitation; child protection units; food grain public distribution system centers; and other one-stop service centers to ensure access to banking and social protection schemes.
 - ^h The three project districts include Kolhapur, Sangli, and Satara, which are the major sugarcane producing districts of the Maharashtra state.
 - ⁱ The project defines women-led self-help groups as those with more than 90% women members. This is based on the national government scheme, *Deendayal Antyodaya Yojana*-National Rural Livelihoods Mission (DAY-NRLM), where nearly all self-help groups are 100% women except in some cases such as "persons with disabilities, and other special categories like elders, transgenders, DAY-NRLM will have both men and women in the Self-Help." Government of India. 2019. [Reserve Bank of India – Master Circulars](#).
 - ^j The SHGs will be identified through a needs assessment based on their availability and willingness to operate the *Jansuvidha kendras*.
- Source: Asian Development Bank.

67. HIV and human trafficking. The PMU shall ensure that community awareness campaigns about HIV and human trafficking prevention will be carried out along the project road corridors by the resettlement implementation and community awareness NGOs or agencies in coordination with existing local programs. Moreover, the PMU shall ensure that the works contracts under the project incorporate provisions that require contractors to (i) carry out HIV awareness programs for labor, and (ii) disseminate information at worksites on the risks of sexually transmitted diseases and HIV as part of health and safety measures for those employed during construction. Such contracts will also include clauses for termination in case of any breach of the stated provisions by the contractors. The social experts from the authority engineers will monitor the implementation.

68. Labor standards. The Government of Maharashtra and the PMU shall ensure that the works contracts under the project follow all applicable labor laws of the Government of India and the Government of Maharashtra state and that these further include provisions to the effect that contractors will (i) follow and implement all statutory provisions on labor (including not employing or using children as labor, equal pay for equal work), health, safety, welfare, sanitation, and working conditions. Such contracts will also include clauses for termination in case of any breach of the stated provisions by the contractors. The authority engineers will monitor the implementation.

69. Road safety. The PMU shall ensure that awareness campaigns on road safety will be carried out by the women's self-help groups/collectives (in coordination with the QII consultant) along the corridors of the project roads.

IX. PERFORMANCE MONITORING, EVALUATION, REPORTING, AND COMMUNICATION

A. Project Design and Monitoring Framework

70. The design and monitoring framework (DMF) for the project is in Appendix A.

B. Monitoring

71. **Project performance monitoring.** The achievement of the project performance targets will be assessed against the output and outcome indicators as stipulated in the DMF. The MPWD, assisted by the PMS and QII, will establish and implement a project performance management system within 3 months of loan effectiveness, in form and substance acceptable to ADB for use throughout the project period.

72. The MPWD, assisted by the PMS and QII, within 3 months of loan effectiveness, will establish disaggregated baseline data for performance indicators to be used for monitoring the achievement of project implementation. It will conduct annual evaluation surveys for each project road, in accordance with the project performance management system, to assess the scope, implementation arrangements, progress, and achievement of project objectives.

73. **Compliance monitoring.** Compliance with covenants will be monitored through ADB's (i) project administration missions, including the project inception mission, to discuss and confirm the timetable for compliance with the loan covenants; (ii) the project review missions to review the borrower's compliance with particular loan covenants and, where there is any noncompliance or delay, discuss proposed remedial measures with the government; and (iii) the midterm review mission, if necessary, to review covenants to assess whether they are still relevant or need to be changed, or waived due to changing circumstances.

74. **Environmental safeguards monitoring.** Monthly reports on the implementation of the mitigation measures onsite will be maintained by the contractor. Based on these records and fortnightly spot checks by the authority engineer's environmental specialist, monitoring reports will be compiled on a quarterly basis. These quarterly monitoring reports will be submitted for review and approval by the PMU with the support of the PMS. The PMS will consolidate the quarterly monitoring reports into semi-annual environmental monitoring reports and submit these to the PMU for review and approval and further forward these to ADB within 3 calendar months from the end of the respective reporting period for disclosure in the ADB website. Local disclosure will be done through the PIUs and to affected persons during consultations as necessary. Submission of monitoring reports will continue on semi-annual basis throughout construction and annually during operation until ADB prepares the project completion report. If there are any changes in the design or alignment, or unanticipated environmental impacts for any road, the respective EMP will be updated to account for any additional or new environmental impacts. Further need for revising the IEE report during project implementation will also be reviewed and confirmed in discussion with ADB.

75. **Social safeguard monitoring.** The safeguards focal officers of the PMU will be responsible for overall monitoring and evaluation of the project progress for social development and safeguards. Social development and safeguards will also be monitored by a social development specialist from ADB's South Asia Department.

76. **Internal monitoring.** An internal monitoring system will be established by the PMU with

the support of the PMS. A set of processes, outcomes, and baseline indicators will be developed by the PMS, and the baseline gathered at the onset of resettlement plan implementation. These indicators will include assessing whether resettlement goals have been achieved, whether livelihood and living standards have been restored, and provide recommendations for improvement. Monitoring will also ensure the recording of affected persons' views on resettlement issues, such as the displaced peoples' understanding of entitlement policies, options, and alternatives; site conditions; compensation valuation and disbursement; grievance redress procedures; and staff competencies. Moreover, the resettlement implementation agency in EPC 17 and EPC 18 and the authority engineers in the other EPC will develop a system to manage land acquisition and resettlement data (records of compensation and disbursements) as well as to maintain records of consultations, grievances, and redress.

77. **External monitoring.** Since the project has significant impacts and is categorized A for involuntary resettlement, an external social monitor will undertake verification of the PMU's internal monitoring. The involuntary resettlement external monitoring expert's terms of reference are attached as Appendix I.

78. **Gender and social dimensions monitoring.** The PMU with support from the PMS and QII will monitor GESI initiatives. The QII and the PMS consultants will prepare monthly progress reports on GESI activities. The QII, PMS, and gender and/or social development experts will also provide inputs on the implementation of the GESI action plan for the quarterly progress reports. GESI implementation progress will be reported every quarter, in accordance with the agreed GESI monitoring matrix and submitted to ADB as part of quarterly progress reports. The agreed GESI action plan monitoring matrix is in Appendix J. Sex-disaggregated data should be collected and reported in the semi-annual social monitoring reports.

79. **Monitoring reports.** Regular monitoring reports will be prepared and submitted to ADB within 3 calendar months from the end of the respective reporting period for disclosure. Table 14 provides more details on the required reports to be produced.

Table 14: Social Development Reporting Requirements

Type of Report	Content	Frequency	Responsibility
Progress report	Progress on land acquisition and resettlement activities, progress on indicators, results, issues affecting performance, constraints, variations from resettlement plans (if any) and reason for the same, and corrections recommended	Monthly	Resettlement plan implementation support agency and AEs to submit to PMU
Social monitoring report	Progress on land acquisition and resettlement activities, indicators, variations (if any) with explanation and outcome, recommended corrective actions	Semi-annually	PMU to submit to ADB
External monitoring report	Validation of the MPWD's internal monitoring report on land acquisition and resettlement activities	Semi-annually	PMU to submit to ADB
GESI implementation monitoring matrix	Progress on the implementation of the GESI action plan	Quarterly	PMU to submit to ADB
Resettlement completion report	Overall narrative of the land acquisition and resettlement process, outputs, and outcomes of indicators from baseline, key variations/changes, lessons learned	Once	PMU to submit to ADB

ADB = Asian Development Bank, AE = authority engineer, GESI = gender equality and social inclusion, MPWD =

Maharashtra Public Works Department, PMU = project management unit.

Note: The table lists all the reports related to the implementation of resettlement and GESI activities as well as internal reports already included in the terms of reference of the resettlement plan implementation support agency or external monitor. The list is not exclusive to the safeguards reports required to be disclosed as per the ADB Safeguard Policy Statement.

Source: Asian Development Bank.

C. Evaluation

80. An ADB inception mission will be fielded within 3 months after the loan and project agreements for the project are declared effective; thereafter, regular reviews will follow at least annually. As necessary, special loan administration missions and a midterm review mission will be fielded, under which any changes in scope or implementation arrangement may be required to ensure the achievement of project objectives. Within 6 months of physical completion of the project, the MPWD will submit a project completion report to ADB.¹⁷

D. Reporting

81. The MPWD will provide ADB with (i) quarterly progress reports in a format consistent with ADB's project performance reporting system; (ii) consolidated annual reports including (a) progress achieved by output as measured through the indicator's performance targets, (b) key implementation issues and solutions, (c) updated procurement plan, and (d) updated implementation plan for the next 12 months; and (iii) a project completion report within 6 months of physical completion of the project. To ensure that projects will continue to be both viable and sustainable, project accounts and the executing agency audited financial statement together with the associated auditor's report, should be adequately reviewed.

E. Stakeholder Communication Strategy

82. The project will follow ADB's standard consultation and disclosure requirements and provide relevant information, including information from the safeguard documents, in a timely manner, in an accessible place, and in a form and languages understandable to all affected people and other stakeholders. If the affected people are illiterate, other appropriate communication methods must be used, such as direct verbal communications through one-on-one or other meetings, and grievance redress meetings. In addition, with the support of the resettlement plan implementation support agency, the PMU will distribute leaflets outlining key project impacts and entitlements to affected persons, post the contact information about the grievance redress committee, conduct information sessions at the outset of project implementation, and follow up with consultative meetings to update road residents of civil work progress throughout the life of the project.

83. Salient information regarding the project, including scope, general progress status, beneficiaries, invitation for bid, and consultant recruitment notices, will be provided to the public. The information will be made available by the MPWD. The safeguard documents, i.e., initial environmental examination reports, including the EMP and the resettlement plans, and environmental and social monitoring reports, are posted on the ADB website.

84. Various information regarding the project—including scope, general progress status, beneficiaries, invitation for bids, and consultant recruitment notices—will be provided to the

¹⁷ Project completion report format is available at <https://www.adb.org/documents/guidelines-preparing-performance-evaluation-reports-public-sector-operations>.

general public. The information will be made available and updated through the official MPWD and ADB websites. ADB's communication strategy is summarized in Table 15.

Table 15: Project Communication Strategy

Project Documents	Means of Communication	Responsible Party	Frequency	Audience
Project data sheet	ADB website	ADB	Initial PDS no later than 30 calendar days from concept approval; quarterly updates afterward	General public
Design and monitoring framework	ADB website	ADB	Draft DMF after fact-finding mission	General public
Initial environmental examination report	ADB website MPWD website Panchayat offices	ADB PMU	Post fact-finding mission	General public, project-affected people in particular
Resettlement plans	ADB website MPWD website Panchayat offices	ADB PMU	Post fact-finding mission	General public, project-affected people in particular
Summary poverty reduction and social strategy	ADB website	ADB	Post fact-finding mission	General public, project-affected people in particular
Legal agreements	ADB website	ADB	No later than 14 days from Board approval of the project	General public
Project administration manual	ADB website	ADB	After loan negotiations	General public
Social monitoring reports	ADB website	ADB	Semi-annually	General public, project-affected people in particular
Environment monitoring report	ADB website	ADB	Semi-annually	General public, project-affected people in particular

ADB = Asian Development Bank, DMF = design and monitoring framework, MPWD = Maharashtra Public Works Department, PDS = project data sheet, PMU = project management unit.

Note: Resettlement plans and the initial environment examination report will be available on the MPWD project-specific website once established.

Source: Asian Development Bank.

X. ANTICORRUPTION POLICY

85. ADB reserves the right to investigate, directly or through its agents, any violations of the Anticorruption Policy relating to the project.¹⁸ All contracts financed by ADB shall include provisions specifying the right of ADB to audit and examine the records and accounts of the executing agency and all project contractors, suppliers, consultants, and other service providers. Individuals and/or entities on ADB's anticorruption debarment list are ineligible to participate in ADB-financed activity and may not be awarded any contracts under the project.¹⁹

¹⁸ Anticorruption Policy: <https://www.adb.org/documents/anticorruption-policy>.

¹⁹ ADB's Office of Anticorruption and Integrity website: <https://www.adb.org/site/integrity/main>.

86. To support these efforts, relevant provisions are included in the loan agreement and the bidding documents for the project

XI. ACCOUNTABILITY MECHANISM

87. People who are, or may in the future be, adversely affected by the project may submit complaints to ADB's Accountability Mechanism. The Accountability Mechanism provides an independent forum and process whereby people adversely affected by ADB-assisted projects can voice, and seek a resolution of their problems, as well as report alleged violations of ADB's operational policies and procedures. Before submitting a complaint to the Accountability Mechanism, affected people should make an effort in good faith to solve their problems by working with the concerned ADB operations department. Only after doing that, and if they are still dissatisfied, should they approach the Accountability Mechanism.²⁰

XII. RECORD OF CHANGES TO THE PROJECT ADMINISTRATION MANUAL

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

²⁰ Accountability Mechanism. <https://www.adb.org/who-we-are/accountability-mechanism/main>.

DESIGN AND MONITORING FRAMEWORK

Impacts the Project is Aligned with Sustainable, balanced, all-inclusive growth achieved across Maharashtra (Vision 2030) ^a Growth and industrialization promoted in the Marathwada and Vidarbha regions (Vision 2030) ^a			
Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
Outcome Transport efficiency, safety and access to markets and basic social services in Maharashtra improved and sustained	By 2028: a. Average travel time on project roads reduced by at least 30% (2022 baseline: 2.03 minutes per km for motorized transport) b. Average travel time for farmers to transport produce from Nanded to markets reduced by at least 30% (2022 baseline: 2.07 minutes per km for motorized transport) c. People in project areas who reported ease of access to health and education facilities increased by at least 5% (2022 baseline: 68% for health facilities and 58% for education facilities) (OP 1.1) d. At least 700 persons employed by the project (2022 baseline: 0) (OP 1.2) e. Average number of fatalities per year in road accidents on the project roads reduced by at least 10% (2021 baseline: 44 fatalities) f. Road safety corridor replicated in at least 60 km of the CRN (2022 baseline: Not applicable) g. Road sector maintenance modalities developed under this project replicated for at least 2 roads in the state with procurement initiated (2022 baseline: Not applicable)	a.–b. Travel time surveys on project roads by MPWD c. Survey of beneficiaries along the project roads and at the <i>janasuvidha kendras</i> ^b d. Progress reports endorsed by MPWD e. Police reports for road accidents along the project roads f.–g. Progress reports endorsed by MPWD	A: Coronavirus disease (COVID-19) pandemic has abated significantly and economic activities in Maharashtra have been revived.
Outputs 1. State highways and major district roads of the CRN upgraded and maintained	By 2027: 1a. At least 319 km of state highways and 149 km of major district roads upgraded with climate- and disaster-resilient features as well as features that responds to the needs of the elderly, women, children, and people with disability ^c (2022 baseline: 0) (OP 1.3.1; OP 2.4.1; OP 3.2.5; OP 5.1.1) 1b. 10-year performance-based maintenance contracts commenced for 468 km of roads (2022 baseline: 0)	1a.–1b. Progress reports endorsed by MPWD	R: Interruptions because of COVID-19 pandemic may cause unexpected delays in construction.

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
<p>2. New interstate roads connecting Nanded and Telangana developed and maintained</p> <p>3. Capacity for project monitoring, road safety and maintenance strengthened</p>	<p>2a. At least 5 km of major district roads constructed with climate- and disaster-resilient as well as features that respond to the needs of the elderly, women, children, and people with disability (2022 baseline: 0) (OP 1.3.1; OP 2.4.1; OP 3.2.5; OP 5.1.1)</p> <p>2b. 10-year performance-based maintenance contracts commenced for 5 km of new major district roads (2022 baseline: 0)</p> <p>By 2026:</p> <p>3a. Automated traffic survey and traffic direction systems implemented at 10 locations on project roads (2022 baseline: Not applicable)</p> <p>3b. Web interface and dashboard with real-time information to monitor traffic, design, contracting and construction progress, land acquisition, and compensation disbursement established and managed by the MPWD (2022 baseline: Not established)</p> <p>3c. Two road safety demonstration corridors with advanced technology, improved standards for design, construction, and enforcement established on project roads^d (2022 baseline: Not established)</p> <p>3d. At least 54 habitations in the project areas reached by road safety awareness campaigns of self-help groups led by women^e (2022 baseline: Not applicable)</p> <p>3e. At least two contract modalities for road maintenance involving private sector developed for other roads forming the CRN using output- and performance-based maintenance contracts or area-based contracts (2022 baseline: Not applicable)</p> <p>3f. Good practice handbook for climate change adaptation and disaster risk reduction in road design and maintenance developed and implemented in 5 roads (2022 baseline: Not applicable)</p>	<p>2a.–b. Progress reports endorsed by MPWD</p> <p>3a.–3d. Progress reports endorsed by MPWD</p> <p>3e. Report with recommendation on contract modality endorsed by MPWD</p> <p>3f. Final handbook on climate change adaptation and disaster risk reduction in road design and maintenance</p>	<p>R:</p> <p>Increase in prices of construction materials beyond projections may affect the total length of roads to be constructed.</p>

Results Chain	Performance Indicators	Data Sources and Reporting Mechanisms	Risks and Critical Assumptions
4. GESI promoted in highway works, schools, health, and social services	<p>By 2025:</p> <p>4a. Guidelines for gender equality and social inclusion (GESI)-responsive state highway works programs prepared and implemented at 8 locations^f (2022: Not applicable) (OP 6.2.1)</p> <p>4b. At least 36 people (of whom 80% are female) from 18 enterprises led by women of poor and disadvantaged groups provided with certified skills training for livelihood opportunities as wayside service providers^g (2022 baseline: Not applicable) (OP 2.1.1)</p> <p>4c. At least 18 water and sanitation facilities provided at schools along project roads^h (2022 baseline: zero) (OP 2.4.1; OP 5.1.1)</p> <p>4d. At least 3 demonstration <i>janasuvudha kendras</i> developed in three project districtsⁱ for women cane cutters and migrant population to provide basic health and sanitation, education, and other services (2022 baseline: Not applicable) (OP 2.5.1)</p> <p>4e. At least 15 people (of whom 90% are female) from self-help groups led by women reported increased knowledge and skills on operating the <i>janasuvudha kendras</i>ⁱ (2022 baseline: Not applicable) (OP 2.1.1)</p>	<p>4a. Final guidelines for GESI-responsive state highway works programs, and GESI monitoring reports endorsed by MPWD</p> <p>4b.–e. Survey results and GESI monitoring reports endorsed by MPWD</p>	

Key Activities with Milestones

1. State highways and major district roads of the CRN upgraded and maintained

- 1.1 Issue invitations for bids in Q1 2022.
- 1.2 Award civil works contracts by Q3 2022 and complete construction by Q4 2026.
- 1.3 Mobilize authority engineer by Q3 2022.
- 1.4 Commence road maintenance activities by Q4 2024.

2. New interstate roads connecting Nanded and Telangana developed and maintained

- 2.1 Issue invitations for bids in Q1 2022.
- 2.2 Award civil works contracts by Q3 2022 and complete construction by Q4 2026.
- 2.3 Mobilize authority engineer by Q3 2022.
- 2.4 Commence road maintenance activities by Q4 2024.

3. Capacity for project monitoring, road safety and maintenance strengthened

- 3.1 Recruit and mobilize quality infrastructure investment support consultant by Q1 2023.
- 3.2 Recruit project management services consultants by Q4 2022.
- 3.3 Hold road safety awareness campaign sessions by Q3 2024.
- 3.4 Prepare design of priority safe system measures for road safety corridors by Q3 2024.
- 3.5 Develop specifications for real-time technology and traffic systems by Q2 2023.
- 3.6 Prepare refined contract modalities and bidding documents for private sector participation by Q3 2024.
- 3.7 Develop good practice handbook for climate change adaptation and disaster risk reduction in road design and maintenance by Q4 2024.
- 3.8 Establish and manage automated traffic survey and directions systems as well as project-specific web interface and dashboard by Q3 2023.
- 3.9 Issue invitation for bids for demonstration corridors in Q2 2025.

3.10 Implement road safety demonstration corridors and advanced technology by Q4 2026.

4. GESI promoted in highway works, schools, and health and social services

4.1 Prepare guidelines for GESI-responsive works program by Q2 2024.

4.2 Conduct livelihood skills training for people from poor and disadvantaged groups of enterprises led by women as wayside service providers by Q4 2024.

4.3 Construct water and sanitation amenities at schools by Q4 2024.

4.4 Establish *janasuvidha kendras* by Q4 2024.

Inputs

ADB: \$350 million (loan)

Government: \$155 million

A = assumption; ADB = Asian Development Bank; CRN = core road network; EWCD = elderly, women, children, and people with disability; GESI = gender equality and social inclusion; km = kilometer; MPWD = Maharashtra Public Works Department; OP = operational priority; Q = quarter; R = risk.

^a Government of Maharashtra, Planning Department. 2017. *Vision 2030*. Mumbai.

^b The *janasuvidha kendra* based on the feasibility study may include health services such as women's reproductive health care; primary health care; water and sanitation services; early childhood care, creche facilities, and education facilitation; child protection units; food grain public distribution system centers; and other one-stop service centers to ensure access to banking and social protection schemes.

^c EWCD-responsive features include well-marked crossings, safety signage, pedestrian walkways, railings along roads, covered drains, paved shoulder (hard shoulder) and earthen shoulder (soft shoulder), speed bumps, rumble strips, guard stones, and solar blinkers. Other gender-responsive features include streetlights; well-lit bus stops, with closed-circuit television (CCTV) cameras at warranted locations; and separate toilets suitable for women, children, and people with disability. Climate adaptation and disaster risk reduction features are design interventions based on existing risks and projected climate change impacts that will be identified through the climate risk and adaptation assessment.

^d Road safety demonstration corridors will include improved standards for road design and construction, improved enforcement of safe driving behavior, and targeted initiatives focused on vulnerable road users. Technologies include drainable and high-friction pavement, new material and equipment for delineation, and warning and reporting systems through mobile devices. Climate adaptation and disaster risk reduction features will also be incorporated.

^e The project defines self-help groups led by women as those with more than 90% women members. This is based on the national government scheme, Deendayal Antyodaya Yojana–National Rural Livelihoods Mission (DAY–NRLM), where nearly all self-help groups are 100% women except in some cases such as “persons with disabilities, and other special categories like elders, transgenders, DAY–NRLM will have both men and women in the Self-Help Groups.” https://www.rbi.org.in/Scripts/BS_ViewMasCircularDetails.aspx?id=11743.

^f GESI-responsive program includes GESI mainstreaming mechanism in planning, construction, and maintenance of state highway works. This will include but not be limited to (i) integration of GESI issues and concerns in project planning and design, (ii) mechanism for women's participation in project planning and design, (iii) elements for safety of women and children during construction and integration of requisite advisory and provisions in contractor's contract for the same, and (iv) GESI elements integrated into maintenance contracts.

^g ADB. 2021. *Guidelines for Gender Mainstreaming Categories of ADB Projects*. Manila (March). Enterprises owned or led by women are defined using the International Finance Corporation's definition: (i) $\geq 51\%$ of the enterprise is owned by a woman/women; or (ii) $\geq 20\%$ of the enterprise is owned by a woman/women, and (a) has ≥ 1 woman as chief executive officer/chief operating officer/president/vice-president; and (b) has $\geq 30\%$ of the board of directors composed of women, where a board exists.

^h Water and sanitation facilities include (i) separate toilets for girls and differently abled persons with running water, handwashing station with soap and water; (ii) space for change of clothes, dustbins, or incinerators for safe disposal of menstrual products; and (iii) safe piped drinking water facilities.

ⁱ The districts of Kolhapur, Sangli, and Satara are the major sugarcane producing districts of the Maharashtra state.

^j The self-help groups will be identified through a needs assessment based on their availability and willingness to operate the *janasuvidha kendras*.

Contribution to Strategy 2030 Operational Priorities:

In the report and recommendation of the President, the expected values and methodological details for all OP indicators to which this operation will contribute results will be detailed in the Contribution to Strategy 2030 Operational Priorities linked document. In addition to the OP indicators tagged in the design and monitoring framework, this operation will contribute results for:

OP 2.1: Skilled jobs for women generated (number)

OP 6.2: Entities with improved service delivery (number)

Source: Asian Development Bank.

PROCUREMENT PLAN

Basic Data

Project Name: Connecting Economic Clusters for Inclusive Growth in Maharashtra	
Project Number: 52298-002	Approval Number:
Country: India	Executing Agency: Public Works Department of the Government of Maharashtra
Project Procurement Risk: Low	Implementing Agency: Public Works Department of the Government of Maharashtra
Project Financing Amount: \$505,000,000 ADB Financing: \$350,000,000 Cofinancing (ADB Administered): Non-ADB Financing: \$155,000,000	Project Closing Date: 30 July 2027
Date of First Procurement Plan: 19 August 2021	Date of this Procurement Plan: 11 July 2022
Procurement Plan Duration: 18 months	Related to COVID-19 response efforts: No
Advance Contracting: Yes	Use of e-procurement (e-GP): Yes https://mahatenders.gov.in

A. Methods, Review, and Procurement Plan

1. Except as the Asian Development Bank (ADB) may otherwise agree, the following methods shall apply to procurement of goods, works, and consulting services.

Procurement of Goods and Works	
Method	Comments
Open competitive bidding (OCB) for goods	Up to \$100,000.00
Open competitive bidding (OCB) for works	National advertisement up to \$40 million

Consulting Services	
Method	Comments
Quality- and cost-based selection for consulting firm	International and national selection 90:10
consultant's qualification selection for consulting firm	
Competitive for individual consultant	

B. Lists of Active Procurement Packages (Contracts)

2. The following table lists goods, works, and non-consulting and consulting services contracts for which the procurement activity is either ongoing or expected to commence within the procurement plan duration.

Goods and Works							
Package Number	General Description	Estimated Value (\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
EPC 10	Improvement of SH68 Road from Siddhatek (Pune) to Korti (Solapur); reconstruction, widening, and strengthening of carriageway in SH-68 (km 103/650–127/200 and km 0/000–km 0/430 near Siddhatek	18,073,801.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes

Goods and Works							
Package Number	General Description	Estimated Value (\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
	temple to 2 lanes with paved shoulders, District Ahmednagar						e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 11	Improvement of MDR-84 Road from NH-9 (Pune–Solapur) to Khadki–Paravadi–Shetphalgade–Lakadi–Nimbodi–Bhawani Nagar–Sansar Kurwali; reconstruction, widening, and strengthening of carriageway in MDR-84 (km 00/00–Llgoo) to 2 lanes, Tal Indapur, District Pune	17,125,853.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 12	Improvement of Yavat Malshiras Saswad Kapurhol Bhor Mandardev Wai Surur Road; reconstruction, widening, and strengthening of existing carriageway in SH-119 (km 76/000–117/100 and 0/000–4/257) to 2 lanes in Tal. Bhor and Wai, Districts Pune and Satara	26,998,955.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 13	Improvements to SH 149 Road from SH 117 to Adarki Mirgaon Phaltan Road; reconstruction, widening, and strengthening of existing carriageway in (SH 149 from km 0/000–21/000) to 2 lanes with paved shoulders in Tal. Phaltan District Satara	14,260,436.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 14	Improvement of SH-	19,474,931.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes

Goods and Works							
Package Number	General Description	Estimated Value (\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
	191 Road from NH 204 to Kerli Kotolo Nandgaon Nanadari Road; reconstruction, widening, and strengthening of carriageway in SH-191 from km 0/000 to 24/000 to 2 lanes with earthen shoulders standards in Tal. Panhala District Kolhapur						Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 15	Improvement of Karnia–Bharsingi–Jalalkheda–Mowad to District border (SH-323) District Nagpur (km 51+600 to km 62+100) and improvement to Kalmeshwar–Gorad–Mohpa–Telgaon Road (SH 349) District Nagpur	12,275,115.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 16	Improvement of MDR-10 from Balapur MSH-7 to Kandil Bothi Rameshwar Tanda Wadagon Girgaon to NH-161; reconstruction, widening, and strengthening of carriageway of MDR-10 from km 0/000 to 28/672 and 0/000–0/300 Girgaon Towan approach road to 2 lanes, District Hingoli	24,983,514.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 17	Improvement of Nila Junction Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur to Naigaon to	37,498,968.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes

Goods and Works							
Package Number	General Description	Estimated Value (\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
	MDR 83 in Nanded District, (1) part of Nila and Mugat junctions; (2) Chaitanya Nagar Shiv Mandir to Asna Bridge; (3) Brahmanwada Bypass Road, District Nanded						Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 18	Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur–Naigaon to SB MDR-83, (1) part of Mugat and Khujda Junction, (2) Aamdura Bypass, (3) Aamdura Bypass Link Road, (4) Malkautha Bypass, District Nanded	28,472,641.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 19	Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur to Naigaon to MDR-83 in Nanded District and part of Khujda Junction to Karegaon Phata km 34/750 to 60/400, District Nanded	29,492,394.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 20	Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur to Naigaon to MDR-83 in Nanded District, (1) part of Karegaon Phata to km 60/400–82/065, (2) part of	35,593,413.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication

Goods and Works							
Package Number	General Description	Estimated Value (\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
	Dharmadabad to Balapur IIT to km 0/00–5/715, District Nanded						Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 21	Improvement of Kalyan Nagar Pathridi Nanded Bhokar Maisha Nirmal Road NH 61 km 592/00 to 615/00 (Part-Bhokar–Rahati to State Border), Bhokar, District Nanded	11,397,877.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 22	Improvement of Ranjani–Kumbharpimpalgaon–Rajatakali (SH-222); reconstruction, widening, and strengthening of carriageway in SH-222 from km 177/400 to railway track LC No. 89–km 214/815 to 2 lanes in Tal. Ghansawangi District Jalna	27,704,330.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 23	Improvements to Pusesavali Vangi Nagathane Walwa Borgaon Bahe Tambave Kasegaon Wategaon Takave Road; reconstruction, widening, and strengthening carriageway in SH-158 from km 28/470–69/460 and km 0/00–0/340 to 2 lanes in Tal. Walwa District Sangli	25,773,887.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract

Goods and Works							
Package Number	General Description	Estimated Value (\$)	Procurement Method	Review	Bidding Procedure	Advertisement Date (quarter/year)	Comments
EPC 24	Improvement of Pusesavali Vangi Nagthane Walwa Borgaon Bahe Tambave Kasegaon Wategaon Takave Road; reconstruction, widening, and strengthening of existing carriageway in SH-158 from km 70/000–112/620 to 2 lanes in Tal. Wawa District Sangli	28,366,570.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 25	Improvement of SH 54 Road from Pune District Border to Diskal–Bhigwan–Madanwadi–Shetphalgade–Janaikwadi–Lamjewadi–Vanjarwadi; reconstruction, widening, and strengthening of carriageway in SH 54 from km 145/000–173/200 to 2 lanes in Tal. Indapur District Pune	22,097,129.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract
EPC 26	Improvement SH 23 Road from Bari to Ghoti Sinnar Road; reconstruction, widening, and strengthening of existing carriageway in SH 23 km 191/980–205/380 to two lanes with earthen shoulders, Tal. Igarpuri District Nashik	9,887,070.00	OCB	Prior	1S2E	Q1/2022	Non-Consulting Services: Yes Advertising: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Advance Contracting: Yes Bidding Document: Large Works High Risk Contract: No e-GP: Yes e-GP Type: e-Publication Covid-19 Response? No Comments: Engineering, Procurement, Construction Contract

Consulting Services							
Package Number	General Description	Estimated Value (\$)	Selection Method	Review	Type of Proposal	Advertisement Date (quarter/year)	Comments
AE-3	Authority Engineer (including social safeguards such as resettlement monitoring) for work Package No. EPC 10, 11, 12, 13, 14, 23, 24, 25, 26	2,450,561.00	QCBS	Prior	FTP	Q4/2021	Non-Consulting Services: No Type: Firm Assignment: National Quality–Cost Ratio: 90:10 Advance Contracting: Yes e-GP: No Covid-19 Response? No Comments: The Authority Engineer will be engaged for supervision of construction and maintenance activities for the listed packages.
AE-4	Authority Engineer (including social safeguards such as resettlement monitoring) for work Package No. EPC 15, 16, 17, 18, 19, 20, 21, 22	2,417,665.00	QCBS	Prior	FTP	Q4/2021	Non-Consulting Services: No Type: Firm Assignment: National Quality–Cost Ratio: 90:10 Advance Contracting: Yes e-GP: No Covid-19 Response? No Comments: The Authority Engineer will be engaged for supervision of construction and maintenance activities for the listed packages.
C 2	Project management services	590,000.00	QCBS	Prior	BTP	Q2/2022	Non-Consulting Services: No Type: Firm Assignment: National Quality–Cost Ratio: 90:10 Advance Contracting: Yes e-GP: No Covid-19 Response? No
EM	Resettlement plan external monitoring services	10,000.00	Competitive	Prior		Q4/2022	Non-Consulting Services: No Type: Individual Assignment: National Expertise: Involuntary Resettlement Advance Contracting: Yes e-GP: No Covid-19 Response? No
FMS	Management services (internal audit)	200,000.00	CQS	Prior	BTP	Q4/2022	Non-Consulting Services: No Type: Firm Assignment: National Advance Contracting: Yes e-GP: No Covid-19 Response? No
QII	Quality infrastructure investment services	1,000,000.00	QCBS	Prior	STP	Q4/2022	Non-Consulting Services: No Type: Firm Assignment: National Quality–Cost Ratio: 90:10 Advance Contracting: Yes e-GP: No Covid-19 Response? No
RPISA	Resettlement plan implementation support agency	35,000.00	CQS	Prior	BTP	Q3/2022	Non-Consulting Services: No Type: Firm Assignment: National Advance Contracting: Yes e-GP: No

Consulting Services						
Package Number	General Description	Estimated Value (\$)	Selection Method	Review	Type of Proposal	Advertisement Date (quarter/year)
						Covid-19 Response? No

C. List of Indicative Packages (Contracts) Required Under the Project

3. The following table lists goods, works, and non-consulting and consulting services contracts for which procurement activity is expected to commence beyond the procurement plan duration and over the life of the project (i.e., those expected beyond the current procurement plan duration).

Goods and Works						
Package Number	General Description	Estimated Value (\$)	Procurement Method	Review	Bidding Procedure	Comments
EPC 27	Additional works package	14,900,000.00	OCB	Prior	1S2E	Non-Consulting Services: Yes Advertising Type: National No. of Contracts: 1 Prequalification of Bidders: No Domestic Preference Applicable: No Bidding Document: Large Works e-GP: Yes Covid-19 Response? No

Consulting Services						
Package Number	General Description	Estimated Value (\$)	Selection Method	Review	Type of Proposal	Comments
None						

TERMS OF REFERENCE FOR AUTHORITY ENGINEERS

A. Background

1. The Government of India has applied for a loan from the Asian Development Bank (ADB) toward the cost of road improvements in Maharashtra with the primary objective of improvement of state highways and major district roads under engineering, procurement, and construction (EPC) contracts. The Maharashtra Public Works Department (MPWD), defined as the Authority in these terms of reference, will be the executing agency of the project.

2. Under the project, 468.36 kilometers (km) of state highways and major district roads are proposed for improvement under EPC contracts detailed in Table C1. The project is expected to commence by April 2022. The Authority intends to appoint an Authority Engineer (AE) for the packages grouped in Table C1.

Table C1: Engineering, Procurement, and Construction Package Groups

Consultancy Package No.	Project Name	Length (km)	Contract Period	Estimated EPC Cost in Rs Crore	Estimated Duration of Services of the AE*
AE Package 3	EPC 10: Improvement of SH 68 Road from Siddhatek (Pune) to Korti (Solapur); reconstruction, widening, and strengthening of carriageway in SH-68 (km 103/650–127/200 and km 0/000–km 0/430 near Siddhatek temple to 2 lanes with paved shoulders, District Ahmednagar	23.98	12 years	132.55	12 years
	EPC 11: Improvement of MDR-84 Road from NH-9 (Pune-Solapur) to Khadki-Paravadi-Shetphalgade-Lakadi-Nimbodi-Bhawani Nagar-Sansar Kurwali; reconstruction, widening, and strengthening of carriageway in MDR-84 (km 00/000) to 2 lanes with paved shoulder stabdrads, Tal Indapur, District Pune	21.90	12 years	125.60	12 years
	EPC 12: Improvement of Yavat Malshiras Saswad Kapurhol Bhor Mandardevi Wai Surur Road; reconstruction, widening, and strengthening of existing carriageway in SH-119 (km 76/000-117/100 and 0/000-4/257) to 2 lanes in Tal. Bhor and Wai, Districts Pune and Satara	45.36	12 years	198.01	12 years
	EPC 13: Improvements to SH 149 Road from SH 117 to Adarki Mirgaon Phaltan Road; reconstruction, widening, and strengthening of existing carriageway in SH 149 from km 0/000–21/000 to 2 lanes with paved shoulders in Tal. Phaltan District Satara	21.00	12 years	104.59	12 years
	EPC 14: Improvement of SH-191 Road from NH 204 to Kerli Kotolo Nandgaon	24.00	12 years	142.83	12 years

Consultancy Package No.	Project Name	Length (km)	Contract Period	Estimated EPC Cost in Rs Crore	Estimated Duration of Services of the AE*
	Nanadari Road; reconstruction, widening, and strengthening of carriageway in SH-191 from km 0/000 to 24/000 to 2 lanes with earthen shoulders standards in Tal. Panhala District Kolhapur				
	EPC 23: Improvements to Pusesavali Vangi Nagathane Walwa Borgaon Bahe Tambave Kasegaon Wategaon Takave Road; reconstruction, widening, and strengthening of carriageway in SH-158 from km 28/470–69/460 and km 0/00–0/340 to 2 lanes in Tal. Walwa, District Sangli	41.33	12 years	189.03	12 years
	EPC 24: Improvement of Pusesavali Vangi Nagthane Walwa Borgaon Bahe Tambave Kasegaon Wategaon Takave Road; reconstruction, widening, and strengthening of existing carriageway in SH-158 from km 70/000–112/620 to 2 lanes in Tal. Wawa District Sangli	42.62	12 years	208.04	12 years
	EPC 25: Improvement of SH 54 Road from Pune District Border to Diskal–Bhigwan–Madanwadi–Shetphalgade–Janaikwadi–Lamjewadi–Vanjarwadi; reconstruction, widening, and strengthening of carriageway in SH 54 from km 145/000–173/200 to 2 lanes in Tal. Indapur District Pune	28.20	12 years	162.06	12 years
	EPC 26: Improvement SH 23 Road from Bari to Ghoti Sinnar Road; reconstruction, widening, and strengthening of existing carriageway in SH 23 km 191/980–205/380 to two lanes with earthen shoulders, Tal. Igalpuri District Nashik	13.32	12 years	72.51	12 years
AE Package 4	EPC 15: Improvement of Karnia-Bharsingi–Jalalkheda–Mowad to district border (SH-323) District Nagpur (km 51+600 to km 62+100)	10.50	12 years	47.74	12 years
	EPC 15: Improvement of Kalmeshwar–Gorad–Mohpa–Telgaon Road (SH 349) District Nagpur	9.25	12 years	42.28	12 years
	EPC 16: Improvement of MDR-10 from Balapur MSH-7 to Kandil Bothi Rameshwar Tanda Wadagon Girgaon to NH-161; reconstruction, widening, and strengthening of carriageway of MDR-10 from km 0/000–28/672 and 0/000–0/300 Girgaon Towan approach road to 2 lanes, District Hingoli	28.67	12 years	183.23	12 years

Consultancy Package No.	Project Name	Length (km)	Contract Period	Estimated EPC Cost in Rs Crore	Estimated Duration of Services of the AE*
	EPC 17: Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur to Naigaon to MDR 83 in Nanded District, (1) Part of Nila and Mugat junctions; (2) Chaitanya Nagar Shiv Mandir to Asna Bridge; (3) Brahmanwada Bypass Road, District Nanded	19.92	12 years	275.02	12 years
	EPC 18: Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur–Naigaon to SB MDR-83; (1) Part of Mugat and Khujda Junction; (2) Aamdura Bypass; (3) Aamdura Bypass Link Road; (4) Malkautha Bypass, District Nanded	25.84	12 years	208.82	12 years
	EPC 19: Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur to Naigaon to MDR-83 in Nanded District and (1) part of Khujda Junction to Karegaon Phata km 34/750 to 60/400, District Nanded	25.65	12 years	216.30	12 years
	EPC 20: Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur to Naigaon to MDR-83 in Nanded District, (1) Part of Karegaon Phata to km 60/400–82/065, (2) Part of Dharmadabad to Balapur IIT to km 0/00–5/715, District Nanded	27.38	12 years	261.04	12 years
	EPC 21: Improvement of Kalyan Nagar Pathridi Nanded Bhokar Maisha Nirmal Road NH 61 km 592/00 to 615/00 (Part–Bhokar–Rahati to State Border), Bhokar, District Nanded	22.03	12 years	83.59	12 years
	EPC 22: Improvement of Ranjani–Kumbharpimpalgaon–Rajatakali (SH-222); reconstruction, widening, and strengthening of carriageway in SH-222 from km 177/400 to railway track LC No. 89–km 214/815 to 2 lanes in Tal. Ghansawangi District Jalna	37.42	12 years	203.18	12 years

AE = authority engineer, EPC = engineering, procurement, and construction, km = kilometer, MDR = major district road, NH = national highway, Rs = rupees, SH = state highway.

* 24 months construction period + 10 years operations and maintenance period.

3. The Authority intends to appoint the Authority Engineer (AE) for the packages as grouped

in Table C2.

Table C2: Authority Engineer Consultancy Packages

Consultancy Package	EPC Number
Authority Engineer Consultancy Package No. 3 (For Ahemdnagar, Nashik Circle, Pune, and Satara)	EPC Contract Package No. 10
	EPC Contract Package No. 11
	EPC Contract Package No. 12
	EPC Contract Package No. 13
	EPC Contract Package No. 14
	EPC Contract Package No. 23
	EPC Contract Package No. 24
	EPC Contract Package No. 25
	EPC Contract Package No. 26
Authority Engineer Consultancy Package No. 4 (For Aurangabad, Jalna Circle, and Nanded)	EPC Contract Package No. 15
	EPC Contract Package No. 16
	EPC Contract Package No. 17
	EPC Contract Package No. 18
	EPC Contract Package No. 19
	EPC Contract Package No. 20
	EPC Contract Package No. 21
	EPC Contract Package No. 22

EPC = engineering, procurement, and construction.

4. The Authority Engineer will be appointed for a period of 12 years (2 years construction period + 10 years operation and maintenance period) under the provisions of this contract.

5. Interested engineering firms may submit their expression of interest for the two packages. If the firm gets shortlisted for both packages, a request for proposal (RFP) will be issued for both packages to shortlisted firms. Firms can submit their bid for both eligible packages. However, a firm will be allotted a maximum of one package. This selection of package will be based on quality- and cost-based selection (QCBS) including assessment of least cost to the department under special circumstances, i.e., when an AE with a particular team becomes the most preferred bidder (H-1) in more than one package. Details of the assessment procedure will be provided in the RFP.

B. Objectives of the Assignment

6. Following are the objectives of the consultancy assignment for the Authority Engineer:
- (i) to ensure high quality designs and construction of all works, project management, timely implementation of the project, compliance with safeguards requirements of the contract and ADB's Safeguards Policy Statement (2009), and generally meeting all contract requirements as per good engineering practices, the EPC agreement, which conforms with applicable standards and technical specifications; and
 - (ii) to train and build capacity in the Authority's staff and designated contractor's staff.

C. Scope of Services, Tasks, Components, and Expected Deliverables

1. Scope and Standards of Performance

7. These terms of reference (TOR) for the Authority Engineer (AE) relate to the EPC agreement for the project packages. The EPC agreement will be awarded competitively by the MPWD, the Authority, to the lowest evaluated bidder (subsequently referred to as the Contractor), in accordance with ADB's Procurement Regulations for ADB Borrowers: Goods, Works, Consulting and Non-Consulting Services (2017, as amended from time to time). The term "Authority" shall, unless repugnant to the context or meaning thereof, include its administrators, successors, and assigns. The term "Contractor" refers collectively to any subcontractors, suppliers, designers, consultants, etc. employed by the Contractor in fulfillment of its obligations provided under the EPC agreement. The AE will be selected competitively in accordance with the Procurement Regulations for ADB Borrowers: Goods, Works, Consulting and Non-Consulting Services (2017, as amended from time to time).

8. In taking actions and making decisions, the AE shall be guided by professional values of project management, encompassing responsibility, respect, fairness, and honesty. The AE shall exercise its responsibility by taking ownership for decisions made, actions taken, and the consequences that may result. The AE's decisions and actions shall be based on the best interests of the parties to the EPC agreement, as well as public safety and social and environmental safeguards. If necessary, the AE shall be ready to take ownership for errors and omissions, promptly communicate them to the affected parties, and make corrections. The AE shall be fully familiar with and uphold the agreed policies, rules, and the respective rights and obligations of the Authority and the Contractor under the EPC agreement. The AE shall demonstrate respect by listening to and understanding the views of others, negotiating in good faith, and not acting in an abusive and arbitrary manner. It shall always remain the duty of the AE to apply fairness through conduct that is conducive to consistent impartiality and objectivity. Transparency, truthfulness, and avoidance and/or disclosure of real or potential conflicts of interest shall complement the AE's reputation for honesty.

2. General Duties and Functions

9. The AE shall be responsible for the review of designs prepared by the EPC Contractors, including drawings and specifications, superintendence of the EPC Contractor's performance under the EPC agreement, progress monitoring, technical and quality control, evaluations of construction, certification, and completion of the works by the EPC Contractor, and duties related to taking over and the defects liability period. The AE shall be present at all times during the day-to-day implementation of the design and construction period and as required for the fulfilment of its assignment during the operations and maintenance (O&M) period. Having been appointed by the Authority, in consultation with the EPC Contractor, and delegated specific authorities in the EPC agreement, the AE shall be fully responsible for superintendence of the EPC Contractor's performance in all phases of the EPC agreement. The AE shall at all times be adequately staffed, in terms of numbers and professional skills, to carry out its responsibilities with the competence and diligence required for this assignment.

10. The Authority Engineer may organize staff and activities as it wants, provided that it satisfies the requirements of these TOR and the contract between the Authority and the EPC Contractor. A list of essential Key Professional Staff as well as Subprofessional Staff is given in subsequent sections of these TOR. The AE should provide for adequate non-key (support) staff, including administrative, accounts, and service staff, to address the requirements of a project of this nature in an efficient and effective manner. For package number AE-3, the AE should set up its main office in Satara city and camp offices in Ahmednagar, Kolhapur, Nashik, Pune, and Sangli. For package number AE-4, the AE should set up its office in Nanded city and camp offices in Hingoli, Nagpur and Jalna city.

11. The AE shall exercise the authority delegated to it by the Authority, within the parameters established in the EPC agreement. Following is a summary of the delegated authorities, roles, and functions of the AE:

- (i) Review of the drawings (working and as-built), specifications, and related documents, including detailed engineering and design documents and design and construction progress reports prepared by the EPC Contractor
- (ii) Review, inspection, and superintendence of the construction works including environmental management plan, resettlement action and social safeguard plan, traffic management program, work zone safety plan and other special management programs as set forth in the EPC agreement; work with the EPC Contractor to ensure timely and on budget execution of the road works
- (iii) Ensure the EPC Contractor's fulfillment of the quality assurance plan by visual observation, random measurements, and laboratory tests. Conducting tests and inspections on completion of construction and issuing Completion/Provisional Completion Certificate as set forth in the EPC agreement
- (iv) Coordination with stakeholders including performing related duties and functions, as necessary, for the EPC Contractor's successful and timely completion of the highway project under the EPC agreement
- (v) Certification of payments
- (vi) Review, inspection, and superintendence of O&M as set forth in the EPC agreement
- (vii) Contract administration
- (viii) Review, inspection, and monitoring of divestment requirements as set forth in the EPC agreement
- (ix) Assisting the parties to the EPC agreement in resolving disputes, differences, or controversies in accordance with the applicable provisions of the EPC agreement and dispute resolution clause of the EPC agreement
- (x) Determining the costs of any works or services and/or their reasonableness, as required under the EPC agreement
- (xi) Determining the period or any extension thereof, for performing any duty or obligation as required under the EPC agreement
- (xii) Reporting progress of the works on a monthly basis
- (xiii) Cooperating with the Third-Party Quality Monitoring Team appointed by the Authority, including the engineers from the vigilance and quality control circle of the Public Works Department to carry out its tasks
- (xiv) Undertaking all other duties and functions in accordance with the EPC agreement
- (xv) Executing resettlement plan implementation by deploying two dedicated separate team members

12. **Delegation of AE duties.** The AE may, from time to time, assign duties and further delegate authority to key personnel and may also revoke such assignments and delegations. These assignments, delegations, and revocations shall not take effect until they have been duly notified to the Authority and the EPC Contractor. Each key expert shall only be authorized to issue instructions to the EPC Contractor to the extent defined in the notice of delegation. Any approval, instruction, notice, request, or similar act by key personnel, in accordance with this delegation, shall have the same effect as though the act had been an act of the AE. The AE will appoint the Senior Highway Engineer to act as team leader (TL) as mentioned in the contract documents, and who will reside full-time at the project site during construction. The TL will interact with the designated Authority's representative. The TL shall delegate some of his/her authority to *other key experts*, who will act as the AE's representative at the construction site supervision teams.

Each supervision team will be composed of several professionals. The AE shall define in its technical proposal the number of supervision teams and the overall supervision approach for the project. The proposals shall describe how the AE will establish a mechanism, which will ensure coordination of the supervision teams, so that each team is at all times fully aware of the remedies to problems used by the other teams. This will ensure that the full experience of the AE can be applied in all works.

13. **Staff training.** The AE shall arrange training for the Authority's staff (about 25 persons) including field visits to the ongoing works under the AE's supervision to improve their ability to supervise and manage the road and bridge works and the environmental impacts of construction. The training module shall be finalized in consultation with the Authority.

14. **Training structure.** The training program shall comprise both classroom and on-the-job training. The proposal shall contain a detailed training program that is beneficial for developing capacity within the project's staff (and some designated contractor's staff). An outline of the training is provided Table C3. However, the outline of the training is only a minimum requirement. The AE can further develop on the outline to develop a robust program. The cost and expenses in relation to the training arrangements including venue arrangement, lunch/dinner, projector/sound/AV systems, and stay for trainees shall be borne by the AE. For classroom training purposes, the location of the training shall be the location of the project implementation unit (PIU) or project management unit (PMU). For classroom trainings, the trainees through their offices will meet the expenditures of travel, transportation, and boarding charges. The AE will meet the expenditure required for conducting the training, such as for training venue, resource persons, training material, etc. In the case of on-the-job training, the cost of transportation for the trainees from base location to training location will be borne by the trainees themselves while the AE will meet the expenses for boarding, lodging and food, local transportation to the site, etc.

15. The timelines for trainings shall be finalized in agreement with the MPWD. However, the AE shall ensure that the first round of trainings is scheduled immediately post letter of authorization and the next refresher session shall be held with 3 months of commencement date.

Table C3: Part 1–Classroom Training

Sl. No.	Training Module Details	Objective	Target Skill Set to be Developed	Time/ Duration
1.	Operational Assessment and Contract Management <ul style="list-style-type: none"> • Introduction • Objectives • Introduction to conditions of contract • Role of EPC Contractor, Authority Engineer, and Employer • Contract management in PPPs • Introduction to Key Performance Indicators • Analysing performance against KPIs • Contract management • Value testing methods • Review • Tutorial 	<p>The objective of the module is to provide concerned personnel with the knowledge of contract management and roles to be played by each party. The focus should be on what are the detailed roles, specific tool/formats used in monitoring of the contract (KPI monitoring during both construction and O&M periods); escalation triggers in case of non-performance; issues in contract management, etc. International best practices like value testing in the operation period shall also be introduced.</p>	<p>The training will enable personnel to appreciate the role of contract management in PPPs and understand the "how" part of contract management.</p>	<p>Two trainings of 1 day each (may be organized at a time in agreement with PIUs)</p>

Sl. No.	Training Module Details	Objective	Target Skill Set to be Developed	Time/ Duration
2.	Project Management <ul style="list-style-type: none"> • Introduction • Objectives • Principles of project management • Principles of good governance in PPPs • Introduction to project management tools • Demonstration of Microsoft Project, Primavera • Stakeholder management • Conclusion • Review • Tutorial 	The objective of the module will be to provide an overview of project management and governance in PPPs. The module shall also introduce relationship and trust-based approaches in governance.	The training shall enable the personnel to appreciate the role of project management and governance in the successful delivery of a PPP project.	1 day (may be organized at a time in agreement with PIUs)

EPC = engineering, procurement, and construction, KPI = key performance indicator, O&M = operations and maintenance, PIU = project implementation unit, PPP = public-private partnership.

16. **Part 2—On-the-job training.** PIUs shall identify trainees to work alongside the Authority Engineer for a period of 5 days. The Authority Engineer shall develop an on-the-job training program for the trainees in discussion with PIUs and synchronized with the classroom training modules. The Authority Engineer shall review the trainees on their performance in on-the-job training and shall provide MPWD an understanding on what improvements are required for each trainee and in what direction.

17. **Authority to amend the EPC agreement.** The AE shall have no authority to amend, suspend, or terminate the EPC agreement with regard to the EPC Contractor's rights and obligations, without written instructions from the Authority.

18. **Meetings with the Authority.** The AE shall interact with the Authority's designated officers and staff on a regular basis and attend the Authority's monthly meetings to review the EPC Contractor's progress during the preceding month. The AE shall make available its assistants and other key staff, as required for these monthly meetings. The issues discussed between the AE and the Authority shall be recorded in the minutes of the meeting and remain on the agenda of subsequent meetings, until they are fully resolved.

19. The AE shall chair monthly meetings with the EPC Contractor. During these meetings, formal minutes will be taken by the AE and distributed to the EPC Contractor and the Authority.

20. **Meetings with Asian Development Bank.** The AE shall be available to attend meetings with ADB missions during their visits to the Authority and on field trips.

21. **Management information systems.** The AE shall make use of the management information systems (MIS) in carrying out its assignment and provide read-only remote access to its MIS records and reports to the Authority and the EPC Contractor. Confidential records and reports shall be exempted from this requirement for remote access to the AE's MIS.

22. **Record of digitized inventory.** Upon completion of its assignment, the AE shall obtain, sort, and prepare a digitized inventory of all drawings, specifications and other documents, test reports, certificates, and similar records related in pursuit of the EPC agreement. The AE's

digitized inventory shall be turned over to the Authority for safekeeping.

23. Maintain the Deviation Report and send it monthly to the Authority and the EPC Contractor in a format as prescribed by the Authority.

24. Maintain digital color photographs throughout the duration of the contract for photographic record (available for inspection) of monthly progress at set locations, especially of any construction of technical or contractual interest. Each photograph should be captioned with the (i) reference number, (ii) time, (iii) date, (iv) precise location, (v) subject, and (vi) points of particular note. All digital data with captions should be stored on a digital record system.

25. The AE shall keep a daily log of the progress and issues on the construction sites. The AE shall update all records that it collects on the project's relevant platform.

3. Duties and Functions during the Construction Period

26. **Review of designs, drawings, specifications, and construction methodology.** During the construction period, the AE shall undertake a detailed review of the construction methodology together with drawings; quality assurance procedures; the procurement, engineering, construction time schedule; deviation in design drawings and specifications, if any, to be furnished by the EPC Contractor along with supporting data, including the geotechnical and hydrological investigations, characteristics of materials from borrow areas and quarry sites, mix designs, traffic operations and safety arrangements, traffic surveys, topographical/subsurface surveys, and review of supplemental environmental impact assessment (EIA) and environmental management plan (EMP) for possible impact owing to design changes. This review shall verify that the safety measures specified in the EPC agreement are included in the detailed designs. The AE shall complete such review and send its comments/observations with particular reference to their conformity or otherwise with the scope of the project and the specifications and standards defined in the contract agreement, to the Authority and the EPC Contractor within 15 days of receipt of such drawings and specifications. In particular, such comments/observations shall specify the conformity or otherwise of such drawings and specifications with the EPC agreement.

27. After reconciling further comments received from the Authority and the EPC Contractor with its own, the AE shall make a final determination of its findings and advise the EPC Contractor accordingly. Subsequently, the AE shall review any modified drawings, specifications or supporting documents sent to it by the EPC Contractor and shall give its clearance or observations, if any, within 7 days of receiving such modified drawings, specifications or documents.

28. **Construction safety and environmental management.** The AE shall review the EPC Contractor's Construction Zone Safety Checklist and Environmental Management Plan (EMP) in accordance with the relevant requirements of the EPC agreement and furnish its comments thereon to the Authority and the EPC Contractor within 7 days of receiving such checklist and EMP. The AE shall subsequently monitor the EPC Contractor's compliance with the Traffic Management Plan, Construction Zone Safety Checklist, Environmental Management Plan, Social Safeguard Plan, and, if necessary, enforce the relevant provisions of the EPC agreement in this regard. In particular, the AE will confirm that the EPC Contractor's management plan complies with the conditions of the EIA clearance granted by the State Environment Impact Assessment Authority or the National Environment Impact Assessment Authority, as the case may be. In case of divergence of the plan from the conditions of the said clearance, the AE shall bring the same to the attention of the Authority and the EPC Contractor.

29. **Review of the EPC Contractor's quality assurance procedures.** The AE shall periodically review the EPC Contractor's quality assurance procedures and furnish its comments to the Authority and the EPC Contractor within 15 days of receipt thereof. The AE shall subsequently monitor the EPC Contractor's compliance with the quality assurance procedures.

30. **Review of project agreements.** Upon reference by the Authority, the AE shall review and comment on the subcontract or any other contract for construction, operation and maintenance of the project highway, proposals from the EPC Contractor, or agreements entered by the EPC Contractor with any contractors on such works and furnish its comments within 7 days from receipt of such reference from the Authority.

31. The AE will conduct joint measurements and review costing proposed by the EPC Contractor as and when required as per the provisions of the EPC contract agreement, including but not limited to aspects like change of scope, utility shifting, etc.

32. **Quality and safety assurance.** The duties and functions of the AE during the construction period shall be all-encompassing including superintendence of the EPC Contractor's performance of the works on a day-to-day basis, particularly with regard to the deployment of labor, materials, equipment, and standards of materials and workmanship, and safety arrangements and environmental management in accordance with the EMP at the site. The AE shall have no authority to relieve the EPC Contractor of any of their duties under the EPC agreement or to impose additional obligations. The AE shall ensure the resettlement action and social safeguard plan is implemented as designed and update the mitigation measures if required.

33. **Quality testing.** The AE shall provide sufficient staff to carry out inspections and tests in the field to the extent of a minimum of 25% of the 100% EPC Contractor's requests for inspection (RFI) pertaining to various items of works. The 25% of representative RFIs have to be selected in such a way by the AE that those RFIs will fairly represent the quality and quantity of work being carried out. The AE shall either issue written clearances or require the EPC Contractor, within 7 days of such inspections, to rectify and remedy identified defects or deficiencies. Furthermore, with regard to pavement sub-base and bituminous courses, the AE shall field-check 100% of RFIs. The inspection procedures to be observed by the AE, the EPC Contractor, and the Authority shall be governed by the corresponding EPC contract requirements. The inspections, submission of such inspection reports, and clearance of RFI by the AE shall not relieve or absolve the EPC Contractor of its obligations and liability. The AE shall also have access to the EPC Contractor's laboratory facilities for independent testing of materials. It may be noted that the AE shall have to additionally input and update the collected data on the project's relevant platform.

34. **Inspection report.** At least once a month, the AE shall summarize such inspections in its Inspection report and submit it to the Authority and the EPC Contractor, setting forth an overview of the status, progress, quality, and safety of construction including the work methodology adopted, the materials used and their sources including development and rehabilitation and conformity of construction works with the scope of project and specification standards.

35. **Rectification of defects and deficiency.** In the event that the EPC Contractor is required to carry out any remedial works for removal or rectification of any defects or deficiencies, the AE shall require the EPC Contractor to prove through appropriate tests that such remedial works have brought the works into conformity with the EPC agreement. The AE shall take all necessary measures to achieve closure of non-conformances through the EPC Contractor's actions in the shortest possible time, but in no case later than provisional completion. The AE shall maintain

complete records of all remedial works from their identification to rectification.

36. **Review of achievement of milestones prescribed.** In the event that the EPC Contractor fails to achieve any of the EPC agreement milestones, the AE shall undertake a review of the progress of construction and identify the causes of delays, if any. If the AE determines that the rate of progress of the works is not likely to achieve the EPC agreement milestones, including the construction completion date, it shall notify and require the EPC Contractor to indicate within 15 days of its notice to the EPC Contractor, the steps proposed to be taken to expedite progress, and the period within which the EPC agreement milestones, including the construction completion date shall be achieved. This notice to the EPC Contractor shall be copied to the Authority. Upon receipt of the EPC Contractor's response, the AE shall review the steps proposed by the EPC Contractor and send its final determination concerning the likely achievement of the EPC agreement milestones to the EPC Contractor and the Authority.

37. **Review and monitoring of safety arrangement and suspension of works on safety reasons.** If at any time during the construction period, the AE determines that the EPC Contractor has not made adequate arrangements for the safety of workers and users in the zone of construction or that any work is being carried out in a manner that threatens the safety of the workers and the users, it shall notify the EPC Contractor forthwith and may further recommend to the Authority that the whole or part of the works be suspended for ensuring safety thereof. The Authority's notice of suspension for reasons of safety shall be promptly communicated to the EPC Contractor and the AE. The suspension may be lifted by the Authority only upon the AE's determination and follow-up inspection that the conditions which caused the suspension have been removed or remedied sufficiently. In emergency cases, the AE will take such actions and steps to ensure safety, pending clearance from the Authority.

38. **Review and monitoring of environmental arrangement and suspension of works on environmental reasons.** If at any time during the construction period, the AE determines that the environmental management measures are inadequate and can cause harm to the environment beyond permissible limits laid down in the EMP or the clearance issued for the project, it shall notify the EPC Contractor forthwith and may recommend to the Authority that the whole or part of the work be suspended. The Authority's notice of suspension for reasons of higher than allowable risk to the environment shall be promptly communicated to the EPC Contractor and the AE. The suspension may be lifted by the Authority only upon the AE's determination and follow-up inspection that the conditions which caused the suspension have been removed or remedied sufficiently. In emergency cases, the AE will take such actions and steps to ensure avoidance or at least minimization of damage to the environment, pending clearance from the Authority.

39. **Extension of time determination.** If the works are suspended by the Authority for reasons not attributable to the EPC Contractor, the AE shall determine any extension of dates set forth in the construction completion schedule and compensation, if any, to which the EPC Contractor may be reasonably entitled. The AE shall notify the Authority of its determination and the Authority shall extend the construction completion schedule accordingly through notice to the EPC Contractor. When the reasons for the suspension have subsided and the works can be resumed, the Authority shall lift the suspension through follow-up notice to the EPC Contractor, in coordination with the AE.

40. **Tests to be carried out.** The AE shall require the EPC Contractor to carry out, or cause to be carried out, all tests specified in the related schedules of the EPC agreement, from time to time and in accordance with good industry practice for quality assurance. The EPC Contractor shall carry out these tests in accordance with the instructions of the AE and furnish the test results

to the AE. In the event that the results of any tests establish any defects or deficiencies in the works, the AE shall require the EPC Contractor to carry out remedial measures and furnish a report to the AE in this regard. These AE's functions related to tests shall be carried out and communicated to the Authority and the EPC Contractor in conformance with the related provisions of the EPC agreement.

41. **Certification of lump sum payments.** The EPC Contractor shall submit requests for Lump sum payments to the AE, in accordance with the applicable requirements of the EPC agreement. The AE shall make fair and reasonable assessments of such payment requests and the associated documentation submitted by the EPC Contractor. The AE shall verify and certify the amount claimed in the EPC Contractor's invoice, along with the necessary adjustments and recommend to the Authority for payment as provided in the EPC agreement. The AE's recommendations with regard to the EPC Contractor's payment requests shall reach the Authority within 14 days from the date of such claim by the EPC Contractor after satisfactory fulfillment of conditions prescribed in the EPC agreement

42. **Review of progress reports.** The AE shall review the monthly progress report furnished by the EPC Contractor and provide its comments to the Authority and the EPC Contractor within 7 days of receipt of such report. The AE shall provide its concurrence in the EPC Contractor's monthly progress report or its reservations, as the case may be, to the EPC Contractor and copy this communication to the Authority. If necessary, the AE shall require the EPC Contractor to submit additional information related to the monthly progress report.

43. **Issue of completion and provisional completion certificate.** Upon completion of the works, as notified by the EPC Contractor and the successful completion of all inspections and tests required by the EPC agreement, the AE shall issue to the EPC Contractor and the Authority the completion certificate set forth in the EPC agreement. At the request of the EPC Contractor, the AE may issue instead, the Provisional Certificate, also set forth in the EPC agreement. The Provisional Certificate may be used, when the project highway can be safely and reliably placed in commercial operation, even though certain parts of the works are not yet fully completed. In such event, The AE shall append to its Provisional Certificate, a list of outstanding items and their agreed completion dates. This list, which is referred to in the EPC agreement as Punch List, shall be signed jointly by the EPC Contractor and the AE. In cases where certain parts of the works are not yet completed due to delays in completion attributable to the Authority, the AE shall not withhold the Provisional Certificate.

44. **Review of as-built drawings.** Within 90 days of the project completion date, the AE shall require the EPC Contractor to furnish the as-built drawings in a manner acceptable to the Authority. The AE shall review the as-built drawings for each component of the works prepared by the EPC Contractor and determine their acceptability under the terms of the EPC agreement. The AE shall communicate its determination to the Authority and the EPC Contractor. Additionally, within 90 days of each project milestone, the AE shall require the EPC Contractor to furnish the as-built drawings in a manner acceptable to the Authority. The AE shall review the as-built drawings for each component of the works prepared by the EPC Contractor and determine their acceptability under the terms of the EPC agreement. The AE shall communicate its determination to the Authority and the EPC Contractor within 60 days of receipt of drawings.

45. **Maintenance manual.** Not later than 180 days prior to the completion of works, the AE shall require the EPC Contractor to submit a repair and maintenance manual for the regular and preventive maintenance of the project highway in conformity with the maintenance requirements, safety requirements and good industry practice. The AE shall aid and advise the EPC Contractor

in preparing the maintenance manual.

46. **Determination of costs.** Upon reference from the Authority, the AE shall make a fair and reasonable assessment of the costs of providing information, works, and services as set forth in the EPC agreement and certify the reasonableness of such costs for payment by the Authority to the EPC Contractor.

47. **Execution of resettlement plan.** After preparation of the micro plan for resettlement, the AE shall have to execute the resettlement plan in coordination with the Authority.

4. Duties and Functions during the Operation and Maintenance Period

48. **Review of drawings, documents, reports, etc.** In respect of drawings, documents, and reports in compliance with safety requirements received by the AE for its review and comments during the operation period, the provisions in para. 3 shall apply *mutatis mutandis* (changing only those which need to be changed).

49. **Review of annual maintenance program.** The AE shall review the annual Maintenance Program furnished by the EPC Contractor in conformance with the EPC agreement and convey its comments to the EPC Contractor within 15 days of its receipt with particular reference to its conformity with the maintenance requirements, maintenance manual and safety requirements as well as relevant provisions of the EMP for the operation phase, with copies to the Authority. In case of reservations with the initial annual Maintenance Program, the AE shall subsequently review the EPC Contractor's follow-up response and communicate its final determination regarding the conformance of the annual Maintenance Program with the EPC agreement to the EPC Contractor, copied to the Authority.

50. **Monthly progress report during O&M period.** The AE shall review the monthly progress report on operations and maintenance furnished by the EPC Contractor and provide its comments to the EPC Contractor within 7 days of its receipt, copied to the Authority. In case of reservations with the initial monthly progress report on operations and maintenance, the AE shall subsequently review the EPC Contractor's follow-up response and communicate its final determination regarding the conformance of the progress on operations and maintenance with the EPC agreement and the maintenance manual to the EPC Contractor, copied to the Authority.

51. **Monitoring of maintenance works.** During the operation period, the AE shall inspect the project highway once every month, preferably following receipt of the EPC Contractor's monthly progress report on operations and maintenance. The AE shall provide the Authority and the EPC Contractor with its O&M inspection report within 7 days of its monthly inspection. The AE's O&M inspection report shall cover an overview of the status, timeliness, and quality of the EPC Contractor's performance of the operations and maintenance requirements in conformance with the EPC agreement and the maintenance manual. The AE's inspection report shall specify the remedial actions that are being taken or have been agreed but not yet taken by the EPC Contractor with regard to reported lapses, defects, deficiencies, etc. The AE's inspection report may also specify deadlines for remedial actions and additional tests and traffic survey to be carried out by the EPC Contractor for the purpose of assuring that the project highway remains in the condition that underlies the operations and maintenance obligations of the EPC Contractor in the EPC agreement. The AE may inspect the project highway more than once in a month if any lapses, defects, or deficiencies require such inspections.

52. **Closure of lanes.** The AE shall examine requests submitted by the EPC Contractor for

closure of lanes of the carriageway for maintenance and repair purposes, as well as related modifications of the highway. Within 3 days of receiving such requests, the AE shall determine the reasonableness of the EPC Contractor's request, including provisions for minimizing traffic disruptions, ascertain the views of the Authority on closures and disruptions and notify the EPC Contractor, copied to the Authority. In case of reservations with the EPC Contractor's request, the AE shall subsequently review the EPC Contractor's revised request and communicate its final determination regarding the reasonableness of the revised request to the EPC Contractor, copied to the Authority.

53. **Payments during operation and maintenance period.** The EPC Contractor shall submit requests for payments to the AE for the first part of 5% after successful completion of 3 years of the operation and maintenance period, and the second part of 5% after completion of the defect liability period, in accordance with the applicable requirements of the EPC agreement. The AE shall make fair and reasonable assessments of such payment requests, including any bonus or reduction in payment based on the monthly progress report on operations and maintenance. The AE shall adjust the EPC Contractor's invoice, as necessary, and forward it with the associated documentation to the Authority for payment. While forwarding the invoice to the Authority, the AE may recommend payment in full or part thereof. The AE's recommendation shall reach the Authority within 15 days of the receipt of request from the EPC contractor.

54. **Repair/rectification.** In respect of any defect or deficiency referred to in the EPC agreement, the AE shall, in conformity with good industry practice, specify the permissible limit of deviation or deterioration with reference to the specifications and standards and shall also specify the time limit for repair or rectification of any deviation or deterioration beyond the permissible limit.

55. **Delay damages.** The AE shall determine if any delay has occurred in the completion of repair or remedial works in accordance with the EPC agreement, and shall also determine the damages, if any, payable by the EPC Contractor to the Authority for such delay.

56. **Periodic maintenance.** The Authority Engineer shall determine the major maintenance completion schedule and shall also issue a Periodic Maintenance Completion Certificate upon completion and inspection of major maintenance work, as specified under and in accordance with the provisions of the EPC agreement.

57. The AE shall also perform the following:

- (i) monitor and review the curing of defects and deficiencies by the EPC Contractor as set forth in undertaking traffic survey, as and when required by the Authority, under and in accordance with the EPC agreement;
- (ii) initiate necessary action to undertake the maintenance obligations of the EPC Contractor at risk and cost of the EPC Contractor in the event of its failure to carry out operations and maintenance, as per the provisions in the EPC agreement;
- (iii) review the accident record of the highway and suggest remedial measures; and
- (iv) submit the monthly progress report on O&M covering the maintenance requirements provided in the EPC agreement.

5. Duties and Functions Related to Divestment Requirements

58. Not earlier than 90 days before the termination of the EPC agreement but not later than 15 days before the effective date of such termination and the initiation of the EPC Contractor's divestment requirements, the AE shall verify, after giving notice to the EPC Contractor of the time,

date, and venue of such verification, compliance by the EPC Contractor with the maintenance requirements, and if required, cause appropriate tests to be carried out at the EPC Contractor's cost for this purpose. If the AE determines that the status of the highway requires repairs and other rectifications, in order to meet the divestment requirements, the AE shall assess the amount to be set aside for these repairs and rectifications and communicate its determination forthwith to the Authority and the EPC Contractor. The source of funds to cover the amount to be set aside and the method of retention shall be agreed between the Authority and the EPC Contractor, based on the AE's determination.

59. The AE shall ensure that all materials, tools, plants, equipment, facilities, etc., which have to be handed over to the Authority upon termination of the EPC agreement, are properly dismantled, packed, stored, and maintained until the official handing over to the Authority as provided in the EPC agreement.

60. The AE shall inspect the project highway once in every 15 days during a period of 120 days after termination for determining the liability of the EPC Contractor under the EPC agreement, in respect of the defects or deficiencies specified therein. If any such defect or deficiency is found by the AE, it shall make a report in reasonable detail and send it forthwith to the Authority and the EPC Contractor.

6. Determination of Costs and Time

61. The AE shall determine the costs, and/or their reasonableness, that are required to be determined by it under the EPC agreement.

7. Duties and Functions Related to Dispute Resolution

62. In the event of any disagreement between the EPC Contractor and the Authority regarding any provision of the EPC agreement or issues of good industry practice, the AE shall determine and communicate to them its independent interpretation of such provisions and issues and the parties shall take the AE's interpretation into account in settling their disagreement.

63. When called upon by either the EPC Contractor or the Authority or both to mediate and assist them in arriving at an amicable settlement of any dispute under the EPC agreement, the AE shall make itself available and use its best efforts to accommodate their mediation request and reach an amicable settlement.

64. If a dispute arises between the EPC Contractor and the Authority in connection with any certificate, determination, instruction, opinion, or valuation of the AE, either of them may refer the dispute to the Dispute Review Board, as provided in the EPC agreement. In such event, the AE shall cooperate with requests from the Dispute Review Board for additional information and meetings. The party referring the dispute to the Dispute Review Board shall notify the other party and the AE.

8. Miscellaneous Items

- (i) A copy of all communications, comments, instructions, drawings, or documents sent by the Authority Engineer to the EPC Contractor pursuant to this TOR, and a copy of all the test results with comments of the AE thereon shall be furnished by the AE to the Authority forthwith.
- (ii) The AE shall obtain, and the EPC Contractor shall furnish, in two copies thereof,

all communications and reports required to be submitted under this agreement by the EPC Contractor to the AE, whereupon the AE shall send one of the copies to the Authority along with its comments thereon.

- (iii) The AE shall retain at least one copy each of all drawings and documents received by it, including as-built drawings, and keep them in its safe custody.
- (iv) Upon completion of its assignment, the AE shall duly classify and list all drawings, documents, results of tests, and other relevant records and hand them over to the Authority or such other person as the Authority may specify and obtain written receipt thereof. Two copies of the said documents shall also be furnished in microfilm form or in such other medium as may be acceptable to the Authority.
- (v) The AE shall assist the Authority and the EPC Contractor in utility shifting, land acquisition, and rehabilitation and resettlement issues that will affect the progress of works.
- (vi) The AE shall assist the Authority during the dispute board meetings, arbitration proceedings, and any other hearing held by the statutory/legal body.
- (vii) The AE will ensure effective coordination with the railways supervising staff during the construction of road over bridge/road under bridge (ROB/RUB) and advise the Authority regarding the status of ROB/RUB construction.

D. Team Composition and Qualification Requirements¹

65. This team composition will change as per package size and number of roads in the package.

1. Authority Engineer Package No. 3

Table C4: Staffing Requirements for Authority Engineer Package No. 3*

No.	Position	Number of Persons	Person-Months		
			Construction	Operations	Total
1.	Team Leader and Senior Highway Engineer	1	24	10	34
2.	Resident Highway Engineer	3	24	20	132
3.	Senior Bridge/Structural Engineer	1	3	2	5
4.	Highway Design Engineer	2	12	0	24
5.	Bridge Design Engineer	1	12	0	12
6.	Geotechnical Engineer	1	6	0	6
7.	Senior Pavement Expert	2	12	3	30
8.	Senior Quality cum Material Expert	1	24	5	29
9.	Traffic and Safety Expert	1	6	0	6
10.	Environmental Expert	1	24	0	24
11.	Social Expert	1	6	0	6
12.	Financial Expert	1	2	0	2
13.	Contract Expert	1	4	0	4
14.	Legal Expert	1	2	0	2
15.	Resettlement Plan Implementation Officer	1	15	0	15
	Total	19			331

* Comprising Engineering, Procurement, and Construction (EPC) Contract Package 10, 11, 12, 13, 14, 23, 24, 25, and 26.

¹ To vary based on project nature and size.

66. Key experts whose curriculum vitae (CV) will be evaluated:

- K-1 Team Leader and Senior Highway Engineer
- K-2 Deputy Team Leader and Senior Highway Engineer
- K-3 Senior Bridge/Structural Engineer
- K-4 Highway Design Engineer
- K-5 Bridge Design Engineer
- K-6 Geotechnical Engineer
- K-7 Senior Pavement Expert
- K-8 Senior Quality cum Material Expert
- K-9 Traffic and Safety Expert
- K-10 Environmental Expert
- K-11 Social Expert
- K-12 Financial Expert
- K-13 Contract Expert
- K-14 Legal Expert
- K-15 Resettlement Plan Implementation officer

67. **Non-key expert requirements.** CVs for this category will not be evaluated but the CV should be submitted for approval of the Authority before mobilization. This team composition will change as per package size and number of roads in the package.

Table C5: Requirements for Non-Key Experts for Authority Engineer Package No. 3

No.	Position	Number of Persons	Total Person-Months		
			Construction	Operation	Total
1.	Survey Engineer	4	24	0	96
2.	Assistant Highway Engineers	9	24	10	306
3.	CAD Expert	2	24	6	30
4.	Assistant Bridge Engineer	3	24	5	87
5.	Environmental cum Safety Officer	1	24	5	29
6.	Social Officer	1	24	5	29
7.	Assistant Quality cum Material Engineer	4	24	3	108
8.	Quantity Surveyor	4	24	10	136
9.	Horticulture and Landscaping Expert	1	12	5	17
10.	Surveyors	9	24	0	216
11.	Laboratory Technician	9	24	0	216
12.	Assistant Resettlement Plan Implementation Officer	1	15	0	15
Total					1,315

CAD = computer-aided design.

Note: The above person-months in specified categories are compulsory and the AE may decide upon the additional requirement based on the scope of work. The other inputs like support staff such as administrative, accounts, and assistants shall also be provided by the AE, of an acceptable type, and commensurate with the roles and responsibilities of each position to efficiently and effectively perform the services.

2. Authority Engineer Package No. 4

Table C6: Staff Requirements for Authority Engineer Package No. 4*

No.	Position	Number of Persons	Total Person-Months		
			Construction	Operations	Total
1.	Team Leader and Senior Highway Engineer	1	24	10	34
2.	Resident Highway Engineer	3	24	20	132

No.	Position	Number of Persons	Total Person-Months		
			Construction	Operations	Total
3.	Senior Bridge/Structural Engineer	1	3	2	5
4.	Highway Design Engineer	2	12	0	24
5.	Bridge Design Engineer	1	12	0	12
6.	Geotechnical Engineer	1	6	0	6
7.	Senior Pavement Expert	2	12	3	30
8.	Senior Quality cum Material Expert	1	24	5	29
9.	Traffic and Safety Expert	1	6	0	6
10.	Environmental Expert	1	24	0	24
11.	Social Expert	1	6	0	6
12.	Financial Expert	1	2	0	2
13.	Contract Expert	1	4	0	4
14.	Legal Expert	1	2	0	2
15.	Resettlement Plan Implementation Officer	1	15	0	15
	Total	19			331

* Comprising Engineering, Procurement, and Construction (EPC) Contract Package 15, 16, 17, 18, 19, 20, 21, and 22.

68. Key experts whose CV will be evaluated:

- K-1 Team Leader and Senior Highway Engineer
- K-2 Deputy Team Leader and Senior Highway Engineer
- K-3 Senior Bridge/Structural Engineer
- K-4 Highway Design Engineer
- K-5 Bridge Design Engineer
- K-6 Geotechnical Engineer
- K-7 Senior Pavement Expert
- K-8 Senior Quality cum Material Expert
- K-9 Traffic and Safety Expert
- K-10 Environmental Expert
- K-11 Social Expert
- K-12 Financial Expert
- K-13 Contract Expert
- K-14 Legal Expert
- K-15 Resettlement Plan Implementation Officer

69. **Non-key expert requirement.** CVs for this category will not be evaluated but the CV should be submitted for the approval of the Authority before mobilization. This team composition will change as per package size and number of roads in the package.

Table C7: Requirements for Non-Key Experts for Authority Engineer Package No. 4

No.	Position	Number of Persons	Total Person-Months		
			Construction	Operation	Total
1.	Survey Engineer	4	24	0	96
2.	Assistant Highway Engineers	9	24	10	306
3.	CAD Expert	2	24	6	60
4.	Assistant Bridge Engineer	3	24	5	87
5.	Environmental cum Safety Officer	1	24	5	29
6.	Social Officer	1	24	5	29
7.	Assistant Quality cum Material Engineer	4	24	3	108
8.	Quantity Surveyor	4	24	10	136

No.	Position	Number of Persons	Total Person-Months		
			Construction	Operation	Total
9.	Horticulture and Landscaping Expert	1	12	5	17
10.	Surveyors	9	24	0	216
11.	Laboratory Technician	9	24	0	216
12.	Assistant Resettlement Plan Implementation Officer	1	15	0	15
Total					1,315

CAD = computer-aided design.

Note: The above person-months in specified categories are compulsory and the Authority Engineer may decide upon the additional requirement based on the scope of work. The other inputs like support staff such as administrative, accounts, and assistants shall also be provided by the Authority Engineer, of an acceptable type, and commensurate with the roles and responsibilities of each position to efficiently and effectively perform the services.

3. Qualification Requirements of Key Experts

a. Team Leader and Senior Highway Engineer

70. This is the senior most position and the expert engaged as the Team Leader shall be responsible for reviewing the entire project preparation and implementation activities of the EPC Contractor. The expert shall check all the designs being prepared by the EPC Contractor, ensure execution of works on site as per specification and standards, and continuously interact with the Authority and the Contractor. The expert shall undertake project site visits and shall guide, supervise, coordinate, and monitor the work of other experts in the team as well as those of the Contractor. The expert is responsible for day-to-day supervision of works for implementing the project in accordance with the EPC agreement and report non-compliances to both the EPC Contractor and the Authority. The expert is responsible for certifying payments and help in resolving the disputes between the EPC Contractor and the Authority. The candidate should have a proven record of supervising, organizing, and managing of project preparation and construction of highway projects of large magnitudes, as defined below, financed by international lending agencies and others. Knowledge of project management shall be an added advantage.

71. Qualifications and experience:

- (i) Minimum of postgraduate degree in civil, highway, or transportation engineering or equivalent from a recognized university
- (ii) Minimum total professional experience of 20 years
- (iii) Includes at least 5 years of experience in highway development in EPC, annuity, or public-private partnership (PPP) projects
- (iv) Should have handled the assignments as Team Leader/Deputy Team Leader or similar capacity of at least three construction supervision consultancy works or Authority Engineer consultancy works of highways of EPC, annuity, or PPP projects involving 300 lane-kilometers or projects costing more than Rs.4,500 million
- (v) Experience should include at least 3 years on similar projects in developing countries, including in Asia
- (vi) Experience in preparation of detailed project reports (DPR) of highway projects of projects involving 150 lane-kilometers or projects costing more than Rs.2,250 million
- (vii) Knowledge of design of pavement
- (viii) Expertise shall include computer-aided design methods for civil/highway engineering with particular reference to CAD application to the geometric design

- for highway rehabilitation and/or upgrading projects
- (ix) Knowledge of international “best practices” in latest conditions of contract, construction, contract management, and modern highway construction technology
- (x) Experience in operations and maintenance of major highway projects
- (xi) Experience in contract dispute management
- (xii) Should also be familiar with implementation aspects of safety, environmental management plans, and social safeguard plans
- (xiii) Experience in multilateral/bilateral agency aided projects will be given higher preference
- (xiv) Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
- (xv) Similar capacity includes the following positions:
 - (a) On behalf of consultant: Team Leader/Resident Engineer (Construction Supervision/IE/DPR)
 - (b) On behalf of Contractor: Project Manager (Construction/Construction Supervision)
 - (c) In government organizations: Superintending Engineer (or equivalent) and above.

b. Resident Highway Engineer

72. The expert shall check all the designs being prepared by the EPC Contractor, ensure execution of works on site as per specification and standards, and continuously interact with the Authority and the Contractor. The expert shall undertake project site visits and shall guide, supervise, coordinate, and monitor the work of other experts in the team as well as those of the Contractor. The expert is responsible for day-to-day supervision of works for implementing the project in accordance with the EPC contract agreement and report non-compliances to both the EPC Contractor and the Authority. The candidate should have a proven record of supervising, organizing, and managing of project preparation and construction of highway projects of large magnitudes, as defined below, financed by international lending agencies and others. Knowledge of project management shall be an added advantage.

73. Qualifications and experience:

- (i) Minimum of postgraduate degree in civil, highway, or transportation engineering or equivalent from a recognized university
- (ii) Minimum total professional experience of 15 years
- (iii) Includes at least 2 years of experience in highway development in EPC, annuity, or PPP projects
- (iv) Should have handled the assignments as Team Leader/Deputy Team Leader or similar capacity of at least one construction supervision consultancy works and one Authority Engineer consultancy works of highways of EPC, annuity, or PPP projects involving 150 lane-kilometers or projects costing more than Rs.2,250 million
- (v) Experience should include at least 3 years on similar projects in developing countries, including in Asia.
- (vi) Experience in preparation of DPRs of highway projects of projects involving 150 lane-kilometers or projects costing more than Rs.2,250 million
- (vii) Knowledge of international best practices in latest conditions of contract, construction, contract management, and modern highway construction technology
- (viii) Experience in operation and maintenance of major highway projects

- (ix) Experience in contract dispute management
- (x) Should also be familiar with implementation aspects of safety, environmental management plans, social safeguard plans
- (xi) Experience in multilateral/bilateral agency aided projects will be given higher preference.
- (xii) Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
- (xiii) Similar capacity includes the following positions:
 - (a) On behalf of consultant: Resident Highway Engineer (Construction Supervision/IE/DPR)
 - (b) In government organizations: Executive Engineer (or equivalent) and above

c. Senior Bridge Design Engineer

74. The Senior Bridge Design Engineer/Senior Structural Engineer 1 shall be responsible for checking the designs of bridges, culverts, road over bridges (ROB), interchanges, and any other structure to be constructed in the project highway, guiding the field supervision teams in checking of reinforcement/cable laying operations, rectifying any apparent mistakes in respect of them, checking and controlling the proper mix designs, checking the adequacy of proper form-work, laying/compacting of concrete including curing operations. For this purpose, the expert will work in close coordination with the Senior Material Expert and the Contract Management Specialist to effectively control the quality of execution. The expert will be responsible for minor modifications in the design of bridges/culverts, wherever required during execution. The expert shall also review the rehabilitation measures to be proposed by the EPC Contractor for existing structures based on site condition and structural requirement basis. His/her expertise shall include computer-aided design methods for civil/structural engineering with particular reference to structural design.

75. Qualifications and experience:

- (i) Minimum of graduate degree in civil engineering, preferably postgraduate degree in structural engineering from a recognized university
- (ii) Minimum professional experience of 15 years
- (iii) 8 years out of total 15 years of experience in similar capacity of Senior Bridge Design Engineer/Senior Structural Engineer for design of major highway bridges
- (iv) Experience of designing 4 major highway bridges or flyovers having length more than 200 meters
- (v) Should have at least 4 years of experience in rehabilitation/repair/maintenance of bridges
- (vi) Experience in innovative methods of construction of bridges (pre-cast segmental, cantilever construction, cable stayed bridge, suspension bridges, etc.), bridge design methods and standards, bridge design with use of computer-aided software, technical specifications, and statistical quality control/assurance procedures for construction of different component of bridges
- (vii) Experience as Senior Bridge Design Engineer/Senior Structural Engineer on a construction project in developing countries will be an added qualification.
- (viii) Similar capacity includes the following positions:
 - (a) On behalf of consultant: Senior Bridge Engineer (Construction Supervision/IE/DPR)
 - (b) In government organizations: Executive Engineer (or equivalent) and above

d. Highway Design Engineer

76. The Highway Design Engineer shall be responsible for the review of highway designs and drawings using sophisticated computer software and also construction and O&M works. His/her expertise shall include computer-aided design methods for civil/highway engineering with particular reference to CAD application to the geometric design for highway rehabilitation and/or upgrading projects.

77. Qualifications and experience:

- (i) Minimum of graduate degree in civil engineering, preferably postgraduate degree in highway or transportation engineering from a recognized university
- (ii) Professional experience of 15 years in highway works
- (iii) Experience of at least 8 years (out of total 15 years) in highway designing works
- (iv) Should have handled as highway design engineer at least two projects of major 2 laning/4 laning/6 laning highway projects
- (v) Exposure in computer software program for design of highways
- (vi) Experience in at least two highway projects having a length not less than 150 lane km equivalent on PPP/EPC mode
- (vii) Experience in developed countries would be preferred.
- (viii) Experience in those projects served less than 6 months will not be considered.
- (ix) Similar capacity includes the following positions:
 - (a) On behalf of consultant: Highway Design Engineer (Construction Supervision/IE/DPR)
 - (b) In government organizations: Executive Engineer (or equivalent) and above

e. Bridge Design Engineer

78. The Bridge Design Engineer shall be responsible for assisting in checking the designs of bridges, culverts, ROB, interchanges, and any other structure to be constructed in the project highway, guiding the field supervision teams in checking of reinforcement/cable laying operations, rectifying any apparent mistakes in respect of them, checking and controlling the proper mix designs, checking the adequacy of proper formwork, and laying/compacting of concrete including curing operations. The expert shall also review the rehabilitation measures to be proposed by the EPC Contractor for existing structures based on site condition and structural requirement basis. His/her expertise shall include computer-aided design methods for civil/structural engineering with particular reference to structural design.

79. Qualifications and experience:

- (i) Minimum of graduate degree in civil engineering, preferably postgraduate degree in structural engineering from a recognized university
- (ii) Minimum professional experience of 15 years
- (iii) 4 years out of total 8 years of experience in similar capacity of bridge design engineer/structural engineer for design of major highway bridges
- (iv) Experience of designing 4 major highway bridges or flyovers having a length of more than 200 meters
- (v) Should have at least 4 years of experience in rehabilitation/repair/maintenance of bridges

- (vi) Experience in innovative methods of construction of bridges (pre-cast segmental, cantilever construction, cable stayed bridge, suspension bridges, etc.), bridge design methods and standards, bridge design with use of computer-aided software, technical specifications, and statistical quality control/assurance procedures for construction of different component of bridges
- (vii) Experience as bridge design engineer/structural engineer on a construction project in developing countries will be an added qualification.
- (viii) Similar capacity includes the following positions:
 - (a) On behalf of consultant: Senior Bridge Engineer (Construction Supervision/IE/DPR)
 - (b) In government organizations: Executive Engineer (or equivalent) and above

f. Geotechnical Engineer

80. The expert shall be continuously interacting with the EPC Contractor to ensure planning, monitoring, and coordinating of geotechnical and hydraulic investigations for the bridges and interpreting the findings thereof as per the standards and specifications of the EPC agreement.

81. Qualifications and experience:

- (i) Minimum of graduate degree in civil engineering from a recognized university and postgraduate degree in geotechnical engineering
- (ii) With total professional experience of 15 years in design/construction/maintenance of highways
- (iii) Out of 15 years, experience of 5 years in similar capacity as geotechnical engineer in construction supervision consultancy or Authority Engineer for the projects having a minimum 150 lane km or equivalent highway projects
- (iv) Experience as pavement/geotechnical engineer in construction supervision consultancy or Authority Engineer for at least two major highway projects
- (v) Experience in detailed project report (DPR) preparation is an added advantage.
- (vi) Experience in soil exploration for structure foundations and high embankments
- (vii) Similar capacity includes the following positions:
 - (a) On behalf of consultant: Geotechnical Engineer (Construction Supervision/IE/DPR)
 - (b) In government organizations: Executive Engineer (or equivalent) and above

g. Senior Pavement Expert

82. The expert shall be continuously interacting with the EPC Contractor to ensure life cycle cost effectiveness and viable design of pavement as per the standards and specifications of the EPC contract agreement. The expert is responsible for day-to-day supervision of works of pavement to ensure implementation of project as per the EPC contract agreement and report noncompliance, if any, to the Team Leader. The expert shall also be responsible for ensuring complete adherence to maintenance standards during the construction and operation period. Thus, the position requires a pavement specialist with thorough knowledge and understanding of international best practices in the field of design, construction, and maintenance of flexible types of pavements including latest code stipulations and specifications.

83. Qualifications and experience:

- (i) Minimum of graduate degree in civil engineering from a recognized university. Postgraduate degree in highway engineering/pavement design is preferable.
- (ii) With total professional experience of 15 years in pavement design/pavement construction/pavement maintenance of highways
- (iii) Out of 15 years, experience of 5 years in similar capacity as senior pavement specialist in construction supervision consultancy or Authority Engineer for the projects having a minimum 150 lane km or equivalent highway projects
- (iv) Experience as pavement/geotechnical engineer in construction supervision consultancy or Authority Engineer for at least two major highway projects
- (v) Experience in detailed project report (DPR) preparation is an added advantage.
- (vi) Experience as a pavement specialist/pavement engineer in EPC, annuity, or PPP projects and experience in externally aided projects is desirable.
- (vii) Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
- (viii) Similar capacity includes the following positions:
 - (a) On behalf of consultant: Senior Pavement Expert (Construction Supervision/IE/DPR)
 - (b) In government organizations: Executive Engineer (or equivalent) and above

h. Senior Quality cum Material Expert

84. The Senior Quality/Material Expert is responsible for monitoring and supervising works for compliance with quality standards and reporting noncompliance, if any, to the Team Leader. The expert shall establish the standards and procedures for monitoring of quality works. The expert shall review the test results of bore holes, quarry, and borrow area material to find out their strength characteristics and suitability for using them in construction. The expert shall inspect the EPC Contractor's field laboratories to ensure that these are adequately equipped and capable of performing all the specified testing requirements of the contract. The expert shall look into the quality assurance aspect of the construction works and supervise the setting-up of the various EPC Contractor's rock crushers and bituminous mixing plants to ensure that the specified requirements for such equipment are fully met.

85. Qualifications and experience:

- (i) Minimum of graduate degree in civil engineering from a recognized university. Postgraduate degree in geotechnical engineering/foundation engineering/soil mechanics is preferable.
- (ii) With total professional experience of 15 years, out of which at least 5 years as senior quality/material expert or in similar capacity in construction supervision consultancy works or Authority Engineer–Works of major highway projects
- (iii) Experience as senior quality/material expert or in similar capacity in handling of at least 2 similar highway projects
- (iv) Should have exposure to quality assurance programs in highway projects using modern technology
- (v) Should have demonstrated capability of supervising the setting up, organization, and layout of the various EPC Contractor field laboratories, monitoring the mobilization of the testing equipment to ensure that the laboratories are adequately equipped and capable of performing all the specified testing requirements of the contracts, and supervising the setting up of the various EPC Contractor rock

crushers and bituminous mixing plants to ensure that the specified requirements for such equipment are fully met. The candidate should have at least 3 years of experience in flexible pavement and bituminous mix designs.

- (vi) Must be familiar with properties of road construction materials, technical specifications, and procedures of material tests and testing equipment and should have past experience in working on road projects running on expansive soils
- (vii) Experience as a senior quality/material expert in EPC, annuity, or PPP projects is preferred.
- (viii) Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
- (ix) Similar capacity includes the following positions:
 - (a) On behalf of consultant: Senior Quality cum Material Expert (Construction Supervision/IE/DPR)
 - (b) In government organizations: Executive Engineer (or equivalent) and above

i. Traffic and Safety Expert

86. The Traffic and Safety Expert shall review and check the traffic analysis, projection, and assignment exercises to be carried out by the Contractor. The expert shall also review/design of intersections and interchanges and scheme for traffic management during the construction period. The expert shall also study and comment on the safety audit report/traffic management and safety plans prepared by the EPC Contractor. The expert shall review and approve all the safety measures taken by the EPC Contractor during the execution period at the site. Conformity to the safety requirement as per EPC contract agreement requirements shall be checked and approved. This shall cover all the temporary structures, overhead launching girders, cranes, transverse gantries, equipment at pre-casting yard and at site, jack pushing operations of underpasses, and level of awareness/training of site staff of the Contractor. The expert will be also responsible for reviewing all temporary works/staging along with the Structural/Bridge Engineer from the safety point of view. The Safety Expert will guide the field supervision teams and the EPC Contractor's site officers in complying with adequate construction safety standards in worksites, plant sites, and quarry locations (if quarries are independently operated by the EPC Contractor) and will undertake hands-on-training programs and conduct mock safety drills as required from time to time. The expert will be coordinating and controlling, through the Team Leader's office, all construction safety issues with the road safety consultant deployed by the Authority and will be responsible for reporting and following up on construction safety issues/lapses as appropriate. The expert shall also look into the various accidents and other insurance converges taken by the Contractor. The expert shall report non-compliances to the Team Leader immediately for taking immediate contractual remedies.

87. Qualifications and experience:

- (i) Minimum of graduate degree in civil engineering from recognized university. Postgraduate degree in traffic/transportation engineering/transport planning is preferred.
- (ii) OSHAS certification will be preferred.
- (iii) With total professional experience of 15 years, out of which 5 years of experience shall be as traffic and safety expert on major highway of similar nature.
- (iv) Worked as traffic and transport expert in at least two similar projects in similar capacity
- (v) Experience in road safety audit of at least 2 highway projects of similar complexity

- of projects having a minimum 150 lane km or equivalent including 1 project at design stage
- (vi) International exposure in the field of road safety management plan and experience in working with externally aided projects are preferred.
- (vii) Experience in road safety aspects and traffic management during various phases, i.e., pre-construction, design/development/construction stage, safety audit, and studies of highway projects
- (viii) Experience as a traffic and transportation expert in EPC, annuity, or PPP project and experience in externally aided projects are preferred.
- (ix) Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
- (x) Similar capacity includes the following positions
 - (a) On behalf of consultant: Traffic and Safety Expert (Construction Supervision/IE/DPR).
 - (b) In government organizations: Executive Engineer (or equivalent) and above

j. Environmental Expert

88. Develop, organize, and deliver environmental training programs and workshops for the staff of the environmental management project implementation unit (EMPIU), PWD, EPC Contractor, site supervision engineers, and the PIU. Review the EPC Contractor's environmental management plan (EMP) in accordance with the relevant requirements of ADB's Safeguards Policy Statement (2009) and loan and project agreements. Supervise the implementation of the EMP by the EPC Contractor. Hold regular meetings with the EMPIU and the Social Development and Resettlement Cell (SDRC) to exchange information on the issues emerging while implementing the EMP and overseeing forestry and wildlife matters. Develop good practice construction guidelines to assist the EPC Contractor in implementing the EMP. Assist the EMPIU and environmental monitoring consultants for periodic environmental monitoring (air, noise, water, etc.) programs to ensure compliance with the Karnataka State Pollution Control Board requirements and the EMP. Assist the EMPIU to prepare and submit regular environmental monitoring and implementation progress reports. In addition, assist the EMPIU to prepare good practice dissemination notes based on the experience gained from site supervision.

89. Qualifications and experience:

- (i) Minimum of postgraduate degree in environmental engineering/environmental planning/environmental sciences from a recognized university
- (ii) Professional experience of 15 years in environmental aspects of highway projects, e.g., environmental impact assessment, etc.
- (iii) Experience in implementation of the environmental management plan (EMP) in externally aided projects such as of the World Bank or ADB is essential.
- (iv) Adequate experience in implementing EMPs and organizing training for EPC Contractor and Authority staff
- (v) Familiar with requisite procedures involved in obtaining environmental and forest clearances for project roads passing through reserve forests, national parks, or sanctuaries, etc.
- (vi) In the capacity of environmental engineer, should have handled at least two projects of similar size and complexity
- (vii) Should have good knowledge of Ministry of Environment and Forests (MOEF) guidelines/requirements for mitigation measures

- (viii) Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.

k. Social Expert

90. Develop, organize, and deliver social training programs and workshops for the staff of the MPWD, contractor, site supervision engineers, and the PIU. Review the resettlement plan in accordance with the relevant requirements of ADB's Safeguards Policy Statement (2009) and loan and project agreements. Review and assist work at site, duly liaising between the contractor's staff and the PIU, to monitor and review social and gender issues. Hold regular meetings with the Social Development and Resettlement Cell (SDRC) to exchange information on the issues in implementing the contracts. Assist the PIU to prepare and submit regular social monitoring and implementation progress reports. In addition, assist the PIU to prepare good practice dissemination notes based on the experience gained from site supervision.

91. Qualifications and experience:

- (ix) Minimum of postgraduate degree in social sciences or related disciplines from a recognized university
- (x) Professional experience of 10 years in social aspects of transportation projects, e.g., social impact assessment (SIA), resettlement plans (RP), etc.
- (xi) Experience in implementation of RPs in externally aided projects such as of the World Bank or ADB is essential.
- (xii) Should have adequate experience in implementing RPs and organizing training for Contractor and Authorities staff
- (xiii) In the capacity of Social Expert, should have handled at least two projects of similar size and complexity
- (xiv) Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.

l. Financial Expert

92. The expert is responsible to verify the financial model, package, and other financial instruments submitted by the EPC Contractor. Any noncompliance shall be reported to the Team Leader. The expert shall assist the Team Leader in financial issues involved in the EPC contract agreement.

93. Qualifications and experience:

- (i) Minimum qualification of Master of Business Administration (MBA Finance)/Chartered Accountant
- (ii) Minimum of 5 years of experience as a financial advisor particularly in the field of project financing
- (iii) Working experience in at least two annuity or PPP projects in similar capacity for similar projects of size and complexity
- (iv) Advisory experience in the field of transportation project would be desirable.

m. Contract Expert

94. The expert is responsible for reviewing the financial and legal agreements furnished by the EPC Contractor. Any non-conformities and contradictions with the EPC contract agreement

will require to be reviewed and brought to the notice of the Authority and Contractor through the Team Leader. The expert shall be available for giving opinions on all contractual issues raised in administering the EPC contract agreement.

95. Qualifications and experience:

- (i) Minimum of graduate degree in civil engineering from recognized university or LLB from a recognized university
- (ii) Lawyer or engineer with over 8 years of experience in contracts and financial documentation related to project financing
- (iii) Working experience in at least two annuity, PPP projects in similar capacity of reviewing the contract documents and project finance agreements
- (iv) Shall be involved in implementing the EPC contract agreements and review of financial and other legal agreements furnished by the EPC Contractor
- (v) Advisory experience in transportation would be desirable.
- (vi) Maximum age of the applicant at the time of submission of the expression of interest (EOI) shall not exceed 70 years.

n. Legal Expert

96. The expert is responsible for reviewing the financial and legal agreements furnished by the EPC Contractor. Any non-conformities and contradictions with the EPC contract agreement will require to be reviewed and brought to the notice of the Authority and Contractor through the Team Leader. The expert shall be available for giving opinions on all legal issues raised in administering the EPC contract agreement.

97. Qualifications and experience:

- (i) Minimum of bachelor of laws degree (LLB) from a recognized university
- (ii) Practicing lawyer with over 8 years of experience in contracts and financial documentation related to project financing
- (iii) Working experience in at least two annuity, PPP projects in similar capacity of reviewing the contract documents and project finance agreements
- (iv) Shall be involved in implementing the EPC contract agreements and review of financial and other legal agreements furnished by the EPC Contractor
- (v) Advisory experience in transportation would be desirable.

o. Resettlement Plan Implementation Officer

98. The expert will be the main link between the Authority including the project management unit (PMU), project implementation unit (PIU), and project affected persons (PAP). The expert shall undertake a public information campaign along with the Rehabilitation and Resettlement Officer (RRO) at the commencement of the resettlement action plan (RAP) and tribal development plan (TDP). The expert shall also be responsible for verification of PAPs as prepared by the detailed project report expert. The expert shall develop rapport with PAPs, distribute pamphlets of rehabilitation and resettlement policy to PAPs, Panchayat Raj institutions, and concerned government offices in the project area, etc. All PAPs who could not be enumerated during the census cum socioeconomic survey and were unable to secure certification from the RRO will be included. The expert shall prepare the format for making identity cards for PAPs, and prepare and distribute photo identity cards. The expert shall also undertake valuation of affected structures, land under acquisition, common property resources (CPR), trees, and other private properties as

detailed in the Entitlement Matrix in the resettlement policy framework (RPF) and prepare micro plans for submission to the RRO and for approval of the Authority.

99. The expert shall organize consultations at regular intervals with PAP about resettlement and rehabilitation, as well as organize training programs for skill upgradation of the PAP. The expert shall assist PAP in all matters related to rehabilitation and resettlement and facilitate assistance to aggrieved PAP by bringing their cases to the Grievance Redressal Committee (GRC). The expert shall facilitate the opening of joint account of PAP, generate awareness about alternative economic livelihood, and enable PAP to make an informed choice.

100. The expert shall carry out periodic consultations with PAP regarding the choice of resettlement (i.e., self or assisted), development of resettlement site, participation of women, etc. The expert shall identify the training needs of PAP for income generation and institutions for imparting training.

101. The expert shall carry out consultations with local people and Panchayat Raj Institutions with regard to relocation, rehabilitation, reconstruction of affected CPRs, as well as availability of new facilities under the project. The expert shall participate in various meetings, submit monthly progress report, and carry out any other activities that may be required for the implementation of the resettlement action plan, tribal development plan, etc.

102. Qualifications and experience:

- (i) Minimum of postgraduate degree in social sciences from a recognized university
- (ii) Minimum total professional experience of 15 years
- (iii) Includes at least 3 years of experience in highway development projects in developing countries, including in Asia
- (iv) Experience in preparation of detailed project reports of highway projects for projects involving 150 lane-kilometers or projects costing more than Rs.2,250 million
- (v) Should have handled the assignments in similar capacity of at least one highway road project involving 150 lane-kilometers or projects costing more than Rs.2,250 million
- (vi) Knowledge of international best practices in latest developments in resettlement and rehabilitation
- (vii) Experience in multilateral/bilateral agency aided projects will be given higher preference.
- (viii) Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
- (ix) Similar capacity includes the following positions:
 - (a) On behalf of consultant: Resettlement Plan Implementation Officer (Construction Supervision/IE/DPR/PMS/NGO/AE)
 - (b) In government organizations: Special Land Acquisition officer (or equivalent) and above.

4. Qualification Requirements of Non-Key Experts

Table C8: Qualification Requirements of Non-Key Experts

No.	Position	Qualifications
1.	Survey Engineer	<ul style="list-style-type: none"> Graduate of civil engineering from a recognized university At least 6 years of experience in the field of surveying out of which 3

No.	Position	Qualifications
		<p>years should be for highway projects</p> <ul style="list-style-type: none"> • Should have been involved in at least one similar highway project • Firm may deploy Survey Engineer with diploma in civil engineering/survey with at least 10 years of experience in the field of surveying out of which at least 5 years should be in highway projects, and should have also dealt with at least one project of similar nature • Position requires thorough understanding of modern computer-based method of surveying with total station digital level, etc. • Should have handled at least two major highway projects of similar size and complexity • Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
2.	Assistant Highway Engineer	<ul style="list-style-type: none"> • Graduate of civil engineering from a recognized university • Professional experience of 6 years in supervision of highway projects • Should have handled at least one major 2/4/6 laning projects of similar size and complexity • Experience in highway project on engineering, procurement, and construction (EPC), annuity, or public-private partnership (PPP) mode • Experience in externally aided projects is desirable. • Project experience less than 1 year in any project will not be considered in determining the experience across the number of projects.
3.	CAD Expert	<ul style="list-style-type: none"> • Graduate/diploma in civil engineering from a recognized university with experience in computer-related design method for highway engineering • Professional experience of 6 years in computer-aided design (CAD) or similar design software • Should have worked on at least two major highway projects of similar size and complexity • Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
4.	Environmental Cum Safety Officer	<ul style="list-style-type: none"> • Minimum of graduate degree in environmental engineering or related sciences from a recognized university • Professional experience of 6 years in environmental aspects of highway projects, e.g., environmental impact assessment, etc. • Experience in implementation of environmental management plan (EMP) in externally aided highway projects is essential. • Experience in road safety audit of at least two highway/expressway projects of similar complexity of projects having a minimum 150 lane kilometer (km) or equivalent, including one project at design stage • Exposure in the field of road safety management plan and experience in working with externally aided projects are preferred. • Experience in road safety aspects during various phases, i.e., pre-construction, design/development/construction stage, safety audit and studies of highway projects • Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
5.	Social Officer	<ul style="list-style-type: none"> • Minimum of graduate degree in social sciences or related discipline from a recognized university • Professional experience of 6 years in social and resettlement and rehabilitation aspects of highway projects, e.g., social impact assessment (SIA), resettlement plan, etc. • Experience in implementation of resettlement plan in externally aided projects is essential. • Project experience less than 1 year in any project will not be considered

No.	Position	Qualifications
		in determining the experience in number of projects.
6.	Assistant Bridge Engineer	<ul style="list-style-type: none"> • Graduate of civil engineering from a recognized university • Professional experience of 6 years in bridge design • 2 years out of a total of 6 years of experience in similar capacity for design of major highway bridges • Experience of designing of two major highway bridges • Design experience of major highway bridge of 200 meter length or more (excluding approaches) • Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
7.	Assistant Quality cum Material Engineer	<ul style="list-style-type: none"> • Graduate of civil engineering from a recognized university • Professional experience of 6 years • Experience of at least 2 years as Quality/Material Expert or in similar capacity in construction/construction supervision/major highway projects. Experience in latest quality management techniques in highway projects using modern technology • Experience as Quality/Material Expert or in similar capacity in handling of at least two similar highway projects of similar size and capacity • Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
8.	Quantity Surveyor	<ul style="list-style-type: none"> • Graduate of civil engineering from a recognized university • Professional experience of 6 years • Experience of at least 2 years as Quantity Surveyor or in similar capacity in construction/construction supervision/major highway projects • Experience as Quantity Surveyor in EPC, annuity, PPP project • In similar capacity, should have handled at least two similar projects of size and complexity • Project experience less than 1 year in any project will not be considered in determining the experience in number of projects.
9.	Horticulture and Landscaping Expert	<ul style="list-style-type: none"> • Bachelor of science (agriculture) degree from a recognized university with horticulture as a subject, preferably with a postgraduate degree in horticulture specialization • Minimum 10 years of experience in the area of horticulture/landscaping with 5 years in relevant field
10.	Surveyors	<ul style="list-style-type: none"> • Should have completed diploma/degree in engineering from a recognized university • At least 2 years of experience in the field of surveying out of which 1 year should be for highway projects • Should have been involved in at least one similar highway project • Firm may deploy Survey Engineer with diploma in civil engineering/survey with at least 5 years of experience in the field of surveying, out of which at least 2 years should be in highway projects, and they should have also dealt with at least 1 project of similar nature.
11.	Laboratory Technicians	<ul style="list-style-type: none"> • Graduate of a recognized university • At least 2 years of experience in the field, out of which 1 year should be for highway projects.
12.	Assistant Resettlement Plan Implementation Officer	<ul style="list-style-type: none"> • Graduate of a recognized university • At least 2 years of experience in the field should be for highway projects.

E. Reporting Requirements and Time Schedule of Deliverables**Table C9: Reporting Requirements**

No.	Activity/Output	Timeframe for Delivery	Hard Copies
1.	Inception Report	3 weeks of mobilization	5
2.	Monthly Technical Report	7th of each month	5
3.	Quarterly Report	15th of each quarter month	5
4.	Additional Technical Report	Periodically as applicable	5
5.	Draft Completion Report	3 weeks of completion of construction	5
6.	Monthly Progress Report (O&M)	7th of each month	5
7.	Closure Report	On completion of EPC contract	5

EPC = engineering, procurement, and construction, O&M = operations and maintenance.

1. Inception Reports (5 copies)

103. The Inception Report shall outline how the AE will implement the project. It shall illustrate the planning that the AE has done for the assignment, staffing, and comments as deemed appropriate. The Authority will comment on the report.

104. The Inception Report must be submitted within 3 weeks after mobilization and should also describe the final format the AE proposes to use for the monthly technical reports.

2. Monthly Technical Reports (5 copies)

105. The AE shall no later than the 7th of each month, deliver a brief progress report summarizing the work accomplished by each of the supervision teams for the preceding month. The Monthly Technical Report shall report on the health and safety, physical progress, status of payment of the contractor's monthly payment certificates, all claims for cost or time extensions, and actions required by the Authority to permit unconstrained works implementation. It shall include problems encountered and recommended solutions and a summary of the log from the meetings with the EPC Contractor. The draft outline for the monthly report is below.

- (i) Health and safety at the work sites: the EPC Contractor must keep a log of accidents by category
- (ii) Physical progress vis-à-vis the planned progress, including time and costs, as well as weekly progress log and issues on the construction sites
- (iii) Explanations for variances to the above
- (iv) Expenditures vis-à-vis the cash flow forecast and budget. The AE shall prepare a detailed report on draw down of equity and debt from the escrow account.
- (v) Explanations for variances to the above
- (vi) Status of EPC Contractor claims and disputes, including EPC Contractor claims for time extension and compensation, variation order (change of scope) proposed and approved
- (vii) Human resources, mechanical equipment, and materials
- (viii) Testing and quality control and inspections carried
- (ix) Stakeholder issues
- (x) Environmental management plan
- (xi) Summary of problems encountered (administrative, technical, financial, etc.) and actions already taken or expected to be taken by the AE, or requested from the EPC Contractor to overcome these problems
- (xii) Other relevant materials and discussions

- (xiii) Annexes: Deviation Report and other supporting information, as necessary
- (xiv) Summary of existing encumbrances such as trees, electrical poles, water lines, underground utilities, public buildings, etc. Include the time program commensurate with the EPC Contractor work program to relocate these encumbrances.
- (xv) Status of land acquisition

3. Quarterly Reports (5 copies)

106. The AE will prepare a report summarizing all supervision activities at the end of each quarter no later than the 15th of each quarter month. It should have roughly the same format as the monthly report, supplemented by the Third-Party Quality Monitoring team's key findings and the AE's responses to them.

107. The AE's quarterly report needs to contain quarterly cash flow projections in a format acceptable to the Authority (PIU). It should also identify updated budget estimates for all outstanding work.

108. The Quarterly Report shall also include the matrix of the EPC Contractor's Deviation Report and results on the quality assurance program, showing both the recent performance and overall trends. The AE shall submit a draft format for this report in the Inception Report.

109. The AE shall prepare a separate biannual Environmental Social Safeguard Monitoring and Supervision Report, which includes changes in the environmental parameters supported by laboratory tests result as set out in the environmental management plan (EMP). The report shall also quantify and assess the efficacy of the environmental impact mitigation measures and recommendations of the best practices.

4. Additional Technical Reports (5 copies)

110. The AE shall prepare design reviews and other technical reports during the project from time to time. In particular, technical reports are necessary for each major design change from the preliminary engineering design. Approvals are required prior to the issuance of substantial changes.

5. Draft Completion Report (5 copies)

111. The AE will prepare the Draft Completion Report within 3 weeks of the completion of the construction works and issuance of the completion certificate in terms of the provisions of the contract agreement clause 14.2. The Draft Completion Report will provide an overview of the project and whether the project has been successful. The report will include, but not be limited, to the following:

- (i) Overall review of the project, including safety and health data during project execution
- (ii) Project timeline for completion and physical progress vs. the original program
- (iii) Project costs vs. the original budget
- (iv) Key issues in the design and explanations for variances to the preliminary design
- (v) Description of additional work, and claims and their disposition
- (vi) The final Quality Deviation Matrix
- (vii) Other information requested by the Authority during project implementation

- (viii) The Third-Party Quality Monitoring Team's Final Report as an Annex
- (ix) The AE will also consolidate all forms of communications between the project stakeholders and shall submit the same to the Authority segregated on a monthly basis.

6. Monthly Progress Report during Operation and Maintenance Period (5 copies)

112. The AE shall submit the monthly progress report on O&M covering compliances against the maintenance requirements as provided under Schedule K and as per other relevant sections of the EPC agreement.

7. Closure Report/Project Hand-Back Report (5 copies)

113. The AE will prepare the Project Hand-Back Report within 3 weeks of the completion of the EPC contract period. The Project Hand-Back Report will provide an overview of the project and whether the project has been successful. The report will include, but not be limited, to the following:

- (i) Overall review of the project, including safety and health data during project execution
- (ii) Description of additional work, and claims and their disposition
- (iii) Other information requested by the Authority during project implementation
- (iv) The AE will also consolidate all forms of communications between the project stakeholders and shall submit the same to the Authority segregated on a monthly basis.
- (v) Compliance by the EPC Contractor with the maintenance requirements
- (vi) Status of handing back of all materials, tools, plant, equipment, facilities, etc., pertaining to the project highway that shall be handed over to the Authority by the EPC Contractor
- (vii) Report on any liabilities, defects or deficiencies pertaining to the project highway

114. A review committee comprising the following officers of the PIU will review all the reports submitted by the AE and will provide comments, if any, within 15 days:

- (i) Superintending Engineer, PIU;
- (ii) Executive Engineer, PIU; and
- (iii) Deputy Engineer, PIU.

F. Client's input and Counterpart Personnel

115. Services, facilities, and property to be made available to the AE by the Client.

- (i) Data and Services
 - (a) The entire copies of EPC contract agreements including bidding documents will be made available to the AE.
 - (b) Necessary letters, which will be required for visas of foreign personnel, and procuring other services by the AE for performing project services
- (ii) Accommodation, Communication, and Vehicles

The AE will be responsible for making his/her own arrangements for all accommodation (including the office of the Team Leader and associated staff stationed in the main office and site staff). The AE should also make arrangements for office furniture, equipment, stationeries, photocopiers, communication facilities such as telephones, web connections, facsimiles, etc., including maintenance thereof, and vehicles for transportation of office staff/field staff, etc. (including operation, maintenance, insurances, and repairs thereof).

(iii) Laboratory Facilities

Access will be provided to the EPC Contractor to the established quality control laboratory. The EPC Contractor will establish and maintain the laboratory including testing equipment, water supply, electricity, and cooling/heating equipment, which shall be made available for use by the AE. Maintenance of the laboratory by the EPC Contractor shall include the costs of electricity, water, and all consumables for testing. The EPC Contractor will be responsible for carrying out tests for quality of soils/materials, etc. The AE shall be required to monitor lab testing and to carry out test checks as necessary to verify compliance with the EPC contract agreement.

G. Performance Clause

116. Authority Engineers shall be expected to fully comply with all the provisions of the terms of reference (TOR) of the EPC agreement and shall be fully responsible for supervising the designs, construction, maintenance, and operation of the facility in accordance with the provisions of the EPC agreement and other schedules. Any failure of the Authority Engineer to notify the Authority and the EPC Contractor on non-compliance of the provisions of the EPC contract agreement and other schedules by the EPC Contractor, as well as non-adherence to the provisions of the TOR and to the time schedule prescribed under the TOR, shall amount to non-performance.

FINANCIAL MANAGEMENT REPORT

A. General Instructions

1. The financial information in the format outlined below are to be included in the quarterly progress reports to be submitted to the Asian Development Bank (ADB) within 45 days after each quarter. In case of delays or incomplete information, ADB will submit a reminder to the executing agency/implementing agency. Repeated delays or incomplete information may have a negative impact on the project performance ratings and may be discussed during review missions.

B. Section A: Utilization of Funds (ADB Loan and Counterpart Funds)

2. In this section, include the following information:

- (i) Overall status of project financing including the adequacy and timeliness of counterpart funds
- (ii) Cumulative contract awards financed by the ADB loan, and counterpart funds (commitment of funds to date), and comparison with time-bound projections (targets: for ADB financing, compare the actual contract awards with the contract award curve included in the project administration manual [PAM]). Include an analysis of significant variances between planned and actual contract awards. Provide contract-wise details as per [Annex 2](#).
- (iii) Cumulative disbursements from the ADB loan, and counterpart funds (expenditure to date), and comparison with time-bound projections (Targets: for the ADB financing, compare the actual disbursement with the disbursement projections as per the S-curve included in the PAM). Include an analysis of significant variances between planned and actual disbursements.
- (iv) Reconciliation of project records and ADB disbursement records (Loan Financial Information System/Grant Financial Information System [LFIS/GFIS]) for the reporting period and cumulative from project inception to end of the reporting period. Explain reasons for discrepancies and outline follow-up actions required (if any). Attach a detailed reconciliation by withdrawal application as per Annex 1.
- (v) Re-estimated costs to completion (if required), need for reallocation within ADB loan categories, and whether an overall project cost overrun is likely

C. Section B: Financial Management

3. In this section, include the following information:

- (i) Summary of the financial management (FM) arrangements in the project, including (a) any problems in the existing FM arrangements and/or flow of funds, and (b) any significant changes that occurred during the reporting period (e.g., FM staff turnover, implementation of new financial systems, emerging FM related risks, etc.)
- (ii) Summary of the status of each agreed action in the FM action plan outlined in the PAM. Attach a detailed log as per [Annex 4](#).
- (iii) Outline the status of recommendations and immediate actions provided by ADB as part of the audited project financial statement/audited entity financial statement (APFS/AEFS) review (if any) and FM related recommendations agreed during ADB review missions (if any). Attach a detailed log as per [Annex 5](#).

- (iv) Summarize the status of past audit observations (if any). Attach a detailed log as per [Annex 3](#).
4. **Annexes.** Attach the following annexes to the report when submitting it to ADB:
- (i) Annex 1: Statement of cash receipts (by financing source) and payments by expenditure category for the reporting period, year to date, and cumulative
 - (ii) [Annex 2](#): ADB loan disbursement report including a detailed reconciliation (by withdrawal application) of project records and ADB disbursement records (LFIS) for the fiscal year to date and cumulative
 - (iii) [Annex 3](#): Contract register/List of signed contracts
 - (iv) [Annex 4](#): Status of past audit observations (resolved/pending)
 - (v) [Annex 5](#): Status of FM action plan (complied/ongoing)
 - (vi) [Annex 6](#): Status of FM related actions agreed during ADB review missions (if any)

**Annex 2: Disbursement Report for the Fiscal Year to Date and Cumulative
Including Detailed Reconciliation (by Withdrawal Application) of Project Records and ADB Disbursement Records (LFIS)
[Separate reports to be generated for each financing source (e.g., ADB loan, ADB grant, etc. as applicable)]**

Statement of Disbursement by ADB Financing Source for the Year Ended DD/MM/YYYY				
Statement of Disbursement	Notes	Reporting Period	Fiscal Year to Date	Cumulative Project to Date
ADB loan/grant – Funds claimed during the year				
Reimbursement				
Advance Fund				
Direct Payment				
Subtotal				
Expenditure incurred but not yet claimed	B			
Subtotal				

Note A: Detailed Reconciliation (by Withdrawal Application) of Project Records and ADB Disbursement Records (LFIS)
for the Fiscal Year to Date and Cumulative
[Separate reports to be generated for each financing source (e.g., ADB loan, ADB grant, etc., as applicable)]

Maharashtra Public Works Department										
Withdrawal Application Details			Per Project Records/APFS (Amount recorded in the project financial statements as reimbursement, direct payment, etc.)				Per ADB Disbursement Records LFIS/GFIS (Actual Paid)			Remarks
Withdrawal Application No (WA)	Disbursement Method (Reimbursement, direct payment, etc.)	Time Period Covered in the Withdrawal Application	Date	In Local Currency (As recorded in project records/financial statements)	Exchange Rate	USD Equivalent (A)	Value Date	In USD (B)	Difference (A-B)	Reason for Difference (i.e., timing forex. Pending rejected)
1.		1-31.3.2020								
2.										
3.										
etc.										
Total – Fiscal Year to Date										
Total – Cumulative										

Note B: Provide a breakdown of expenditures incurred but not yet claimed from ADB including the eligible portion for ADB.

Annex 3: Status of Signed Contracts Cumulative to Date

Contract Information											
Description*	Contract Description	Contract Start	Contract End	Supplier/ Contractor Name	Contract No.	Total Contract Value	Total Contract Amount Invoiced to Date	Total Disbursed on Contract	Total Undisbursed Amount	Responsible Entity	Financing Source (ADB loan, etc.)
1. Civil works											
2. Equipment/ supplies											
3. Consulting services											
Total											

* Classified a per expenditure categories outlined in the project administration manual (PAM).

Annex 4: Status of External Audit Observations – Cumulative from Inception to End of Reporting Period

Responsible Entity	External Audit Recommendation	Date of the Recommendation	Planned Actions to Address the Recommendation	Responsibility	Current Status of the Planned Action (Pending/Resolved)	Remarks

Annex 5: Status of Financial Management Action Plan

Key Risk	Risk Mitigating Activity	Timeline	Responsible Entity	Current status (Implemented/Pending)	Remarks (Including an action plan in case of noncompliance)

Annex 6: Status of Financial Management Related Actions Agreed during ADB Review Missions or Tripartite Portfolio Review Meetings

Date of the Review Mission	Agreed Actions	Timeline	Responsible Entity	Current Status (Implemented/Pending)	Remarks

TERMS OF REFERENCE FOR INTERNAL AUDIT FIRM

1. The internal audit for the project is presently conducted by the project management services consultants who are involved in other reporting compliances. However, to avoid conflict of interest, it has been decided to appoint a separate firm of chartered accountants to conduct the internal audit for Phase I and Phase II of the project for 2022–2023 onward.

A. Scope of Work

2. The internal audit will be carried out for each financial year on semi-annual basis in accordance with the relevant standards of auditing (international standards promulgated by IIA or national equivalents) and will include such tests and controls as the auditor considers necessary under the circumstances. The objective of internal audit is to determine whether the project's risk management, controls, and compliance processes, as designed and represented by management, are adequate and functioning. The Internal Auditor should review whether the project's control framework ensures the following:

- (i) Risks are appropriately identified and managed.
- (ii) Significant financial, managerial, and operating information is accurate, reliable and timely.
- (iii) Employees' actions and transactions are in compliance with internal policies, standard procedures, and external applicable laws and regulations.
- (iv) Resources are acquired economically, used efficiently, and adequately protected.
- (v) Programs, plans, and objectives are achieved.
- (vi) Accounting and financial management systems remain reliable and effective in design and to assess the extent to which they are being followed.
- (vii) System of internal checks is effective in design and operation to ensure prevention of and early detection of defalcations, frauds, misappropriations, and misapplications.
- (viii) Expenditures incurred have the necessary supporting documents and have been incurred in accordance with the Government of Maharashtra rules and the relevant financing agreement with the Asian Development Bank (ADB).
- (ix) Quality and continuous improvements are fostered in the project's control process.
- (x) Significant legislative and regulatory issues impacting the project are recognized and addressed appropriately.

3. The internal audit is to be conducted on semi-annual basis and reports should be submitted to the Project Director and Secretary (Roads) of the Maharashtra Public Works Department (MPWD) within 45 days of the end of each semi-annual period. The Internal Auditor shall verify that the project is effectively and efficiently in compliance with agreed reporting protocols with ADB. The Internal Auditor shall serve as a focal person for the project's auditing activities and shall develop all the auditing policies/systems and their implementation thereof related to ADB project's finances, which shall serve as the basis for all managerial decisions besides effective financial management of funds. This shall require close coordination and communication with the project management unit (PMU) and project implementation units (PIU), external consultants, and field staff, when appropriate.

B. Detailed Tasks

4. The detailed tasks to be performed by Internal Auditors include the following:

- (i) Review the reliability and integrity of financial and operating information and how it is identified, measured, classified, and reported.
- (ii) Review the systems established to ensure compliance with laws and regulations.
- (iii) Review systems established to safeguard assets, when appropriate, verifying existence of assets.
- (iv) Review operations or programs to ascertain whether results are consistent with established objectives and goals, and whether the operations or programs are being carried out as planned.
- (v) Review and appraise the economy and efficiency with which resources are employed.
- (vi) Evaluate the adequacy and effectiveness of the project's process for controlling activities and managing risks.
- (vii) Test key financial reporting controls in identified financial systems and processes.
- (viii) Identify significant risks to the ability of the project to meet its objective, communicating them to management, and ensuring that management has taken appropriate actions to guard against those risks.
- (ix) Perform early entry engagement to assist management in incorporating an adequate control structure in new systems and processes.
- (x) Review the reports of external auditors, monitoring compliance against recommendations of auditors and reporting status to the Project Director, PMU and the Secretary, Roads.
- (xi) Conduct an audit of MIS applications to ascertain reasonable assurance.
- (xii) Ascertain that the internal control system, including financial and operational controls, accounting system, and reporting structure, are adequate and effective.
- (xiii) Suggest ways and means for mitigation of risks associated with the existing procedures and/or systems.
- (xiv) Ascertain the integrity and reliability of financial and other information provided to management and stakeholders, including that used in decision making.
- (xv) Identify financial controls and processes and weaknesses, and make recommendations for improvements.
- (xvi) Comment on the effectiveness of the mechanisms available in the PMU and PIUs for ensuring compliance with observations of the earlier audit reports. Make a report on the corrective action taken on the observations of the earlier audit reports and also list out the serious observations made by the statutory auditor that have not yet been complied with.

C. Reports

5. The internal audit reports should be structured in a manner to provide the following: (i) audit observations, (ii) implications of the observations, (iii) suggested recommendations, (iv) management's comments/agreed actions, and (v) status of action taken on the previous recommendations. In addition, the Internal Auditor should prepare and submit a consolidated report on a semi-annual basis highlighting the critical issues that require the immediate attention of the management. The reports should be submitted to the management within 45 days of the end of each quarter. The auditor should discuss the results of the audit with the Project Director, PMU, and all-important observations should be brought to his/her notice for taking timely corrective and preventive action. The Internal Auditor will bring out in their report the aspects relating to the compliance with audit observations made in the reports regarding earlier audits to duly elaborate the corrective action taken by the concerned implementing division.

D. Qualification Requirements

- (i) Must be a qualified chartered accountant firm registered with the Institute of Chartered Accountants of India
- (ii) Should have preferably a minimum of 10 years of progressive experience related to auditing in the public and/or private sectors
- (iii) Development sector experience of preparing accounting and audit statements/ reports for large projects, preferably foreign and/or donor-funded projects
- (iv) Excellent command of Microsoft Office and relevant accounting software

TERMS OF REFERENCE FOR PROJECT MANAGEMENT SERVICES

A. Background

1. The Government of India has applied for financial assistance from the Asian Development Bank (ADB) toward the proposed project, Connecting Economic Clusters for Inclusive Growth in Maharashtra, with the primary objective of developing the state of Maharashtra's strategic core road network (CRN) in line with the state's Vision 2030 and to (i) connect underdeveloped rural communities, in particular women and disadvantaged groups, with off-farm opportunities in city centers and nearby markets; (ii) provide direct and indirect opportunities to the primarily agrarian population, in particular women and disadvantaged groups, through improved access to health and social services; (iii) boost the road connectivity of border districts such as Nanded to neighboring states; (iv) improve agricultural value chains for small- and medium-sized enterprises by reducing transportation costs; and (v) enhance safety and climate and disaster risk resilience.¹

2. The Maharashtra Public Works Department (MPWD) will be the executing agency. To assist the MPWD in implementing the project, a consultant for project management services (PMS) will be recruited. Table F1 shows the list of roads for which the services of the PMS consultant are required.

Table F1: Details of Project Roads

Package Number	Road Name	Length (km)
EPC 10	Improvement of Siddhatek Pune District Border to Korti Solapur District Border SH 68 km 103/650 to 127/200 and km 0/0 to 0/430 Tal Karjat, District Ahmednagar	23.98
EPC 11	Improvements to NH 9 to Khadki Paravadi Shetphalgade Lakadi Nimbodi Bhawani Nagar Sansar Kurawali Road MDR 84 km 0/0 to 21/900 Tal Indapur District Pune	21.90
EPC 12	Improvement of Yavat Malshiras Saswad Kapurhol Bhor Mandhardev Wai Surur Road, SH 119 km 76/0 to 117/100 and km 0/0 to 4/257 Mandhardeo Approach Road Tal-Bhor and Wai, Districts Satara and Pune	45.36
EPC 13	Improvements to SH 117 to Adarki Mirgaon Phaltan Road SH 149 km 0/0 to 21/00 Tal. Phaltan, District Satara	21.00
EPC 14	Improvement of NH 204 to Kerli Kotoli Nandgaon Nanadari Road SH 191 Road km 0/0 to 24/00, District Kolhapur	24.00
EPC 15	Improvements and widening of road to Karanja Bharsingi Mowad Bangaon SH 323 in km 51/600 to 62/100 Tal. Narkhed, District Nagpur	10.50
	Improvement of Kalmeshwar Ghorad Mohapa Telgaon Tidangi Road SH 349 km 0/00 to 9/250 Tal. Kalmeswar, District Nagpur	9.25
EPC 16	Improvement of Balapur MSH-7 to Kandil Bothi Rameshwar Tanda Wadgaon Girgaon up to NH-161 MDR-10 km 0/00 to 28/672 Tal. Vasmath, District Hingoli	28.67
EPC 17	Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur to Naigaon to state border MDR-83 in Nanded District, (1) Part of Nila junction to Mugat junction km 0/0 to 14/815, (2) Chaitanya Nagar Shiv Mandir to Asna Bridge junction km 0/00 to 3/515, (3) Brahmanwada km 0/00 to 1/590 (total length 19.920) District Nanded	19.92
EPC 18	Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur–Naigaon to state border MDR-83 in Nanded District, (1) Part of Mugat junction to Khujda junction km 14/815 to 34/750, (2) Aamdura km 0/00 to 3/330, (3) Aamdura Link Road km 0/00 to 0/595, (4)	25.84

¹ Government of Maharashtra, Planning Department. 2017. [Vision 2030](#). Mumbai.

Package Number	Road Name	Length (km)
	Malkautha km 0/00 to 1/975 (total length 25.835) District Nanded	
EPC 19	Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur to Naigaon to state border MDR-83 in Nanded District, (1) Part of Khujda Junction to Karegaon Phata km 34/750 to 60/400 (total length 25.650) District Nanded	25.65
EPC 20	Improvement of Nila Junction–Brahmanwada–Amdura–Malkautha–Balegaon–Karegaon Phata–Babli Phata–Bellur to Naigaon to state border MDR-83 in Nanded District, (1) Part of Karegaon Phata to state border km 60/400 to 82/065, (2) Part of Dharmadabad to Balapur IIT up to state border km 0/00 to 5/715 (total length 27.380 km) District Nanded	27.38
EPC 21	Improvement of Kalyan Nagar Pathridi Parbhani Nanded Bhokar Maisha Nirmal Road NH 61 km 592/00 to 615/00 (total length 22.03 km) (Part–Bhokar–Rahati to state border), Bhokar, District Nanded	22.03
EPC 22	Improvement of Ranjani Kumbharpimpalgaon Rajatakali Road SH 222 km 177/400 to 216/00 (total length 37.415 km) Tal. Ghansawangi, District Jalna	37.42
EPC 23	Improvements to Pusesavali Vangi Nagathane Walwa Bargaon Bahe Tambae Kasewgaon Takave Road SH-158 Section Vangi to Walwa 28/470 to 69/460 and km 0/00 to 0/340 to Deorashtre Village Tal. Walwa, District Sangli	41.33
EPC 24	Improvements to Pusesavali Vangi Nagathane Walwa Bargaon Bahe Tambavi Kasewgaon Takave Road SH-158 Section Walwa to Wakurde km 70/00 to 112/620 Tal. Walwa, District Sangli	42.62
EPC 25	Amrapur–Kada–Pathardi–Karjat–Bhigwan to Baramati Road SH 54 km 145/00 to 173/200 Tal–Indapur, District Pune	28.20
EPC 26	Improvement of Bari to Ghoti Sinnar Highway SH 23 km 191/980 to 205/380 (total length 13.32 km) Tal. Igatpuri, District Nashik	13.32

EPC = engineering, procurement, and construction, km = kilometer, MDR = major district road, NH = national highway, SH = state highway.

B. Objective

3. The objective of the proposed project management consultancy services is to assist the MPWD to implement the project through the following:

- (i) provision of web-based real time technology system for project management and project output monitoring support through a project performance management system;
- (ii) provision of support in contracts administration;
- (iii) provision of support in implementation of the project gender action plan (GAP) as per gender equality and social inclusion (GESI) guidelines;
- (iv) monitoring and reporting of social and environmental safeguards implementation;
- (v) road safety auditing, road safety awareness, and road safety assessments, road safety demonstration corridors with improved enforcement of safe driving behavior;
- (vi) preparation and implementation of a systematic road maintenance program and budget estimation; and
- (vii) financial management training and support.

C. Contract Management Framework

4. A project management unit (PMU) and project implementation unit (PIU) have been formed under the MPWD to implement the project. This will act as the “employer” and will be

headed by a project director who will act as the “employer’s representative.” The PMU will be based in the state capital, Mumbai. The PIU will create separate sub-units to be exclusively in charge of the groups of civil works packages. The sub-units will be headed by a nodal officer assisted by appropriate support staff.

5. A consulting firm will be engaged as consultant for the PMS. It will work in coordination with all project managers and/or nodal officers and report to the project director of the PMU.

D. Scope of Consulting Services

6. The scope of consulting services will include, but not necessarily be limited, to the following:

1. Component 1: Project Management and Contract Administration

- (i) Provide overall project management services throughout the construction, commissioning stages, and maintenance period. The total period for the PMS is 48 months. The team leader shall be stationed in the PMU office throughout the construction period to assist in the overall project management.
- (ii) Prepare a project schedule and the corresponding projected contract awards and disbursements in consultation with the employer and provide ADB a realistic schedule for construction and commissioning. The consultant will maintain and update the project schedule throughout the project.
- (iii) Maintain a project-specific website with real-time technology for the project performance management system (PPMS) in the format acceptable to the Employer and ADB. This task consists of
 - (a) monitoring the overall project implementation progress and the development impact of the project; and
 - (b) collecting and updating the project performance indicator benchmarks, which include updating the baseline data in the design and monitoring framework (DMF) (Task 4 below). The DMF as approved by ADB, or as under consideration by ADB, will be provided by the employer upon engagement.
- (iv) Undertake data collection and correlation on the PPMS based upon traffic volumes and travel times, environmental and social impact indicators, socioeconomic indicators, social and poverty reduction impact indicators.
- (v) Develop a project management plan in sufficient detail to enable the project to be monitored as per the employer’s requirements.
- (vi) Based on the monthly progress report submitted by the authority engineer consultants, prepare quarterly progress reports with content and format to be agreed with the employer and ADB. The quarterly progress reports will be approved by the employer for submission to ADB.

2. Component 2: Safeguards

a. Social Safeguards

- (i) Provide support at the project level to the employer in the implementation and monitoring of resettlement plans and gender-related activities.
- (ii) Scrutinize micro plans prepared by the resettlement plan implementation officer and submitted by the authority engineer consultants, finalize and certify

- appropriateness of the plan.
- (iii) Update the resettlement plan as required when there is a change in the scope of land acquisition and involuntary resettlement.
- (iv) Provide advisory services and guidance to the PMU and/or PIU in matters pertaining to the implementation of the resettlement plans, gender-related activities, grievance redress mechanism, application of international labor standards, and social impacts of the project.
- (v) Support the PMU and/or PIU in grievance redress through setting up of the grievance redress committees and a system to record and resolve grievances. Incorporate information on the functioning of the grievance redress mechanism in the semi-annual social monitoring report.
- (vi) Set up a monitoring system for resettlement plan implementation centered in the PMU and networked across all PIUs.
- (vii) In coordination with the PIU social focal points, and resettlement and rehabilitation social development specialists of the authority engineer consultants, prepare the semi-annual social safeguard report by consolidating field-level monitoring reports. The social safeguard report will be approved by the employer for submission to ADB and disclosure on the ADB website.
- (viii) In addition to the above, the expert should discharge their duties as focal social safeguard person on behalf of the PMU.

b. Gender Equality and Social Inclusion (GESI)

- (i) Provide support and assist the MPWD, PMU, and PIUs in the implementation of the GESI action plans on the project.
- (ii) Provide support to implement, monitor, report, and document the activities included in the GESI action plan.
- (iii) Conduct a workshop on GESI action plan implementation for PIUs, authority engineer consultants, and contractors.
- (iv) In coordination with the gender focal and project GESI specialists, prepare a GESI action plan implementation schedule to streamline GESI action plan activities.
- (v) Conduct regular trainings and orientation sessions for the MPWD, PMU, PIU, and contractor staff for sensitizing on GESI requirements in the project.
- (vi) Ensure active participation of women including staff in project activities.
- (vii) Ensure that the set gender targets are met in all project activities.
- (viii) Prepare formats to collect, collate, and report sex-disaggregated data.
- (ix) Prepare the GESI action plan progress reports every quarter and support the PMU on timely submission to ADB of the project's quarterly progress report.
- (x) Prepare and submit a consolidated completion report on gender results at the end of the project.

c. Environmental Safeguards

- (i) Review environment assessment documents and road-specific environment management plans (EMP) in coordination with environmental specialists of the authority engineer consultants and provide recommendations for improvement or revisions, as necessary.
- (ii) Prepare standard monitoring forms and/or checklists in coordination with environmental specialists of the authority engineer consultants to ensure ease and uniformity in reporting of the environmental monitoring plans and EMP implementation.

- (iii) Provide general support at the project level to the employer in implementation and monitoring of road-specific environmental management plans, including matters pertaining to community and occupational health and safety of construction workers.
- (iv) In coordination with the authority engineer consultants, provide support to the employer in processing and approval of environmental safeguards-related permits and clearances such as tree-cutting permit, forestry clearance, and others that will be required for the project roads.
- (v) Provide advisory services and guidance to the PMU and/or PIU on environmental safeguards implementation and environmental issues that may arise during project implementation.
- (vi) In coordination with the environmental specialist of the authority engineer consultants, prepare consolidated semi-annual and annual environmental monitoring reports. The environmental monitoring report will be approved by the employer for submission to ADB, within 3 calendar months from the end of the respective reporting period, and for disclosure on the ADB website.
- (vii) Actively participate in grievance redress and report the status of grievances received and resolution process in the periodic monitoring reports.
- (viii) In coordination with the environmental specialists of the authority engineer consultants and concerned engineers, prepare a climate change adaptation report based on the climate risk assessment report for inclusion in the consolidated environmental monitoring reports.
- (ix) In addition to the above, the expert should discharge their duties as focal environment safeguard person on behalf of the PMU.

3. Component 3: Financial Management

- (i) Review the financial management functions and practices currently adopted by the MPWD and PMU and conduct gap analysis.
- (ii) Develop a comprehensive financial management manual for the project including functional flow charts and narrate the financial management function. The manual shall cover all aspects of accounting and financial management of the program including but not limited to internal control structure, fund receipts and payments, maintenance of accounting records, preparation of periodic financial statements and quarterly and/or annual reports and auditing arrangements, along with necessary templates particularly templates required for submission to ADB.
- (iii) Conduct training for the MPWD staff on general practices of project financial management, including on the use of the financial management manual.
- (iv) Provide support to the project's financial staff to ensure they are aware of their duties and the relevant sections of project documents including the (a) loan and project agreements, (b) project administration manual, (c) ADB's *Loan Disbursement Handbook* (2017) and financial management related publications, and (d) national and ADB's anti-corruption policy and whistleblowing mechanisms.
- (v) Assist the project in preparing annual budget estimates, maintaining proper budget controls, and monitoring budget execution.
- (vi) Review the adequacy and effectiveness of internal controls and provide recommendations for improving systems and tools. Verify that all project bank accounts are reconciled on a monthly basis and provide support in resolving reconciliation items, if any.
- (vii) Undertake random visits to the regional and/or division offices and PIUs, and review financial management and procurement functions, to ensure compliance

- with the relevant policies, procedures, and practices and appropriateness of the system of the project.
- (viii) Provide support to the PMU, PIUs, and divisional offices in maintaining separate books of account for the project and in ensuring all project expenditures are captured in the books of accounts in accordance with applicable accounting standards.
 - (ix) Verify payments for division activities to ensure appropriateness of documents and transactions and to assist the divisional offices and the PMU in ensuring that all necessary supporting documentation as outlined in the *ADB Loan Disbursement Handbook* (2014) is duly collected and verified before payment approval.
 - (x) Assist the PMU in preparing withdrawal applications and in collection and filing of all supporting documentation in accordance with the *ADB loan disbursement handbook* (2014).
 - (xi) Assist the PMUs and divisional offices in preparing and submitting periodic financial reports in the agreed format and in a timely fashion.
 - (xii) Assist the PMU in (i) preparing consolidated quarterly financial reports and project annual financial statements in the agreed format and in a timely fashion as well as ii) reconciling the project accounts with the ADB disbursement data to ensure all funds disbursed by ADB are correctly reflected in the periodic financial reports and the project financial statements.
 - (xiii) Support the project in the annual audit process and in the timely submission of the audit report to ADB within 6 months after the end of the fiscal year.
 - (xiv) Support the PMU in ensuring that all financial records are filed and stored in an orderly manner in a physically safe location (flood- and fire-proof), and daily/weekly electronic back up is maintained on an external server or hard drive and updated regularly.
 - (xv) Support the project in the follow-up of internal and external audit recommendations to further improve the internal controls of the project.
 - (xvi) Assist the project in implementing financial recommendations as agreed between the project and ADB during review missions.

E. Implementation Arrangement

7. The consulting services will be implemented by a firm of national consultants for a total duration of 48 months. The consultant selection will be in accordance with the quality- and cost-based selection method using a quality and cost ratio of 90:10.

8. The suggested composition and associated intermittent time inputs for the project management consultant team are given in Table F2. The minimum time input for the national expert is 70 person-months.

Table F2: Project Management Consultant Positions

No.	Position	No. of Position	Person-Months	Indicative Responsibility
I.	Key national experts			
1.	Team Leader/Contract Administration Specialist	1	48	All Components
2.	Social Development Specialist	1	24	Component 2a
3.	Gender Equality and Social Inclusion Specialist	1	30	Component 2b
4.	Environmental Specialist	1	24	Component 2c
5.	Project Performance Monitoring System Specialist	1	24	Component 1
6.	Financial Management Specialist	1	18	Component 3

No.	Position	No. of Position	Person-Months	Indicative Responsibility
	Total Person-Months		168	
II.	Non-Key National Experts			
7.	Contract Administration Coordinator	1	48	Component 1,3,4
	Total Person-Months		48	
III.	Administrative And Support Staff			
8.	Financial Assistant/Accountant	1	18	All Components
9.	Data Entry Operator	1	24	All Components
	Total Person-Months		42	

9. For consultant selection, only the curriculum vitae of key experts (positions 1–6) will be evaluated.

10. The detailed requirements and importance (in terms of weighting) of each requirement are shown in the evaluation sheets included in the Appendix to the Data Sheet.

11. The preferred qualification and experience requirements for the project management consultant personnel are below.

Table F3: Project Management Consultant Qualification Requirements

Position 1	Team Leader/Contract Administration Specialist
	As the Team Leader, the expert will be responsible for overall coordination, personal management, and delivery of the services. The expert should be familiar with contract administration under engineering, procurement, and construction (EPC) contracts.
Qualifications	Master's degree or equivalent in civil engineering or related field. Membership in relevant professional institutions will be an advantage.
Total professional experience	15 years
Project-related experience	10 years of experience in contract administration, project management, and implementation of highway projects. As the Team Leader, the candidate should have the experience as a team leader of at least three projects.
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies
Position 2	Social Development Specialist
	The expert will be responsible for coordination and delivery of the social safeguards and gender related components including implementation of the gender action plan.
Qualifications	Master's degree or equivalent in social sciences or related field
Total professional experience	10 years
Project-related experience	7 years of experience in implementing or monitoring social components for developmental projects, preferably in the transport sector. Familiarity with the ADB policy on social safeguards and on project compliance monitoring and reporting is preferred.
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies
Position 3	Gender Equality and Social Inclusion Specialist
	The expert will be responsible for coordination and delivery of the GESI related components including implementation of the GESI action plan.
Qualifications	Master's degree or equivalent in social sciences or related field

Total professional experience	10 years
Project-related experience	7 years of experience in implementing or monitoring the GESI action plans for developmental projects, preferably in the transport sector. Familiarity with the ADB policy on gender and development, gender mainstreaming, and project compliance monitoring and reporting is preferred.
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 4	Environmental Specialist
	The expert will be responsible for overseeing the smooth implementation of environmental safeguards.
Qualifications	Master's degree or equivalent in environmental sciences, environmental engineering, or related field
Total professional experience	10 years
Project-related experience	7 years of experience in environmental impact studies and implementing or monitoring environmental management plans of developmental projects preferably in the transport sector. Familiarity with the ADB policy on environmental safeguards and on project compliance monitoring and reporting is preferred.
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 5	Project Performance and Monitoring System Specialist
	In coordination with the Team Leader and the PMU, the expert will be responsible for developing the website for the project performance monitoring system, collecting relevant data to define baseline targets, and assessing the project's achievements against the relevant targets.
Qualifications	Degree in a relevant field such as economics, civil engineering, or equivalent work experience in infrastructure project monitoring and evaluation
Total professional experience	10 years
Project-related experience	7 years of experience in infrastructure project evaluation and monitoring. Familiarity with ADB's processes will be an advantage.
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 6	Financial Management Specialist
	The expert will be responsible for the financial management component. Specifically, the expert will be responsible for the internal audit, preparation of the financial management manual, and assisting the PMU with budgeting, withdrawal applications, preparation of financial reports, and running the training program.
Qualifications	Chartered Accountant. Membership in relevant professional institutions will be an advantage.
Total professional experience	15 years
Project-related experience	10 years of experience in financial management practices including internal and external auditing. Experience in financial management in ADB or multilateral development bank projects (e.g., the World Bank). Experience related to road projects will be an advantage.
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 7	Contract Administration Coordinator
	The contract administrator coordinator will be responsible for assisting the Team Leader in preparation and data compilation.
Qualifications	Degree in engineering or social science or any related field
Total professional experience	8 years
Project-related experience	3 years of experience in contract administration of road projects
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 8	Financial Assistant/Accountant
	The financial assistant/accountant will assist the financial management specialist.
Qualifications	Degree in commerce or equivalent discipline
Total professional experience	8 years
Project-related experience	3 years of experience in infrastructure related accounting and banking procedures
Overseas/country experience	–

Position 9	Data Entry Operator
	The data entry operator will assist the staff of the office.
Qualifications	12th Std. pass with ITI computer operator certificate
Total professional experience	2 years
Project-related experience	Well versed with computer operation
Overseas/country experience	–

Source: Asian Development Bank.

F. Additional Services

12. The consultant, if required by the employer, shall provide any additional service at rates or on person-month rates as per the contract, or as mutually agreed upon, as a variation order.

G. Reports

13. The consultant will prepare and submit to the employer the reports as listed in Table F4 based on the format prepared by the consultant and as approved by the employer.

14. The inception report will be prepared as a refinement of the consultant's proposal, and include any amendments on the work program, methodology, and staffing based on findings during the 1-month inception period. It should contain the details of all meetings including the officials met.

15. The quarterly progress report shall be prepared based on the monthly progress report submitted by the two authority engineer consultants. It will contain at least a summary of progress based on the project performance management system (Tasks 3 and 4), key issues including delays, if any, and the proposed solutions or recommendations for corrective measures, details of all meetings, decisions taken therein, mobilization of resources (the consultant and the contractors), physical and financial progress and the projected progress for the forthcoming periods, and the overall implementation of environmental, social, and resettlement safeguard requirements.

16. The final report shall be prepared as a comprehensive completion report of the PMS, summarizing (i) details of personnel mobilizations, (ii) contract administrations (variations, extensions, etc.), (iii) summary of project achievement against the DMF indicators at the project

management consultant demobilization stage, and (iv) lessons from the project and the project management consultant's recommendations for future and/or similar MPWD road projects.

Table F4: Reports to be Submitted

Sl. No.	Report	Frequency	Due Date	No. of Copies	No. of CDs
1.	Inception report	One time	Within 30 days after commencement of services	5	1
2.	Project performance management system report	Annual	30 days following the end of reporting 12 months	5	1
3.	Quarterly progress report	Every 3 months	30 days following the end of reporting quarter	5	1
4.	GESI action plan progress report	Every 3 months	30 days following the end of reporting quarter	5	1
5.	Consolidated report on GESI action plan capturing gender equality results	One time	Within contract period	5	1
6.	Consolidated social safeguard report	Semiannual	30 days following the end of reporting 6 months	5	1
7.	Consolidated environmental monitoring report	Semiannual	30 days following the end of reporting 6 months	5	1
8.	Website output report	Monthly	Every 5th of following month	5	1
9.	Final report	One time	End of contract	5	1

Source: Asian Development Bank.

H. Staffing Schedule

17. After awarding of the contract for the consulting service, the employer expects all the proposed key personnel to be available during contract implementation as per the agreed staffing schedule. The employer will not consider substitutions during contract implementation except under exceptional circumstances. In case of such replacements, the consultant will ensure that there is a reasonable overlap between the staff to be replaced and the replacement whenever feasible.

I. Consultant's Proposal Submission

18. These terms of reference are prepared to address the PMS consultant package in a general way. The shortlisted consultants are advised to inspect the project sites and to acquaint themselves with the ground realities. The consultants are also advised to go through the bidding documents of the associated construction packages that have been put to tender by the employer before the submission of the proposal and include the provisions required thereof for meeting the contract requirements.

J. Employer's Input and Counterpart Personnel

19. The employer will make available the detailed project reports for each contract package, which have been prepared generally in accordance with the Indian Roads Congress standards.

20. The employer will also assign sufficient and relevant MPWD staff to participate in the capacity-building activities and hands-on training related to road safety, road maintenance, and financial management.

TERMS OF REFERENCE FOR QUALITY INFRASTRUCTURE INVESTMENT SUPPORT

A. Background

1. The Government of India has applied for financial assistance from the Asian Development Bank (ADB) toward the proposed project, Connecting Economic Clusters for Inclusive Growth in Maharashtra, with the primary objective of developing the Maharashtra state's strategic core road network (CRN) in line with the state's Vision 2030 and to (i) connect underdeveloped rural communities, in particular women and disadvantaged groups, with off-farm opportunities in city centers and nearby markets; (ii) provide direct and indirect opportunities to the primarily agrarian population, in particular women and disadvantaged groups, through improved access to health and social services; (iii) boost the road connectivity of border districts such as Nanded to neighboring states; (iv) improve agricultural value chains for small- and medium-sized enterprises by reducing transportation costs; and (v) enhance safety and climate and disaster risk resilience.¹

2. The Government of Maharashtra, through the Maharashtra Public Works Department (MPWD), is working to support Vision 2030 through interventions in the road subsector. Vision 2030 envisions quality, reliable, sustainable, safe, and affordable roads that are accessible to all. The plan seeks to improve national and state highways and rural road networks to establish major economic corridors. It also includes addressing the binding constraints to development for the state government's priority agriculture, horticulture, and allied activity economic clusters. These binding constraints across these clusters include traffic congestion, inadequate road widths, road surface roughness, and undulations, as well as road safety concerns. Extreme climate change events are also contributing to road infrastructure deterioration. Low road density is identified as a major driver of climate change vulnerability in the state.² Severe flooding occurs during the monsoon season with strategic connections submerged in the districts of Kolhapur, Nanded, Nashik, Pune, Sangli, and Satara. One-third of crop lands in Nanded are devoted to cotton farming but cotton farmers face infrastructure constraints, including missing road network links and limited all-weather access to sell their produce at the cotton market in Bhainsa in the neighboring state of Telangana.

3. Road transport sector projects extend into most facets of community life and access to transportation on safe roads has direct impacts on economic outcomes and quality of life. Many community members, including women, children, and the elderly, rely on roads to access health care and educational facilities. However, road safety remains a concern. Maharashtra ranked second among Indian states in terms of road fatalities in 2019, a deterioration from its third rank in 2017.³ The poor in particular are vulnerable to the impact of road accidents. Low-income households, such as those of unskilled labor among farmers working in the agriculture sector, are disproportionately affected.⁴ The role of the road transport sector is not only to improve related infrastructure, but also to ensure that projects provide benefits related to improved income and employment opportunities, public health, education, and social, economic, and gender equality. Upgrading the road network to all-weather condition and with gender equality and social inclusion (GESI)-responsive features will contribute significantly toward improving road safety and access to markets as well as basic health, education, and social services, especially for rural people in the state. This is critical to achieving better social outcomes for seasonal migrant workers, women, children, and other disadvantaged groups needing access to water and sanitation, health

¹ Government of Maharashtra, Planning Department. 2017. *Vision 2030*. Mumbai.

² Indian Institute of Technology Mandi and Indian Institute of Technology Guwahati. 2021. *Climate Vulnerability Assessment for Adaptation Planning in India Using a Common Framework 2019–2020*.

³ Government of India, Ministry of Road Transport and Highways. 2020. *Road Accidents in India (2019)*. New Delhi.

⁴ World Bank. 2021. *Traffic Crash Injuries and Disabilities: The Burden on Indian Society*. Washington, DC.

services, food grain public distribution centers, and social protection schemes.

B. Objectives

4. The project will have the following outcome: transport efficiency, safety, and access to markets and basic social services in Maharashtra improved and sustained.⁵ To achieve this outcome, the project's design incorporates four outputs, as detailed below.

5. **Output 1: State highways and major district roads of the core road network upgraded and maintained.** The project will (i) upgrade at least 319 kilometers (km) of state highways and 149 km of major district roads with climate- and disaster-resilient features that respond to the needs of the elderly, women, children, and people with disability; and (ii) commence 10-year performance-based maintenance contracts.

6. **Output 2: New interstate roads connecting Nanded and Telangana developed and maintained.** The project will (i) construct 5 km of major district roads with climate- and disaster-resilient as well as features that respond to the needs of the elderly, women, children, and people with disability to connect Nanded with Telangana, and (ii) commence 10-year performance-based maintenance contracts.

7. **Output 3: Capacity for project monitoring, road safety, and maintenance strengthened.** The project will complement the central government's state road incentive program and contribute to replicable road safety and maintenance improvements: (i) implement automated traffic survey and traffic direction systems on project roads; (ii) establish and manage a project-specific web interface and dashboard with real-time information to monitor traffic, design, contracting, and construction progress, land acquisition, and compensation disbursement; (iii) establish road safety demonstration corridors on project roads with advanced technology, improved standards for road design and construction, and strengthened enforcement; (iv) reach villages in project areas with road safety awareness campaigns by self-help groups led by women; (v) develop at least two modalities for road maintenance involving the private sector using output and performance or area-based maintenance contracts for other roads forming the core road network; and (vi) develop and implement a good practice handbook for climate change adaptation and disaster risk reduction in road design and maintenance.

8. **Output 4: Gender equality and social inclusion promoted in highway works, schools, health, and social services.** The project will (i) prepare and implement guidelines for gender equality and social inclusion (GESI)-responsive state highway works programs; (ii) provide enterprises led by women of poor and disadvantaged groups with certified skills training for livelihood opportunities as wayside service providers; (iii) establish water and sanitation facilities at schools along project roads; (iv) develop *janasuvudha kendras* (integrated service centers) for women cane cutters and migrant populations to provide basic health, sanitation, education, and other services; and (v) train people from self-help groups led by women in knowledge and skills to operate the *janasuvudha kendras*.

9. Several performance indicators are defined in the project's design and monitoring framework to achieve the project's outcome by year 2028:

- (i) average travel time on project roads reduced by at least 30%;
- (ii) average travel time for farmers to transport produce from Nanded to markets

⁵ The preliminary design and monitoring framework is in Appendix 1.

- reduced by at least 30%;
- (iii) people in project areas who reported ease in access to health and education facilities increased by at least 5%;
- (iv) at least 700 persons employed by the project;
- (v) average number of fatalities per year in road accidents on the project roads reduced by at least 10%;
- (vi) road safety corridor replicated in at least 60 km of the CRN; and
- (vii) road sector maintenance modalities, developed under this project, replicated for at least two roads in the state with procurement initiated

C. Scope of Consulting Services

10. The consulting services for quality infrastructure investment support (QIIS) will be focused on assisting the MPWD in delivering output 3 of the project. A consulting firm will be engaged and will work in coordination with all project managers and/or nodal officers and report to the project director of the project management unit (PMU) based in the state capital, Mumbai.

11. The scope of consulting services will include, but not necessarily be limited to supporting, the components outlined in the following paragraphs.

1. Establishment of Road Safety Demonstration Corridors with Advanced Technology

12. **Context.** To improve road safety, the state government has already (i) prepared a road safety policy and an action plan for reducing road accident fatalities and injuries by 20%; (ii) established a road safety council; (iii) appointed the Office of Transport Commissioner, Mumbai as a lead agency; (iv) established a road safety fund; and (v) undertaken road engineering measures.⁶ Despite these actions, Maharashtra has a high road accident fatality rate, and further action is required to prioritize road safety and to build institutional capacity.

13. **Road safety indicators.** The number of road accidents reported in 2019 in Maharashtra decreased by 7.8% compared to 2018, while the number of road accident fatalities decreased by 3.6% (footnote 3). This is a result of efforts by the Government of Maharashtra toward improving road safety. Despite these improvements, Maharashtra ranked second out of all Indian states in terms of road fatalities in 2019, a deterioration from the third rank in 2017. This was driven by the fatality rate rising sharply from 34.2% in 2017 to 38.8% in 2019 (Table G1). A survey-based study commissioned by the World Bank found that road crash deaths in India have a tangible impact on poverty. The poor in particular are largely vulnerable to the impact of road accidents. Low-income households, such as those of unskilled labor among farmers working in the agriculture sector, were disproportionally affected and were 3 times more likely to lose pre-crash jobs or experience a sharp decline in income. In Maharashtra, 44% of low-income households took on debt to cope with the financial burden caused by road accidents (footnote 4).

14. These statistics highlight that greater progress in road safety is needed. Two road safety demonstration corridors are proposed for implementation under the project in line with international experience and practice. Best practice is that road safety demonstration projects do two things in parallel: (i) reduce fatalities and serious injuries, and (ii) build institutional capacity. The demonstration corridors will therefore develop a comprehensive approach to infrastructure

⁶ The state government aims to create a ₹2,500 million fund to make roads safer through an additional levy on newly registered vehicles; ₹630 million was allocated to the road safety fund in FY2019.

design as well as multisectoral cooperation to include police, transport, public works, and health departments.

Table G1: Road Safety Indicators in Maharashtra and India, 2016–2019

Road Safety Indicators	2016	2017	2018	2019
Road Accidents				
Maharashtra	39,878	35,853	35,717	32,925
Maharashtra share in India (%)	8.3%	7.7%	7.6%	7.3%
Maharashtra state rank	4	4	6	6
Road Fatalities				
Maharashtra	12,935	12,264	13,261	12,788
Maharashtra share in India (%)	8.6%	8.3%	8.8%	8.5%
Maharashtra state rank	3	3	2	2
Fatality Rate				
Maharashtra	32.4%	34.2%	37.1%	38.8%
India	31.4%	31.8%	32.4%	33.7%

Source: Ministry of Road Transport and Highways. [Road Accidents in India–2019](#).

15. **Key activities.** The suggested key steps for the QIIS consultant to deliver the two road safety demonstration corridors on the project roads include the following:

- (i) Undertake a rapid road safety capacity review and safe system project identification using a customization of the World Bank guidance.⁷
- (ii) Scope and cost estimate the priority safe system projects, proposing measures including infrastructure improvements, improved enforcement, and targeted initiatives focused on particular road users. Projects are to achieve at least iRAP 3-star rating for vehicles, motorcycles, and pedestrians.⁸ Solutions are to apply gender-sensitive design and demonstrate innovative technologies such as average speed enforcement cameras, side traffic activated speed reduction at intersections, flexible center and roadside barriers, priority lanes and signals for buses, dedicated motorcycle lanes, best practice pedestrian facilities especially at schools, and mass and speed management practices for the sugar cane industry.
- (iii) Draft an implementation plan for the package of projects including multiagency governance as appropriate for each project.
- (iv) Secure State Road Safety Committee endorsement for the projects and the agency roles.
- (v) Establish a road safety expert group in the project management unit/project implementation unit (PMU/PIU), and a reporting arrangement for the lead agency is also advised.
- (vi) Provide technical support to the PMU/PIU and road safety expert group to procure safe system projects.
- (vii) Undertake road safety audits at the feasibility, preliminary design, detailed design, roadworks, and pre-opening stages of the safe system projects.

16. To support the objective of building capacity in skills, experience, and institutional functions, key suggested activities are the following:

- (i) Set up practical safe system workshops for the MPWD staff with an emphasis on

⁷ See [Road Safety Management Capacity Review Guidelines](#).

⁸ The [International Road Assessment Programme](#) or iRAP star ratings are used for road safety inspection, road safety impact assessments, and road designs.

- the technologies included in the selected safe system projects.
- (ii) Guide the MPWD in preparing a performance framework for the safe system projects.
- (iii) Deliver two trainings on the approach of combining road safety audit and the iRAP methodology, referred to as Star Ratings for Road Safety Audits workshops, for the MPWD engineers and consultants.
- (iv) Host safety performance workshops for the two selected safe system projects combining the MPWD and contractors at the initiation phase of the projects to produce safety performance management plans.

2. Road Safety Awareness Campaigns Involving Women-Led Self-Help Groups

17. **Key activities.** Road safety enforcement and awareness campaigns (54 in number) involving self-help groups (SHG) led by women are to be delivered at villages with a focus on safety for the elderly, women, children, and people with disabilities. The QIIS consultant shall support the MPWD and police department in delivering the campaigns. Police (including female police officers) must be involved and have a visible presence. The scope, planning, and cost estimates for the campaigns should be prepared in consultation with the MPWD and police department and approved by both before execution. The QIIS road safety experts shall plan and coordinate the road safety enforcement and awareness campaigns to facilitate the involvement of community-based organizations. With support from the Gender Specialist, the Road Safety Expert will prepare the training modules and the information, education, and communication (IEC) materials and conduct the training of a master trainer. The Road Safety Expert will coordinate, organize, and support the women-led SHGs and women's collectives to deliver and implement the 54 road safety awareness campaigns. Each road safety road awareness campaign is expected to involve a minimum of 100 participants, with 50 participants being women and girls. Participation of all eligible women during the road safety awareness sessions is required and should be recorded. Annual road safety enforcement and awareness reports should be produced to record the delivery of the road safety campaigns.

18. The suggested activities for the QIIS consultant to support the enforcement and awareness campaigns include the following:

- (i) enforcement and awareness campaign design in consultation with the MPWD and police department;
- (ii) collection of sex-disaggregated baseline data on the target road user behaviors and attitudes;
- (iii) identification of any necessary campaign equipment and preparation of material support needed from the MPWD, police, or other government sources;
- (iv) at least five training of trainers conducted for five SHG units along with the MPWD, police, and community group volunteers, as needed, to support effective campaign delivery;
- (v) campaign implementation planning including development of a communications strategy, IEC materials, and key messaging; and
- (vi) campaign effectiveness monitoring and reporting.

3. Streamlining Real-Time Project Monitoring and Reporting

19. **Key activities.** The QIIS consultant will review the existing ICT (information and communications technology) systems in place and in use by the MPWD for project surveillance and progress reporting and review emerging technology, internationally and domestically, to apply

ICT and pilot novel approaches for project reporting, implementation, and monitoring.

20. The QIIS consultant shall then propose applications of ICT and advanced technologies for project planning, implementation, and monitoring. Examples of ICT and advanced technologies could include the use of GPS-video technology and Smartphone apps for visual road inventories; unmanned aerial vehicles (or drones) for real-time monitoring; automated data collection for logging the locations of construction equipment; in-transit material management systems and other technologies including but not limited to structural maintenance monitoring systems, intelligent transport management systems collecting real-time running data, use of cameras and speed sensors, and automated traffic counters and classifiers.

21. Before adopting any proposed technologies, these will be assessed by both the MPWD and ADB. The selected advanced technologies will then be implemented to support development of a real-time project tracking and monitoring system that can be used to conduct daily monitoring of the subproject roads. The system should cover design processes, contracting progress, construction progress, land acquisition, compensation disbursement to project affected persons, and traffic information.

22. The QIIS consultant shall formulate, develop, and maintain a project-specific website with real-time technology for the project performance management system in the format acceptable to the PMU/PIUs and ADB. This task consists of the following:

- (i) preparing and developing the website for project performance management system in the initial stage in accordance with the project's design and monitoring framework;
- (ii) managing and updating the website including all the key details of the package-wise project roads such as contract documents, monthly reports, measurements, work photographs/videos, and key financial information, etc.; and
- (iii) providing a dashboard to the user with summary statistics of physical and financial progress, key reports, etc., with a facility to drill down to the package level statistics. The system will display the latest road progress on Google Maps such that physical progress can be reviewed to ascertain necessary action.

4. Maintenance Contracts Modalities Using Output and Performance or Area-Based Contracts

23. **Key activities.** The consultant will (i) review various public-private partnership (PPP) contract modalities for the road sector in Maharashtra; (ii) review other good practices of PPP contract modalities in other countries and/or sectors; (iii) identify issues and lessons of the current PPP contract modalities in the road sector, particularly in their implementation; (iv) propose some new and/or modified PPP contract modalities to involve more private sector participation; and (v) summarize narrative conditions of contract of the proposed modalities. The impact of COVID-19 on the private sector, particularly on its financial capacity, needs to be fully considered. Draft contracts to be used for future bidding documents must also be prepared.

24. The consultant will submit (i) a review report of the current PPP contract modalities, (ii) a final report including the proposed modalities and conditions of contract, and (ii) special reports as requested by the PMU. The consultant will submit draft contract documents of the proposed modalities.

5. Climate Change Adaptation and Disaster Risk Reduction Good Practice

25. **Key activities.** The QII Climate Change and Disaster Risk Reduction and Management Expert shall prepare a good practice handbook for climate change adaptation and disaster risk reduction and management in road design and maintenance. The guidebook should be prepared in consultation with the MPWD and approved by the MPWD.

26. The Climate Change and Disaster Risk Reduction and Management Expert will perform the following:

- (i) Review available information on disaster risks affecting road assets and the MPWD activities in the state.
- (ii) Review published information on climate change projections and applicable climate change plans and policies in the state, and prepare district-wise assessment combining disaster risks and climate change impacts where applicable.
- (iii) Conduct visits to sample roads in representative areas to better understand impacts of disaster and projected climate change effects on road assets designed and managed by the MPWD.
- (iv) Review international and local/national good practices and applicable design standards for roads and related structures and conduct assessment of effectiveness of these designs in response to identified disaster risks and climate change impacts in the state.
- (v) Consult with the MPWD on design standards and the usual approach in designing roads and related structures.
- (vi) Assess the level of understanding of disaster risks and climate change impacts within the MPWD and the capacity of staff to address these through design and maintenance.
- (vii) Synthesize the disaster risk and climate change impact assessment and provide district level recommendations on design and maintenance approaches to help manage these risks in the form of the Good Practice Handbook for climate change adaptation and disaster risk reduction and management in road design and maintenance. The handbook should include case studies based on literature review and actual roads visited in the state.
- (viii) Prepare a capacity building plan and design and conduct two training programs for the MPWD in the use of the Good Practice Handbook in their design and maintenance functions.

6. Gender Equality and Social Inclusion Responsive Implementation Guidelines for State Highway Works Programs

27. **Key activities.** The QIIS GESI Expert will, in consultation with the MPWD, prepare guidelines for GESI-responsive state highway works programs⁹ and implement the guidelines at eight selected locations (PIUs). For this, the suggested activities for the consultant to undertake are to (i) conduct necessary assessment and review of past projects completed by the MPWD for GESI inclusion, (ii) conduct an institutional readiness assessment of the MPWD to implement GESI-responsive highway works program, (iii) prepare standard operating procedures (SOP) for adoption of the highway works program by the MPWD based on an institutional readiness

⁹ The GESI-responsive program will include GESI mainstreaming mechanism in planning, construction, and maintenance of state highway works that will include but not be limited to (i) integration of GESI issues and concerns in project planning and design; (ii) mechanism for women's participation in project planning and design; (iii) elements for safety for women and children during construction, and integration of requisite advisory and provisions in the contractor's contract for the same; and (iv) GESI elements integrated into maintenance contracts.

assessment, (iv) conduct training program for the MPWD staff (both male and female), and (v) conduct a post training survey to assess the participants' acquired knowledge and skills.

7. Organization of Health Camps

28. **Key activities.** The suggested activities to be undertaken by the QIIS GESI Expert in consultation with the MPWD and the road safety expert include (i) identifying the location for conducting the health camps along the project roads, (ii) identifying the type of health camps, and (iii) organizing and conducting health camps with women representation in line with the targets specified in the GESI action plan.

8. Awareness Generation and Orientation of Contractor's Personnel

29. **Key activities.** The QIIS GESI expert will, in consultation with the MPWD, (i) conduct awareness generation and orientation of contractors' personnel on collection and maintenance of sex-disaggregated data on construction workers; (ii) issue a draft advisory for contractors to enhance women's participation in all skilled and unskilled works and share the same with the MPWD; (iii) conduct training programs for road safety, sexually transmitted infections (including HIV), and gender awareness; and (iv) conduct a post training survey to assess the awareness levels among the contractor personnel.

9. Skills Training for Women for Livelihood Opportunities as Wayside Service Providers

30. **Key activities.** The QIIS GESI Expert shall implement the skills training to be provided to women from poor and disadvantaged groups from women-led enterprises for enhancing their livelihood opportunities to set up wayside services. For this, the consultant shall undertake the following suggested activities: (i) identify key skills and wayside services with specific focus on activities that can improve physical access for women such as passenger transport operations (for example, e-rickshaws for last mile connectivity, women only transit services), transport related farm support, processing and marketing of farm produce, etc.; (ii) identify opportunities for facilitation of uptake of such livelihood opportunities within the framework of the National Rural Livelihood Mission (NRLM) and Mahatma Gandhi National Rural Employment Guarantee (MGNREGA) schemes; (iii) identify skill training institutions of the state/central government in the project districts to conduct the skills training; and (iv) identify interested women for training through women-led self-help groups in the project districts and facilitate the training program.

10. Facilitating Construction of Water and Sanitation Facilities at Schools along Project Roads

31. **Key activities.** The QIIS GESI Expert will, in consultation with the MPWD, identify 18 schools along project roads that require water and sanitation facilities. In coordination with the other project implementation consultants and contractors, the consultant will ensure that the identified schools are provided with water and sanitation facilities that include (i) separate toilets for girls and differently abled persons with running water, handwashing station with soap and water; (ii) space for change of clothes, dustbins, or incinerators for safe disposal of menstrual products; and (iii) safe piped drinking water.

11. Development of Demonstration *Janasuvudha Kendra* for Women Cane Cutters and Migrant Populations in Kolhapur, Sangli, and Satara Districts

32. **Key activities.** The QIIS GESI Expert shall facilitate the development of *janasuvidha kendras* in the three districts of Kolhapur, Sangli, and Satara. The suggested activities for the QII GESI Expert are the following: (i) in consultation with the MPWD, the respective district and village panchayat officials and local community will conduct a feasibility study to identify the (a) location of *janasuvidha kendras*, and (b) the services to be provided in these *kendras*; (ii) sensitize/guide/monitor the project implementation, design, and supervision consultants on the setting up of these facilities; (iii) coordinate with the departments of health, women, and child development, the respective village panchayat offices, and the sugarcane cutter organizations/cooperatives; and (iv) prepare an operations and maintenance (O&M) model integrating the central and state government schemes/services to operate these *kendras*.

12. Identification and Training of Persons from Women-led SHGs to Operate the *Janasuvidha Kendra*

33. **Key activities.** The QIIS GESI Expert, with support from the training expert, will work in consultation with the state department of women and child development and the MPWD to prepare well-defined selection criteria for the identification of persons from women-led SHGs to operate the *janasuvidha endra*. The QII GESI Expert will then conduct at least two trainings of the SHGs, including preparation of training and learning materials (including mechanism for O&M of the integrated facilities, establishing service benchmarks, etc.), develop a training calendar, and deliver the training program.

D. Implementation Arrangements

34. The consulting services will be implemented by a firm of national consultants for a duration of 24 months. The consultant selection will be in accordance with quality- and cost-based selection method using a quality-and-cost ratio of 90:10.

35. The suggested composition and associated intermittent time inputs for the QII consultant team are given in Table G2. The minimum time inputs for the key international experts are 60 person-months and for the key national experts, 18 person-months.

Table G2: Quality Infrastructure Investment Support – Staffing Requirements

No.	Position	Person-Months	Indicative Responsibility
I.	Key International Experts		
1.	Road Safety Expert – 1	12	Components A, B, and C
	<i>Total Key International Expert Person-Months</i>	<i>12</i>	
II.	Key National Experts		
1.	Team Leader – 1	18	All components
2.	Road Safety Expert – 1	12	Components A, B, and C
3.	Asset Management Expert (Road) – 1	18	Components C and D
4.	Climate Change and Disaster Risk Expert – 1	12	Component E
5.	Gender and Social Inclusion Expert – 1	18	Components F, G, H, I, J, K, L
	<i>Total Key National Expert Person-Months</i>	<i>78</i>	
III.	Non-Key National Experts		
1.	Survey Coordinator	18	All components
2.	Training Officer	18	All components
3.	GESI Officer (1) and Community Mobilizers (2)	54	Components F, G, H, I, J, K, L
	<i>Total Key National Expert Person-Months</i>	<i>90</i>	

36. For consultant selection, only the curriculum vitae of key experts (positions 1–5) will be

evaluated.

37. The detailed requirements and importance (in terms of weighting) of each requirement are shown in the evaluation sheets included in the appendix to the data sheet.

38. The preferred qualification and experience requirements for the QIS consultant personnel are below.

Table G3: Quality Infrastructure Investment Consultant Qualification Requirements

Position 1	Team Leader As the Team Leader, the expert will be responsible for overall coordination, personal management, and delivery of services.
Qualifications	Master's degree or equivalent in civil engineering or related field. Membership in relevant professional institutions will be an advantage.
Total professional experience	20 years
Project-related experience	10 years of experience in project management and implementation of highway projects. Should demonstrate experience as a Team Leader in at least three similar projects
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 2	Road Safety Specialist (2 experts) The experts will be responsible for the road safety component. Specifically, the experts will deliver the two road safety demonstration corridors and road safety awareness campaigns involving community-based organizations. The experts will also be expected to provide significant inputs to the component relating to advance technology applications for real-time project monitoring and reporting.
Qualifications	Master's degree or equivalent in civil engineering or related field Certified expertise in road safety audit, iRAP accreditation, and the safe system approach
Total professional experience	20 years
Project-related experience	15 years of experience in highway design, supervision, and implementation of road projects. Familiarity with the highway design code under the Indian Roads Congress is advantageous. Relevant experience in design and implementation of road safety measures and road safety auditing accreditation
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 3	Asset Management Specialist (Roads) The expert will be responsible for developing at least two contract modalities involving the private sector for other roads forming the core road network in Maharashtra using output- and performance-based maintenance contracts or area-based contracts. The expert will also be expected to provide significant inputs to the component covering advance technology applications for real-time project monitoring and reporting.
Qualifications	Master's degree or equivalent in civil engineering or related field Membership in relevant professional institutions will be an

	advantage.
Total professional experience	20 years
Project-related experience	15 years of experience in highway design, supervision, and implementation of road projects. Familiarity with the highway design code under the Indian Roads Congress is advantageous. Significant experience related to road asset management and maintenance is essential.
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 4	Climate Change and Disaster Risk Management Specialist (Roads) The expert will be responsible for the delivery of the Good Practice Handbook for climate change adaptation and disaster risk reduction and management in road design and maintenance.
Qualifications	Master's degree or equivalent in civil engineering, sustainable development (with a background in engineering) or related field, with advanced training in climate change and/or disaster risk reduction and management
Total professional experience	15 years of professional experience with minimum of 5 years of specialized experience in climate change and/or disaster risk reduction and management
Project-related experience	Experience preparing similar written work (e.g., handbooks, policies and policy reviews, assessment documents) in climate change and/or disaster risk reduction in roads and highways
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 5	Gender Equality and Social Inclusion Specialist The expert will be responsible for coordination and delivery of the GESI related components including implementation of the GESI action plan.
Qualifications	Master's degree or equivalent in social sciences or related field
Total professional experience	10–12 years
Project-related experience	8 years of experience in implementing or monitoring the GESI action plans for developmental projects, preferably in the transport sector. Familiarity with ADB policy on gender and development, gender mainstreaming, and project compliance monitoring and reporting is preferred. Familiarity with the local language (Marathi) and work experience in the project area would be an advantage.
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 6	Survey Coordinator The survey coordinator will be responsible for assisting the Team Leader in arranging and coordinating the baseline surveys and the associated data compilation.
Qualifications	Degree in engineering or social science or any related field
Total professional experience	8 years
Project-related experience	3 years of experience in socioeconomic impact survey and or traffic data collections of road projects

Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies
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Position 7	Training Officer The training officer will be responsible for assisting and arranging the road safety, road maintenance, and financial management activities.
Qualifications	Degree in engineering or social science or any related field
Total professional experience	8 years
Project-related experience	3 years of experience in training activities or any public consultation related to road projects
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies

Position 8	GESI Officer The expert will provide assistance to the GESI specialist for delivery of the GESI related components including the implementation of the GESI action plan and the compilation and reporting of GESI progress. Familiarity with the local language (Marathi) and work experience in the project area are required.
Qualifications	Master's degree or equivalent in social sciences or related field
Total professional experience	7 years
Project-related experience	3 years of experience in the implementation of the GESI action plan
Overseas/country experience	Experience in projects financed by multilateral development banks such as ADB or other donor agencies would be an advantage.

Position 9	Community Mobilizers The community mobilizers will assist the GESI specialist in conducting community and stakeholder consultations/discussions to implement the GESI action plan. They will also assist in facilitating training of the self-help groups and women's collectives, conducting awareness campaigns and health camps. Familiarity with the local language (Marathi) and work experience in the project area are required.
Qualifications	Bachelor's degree in social work or related field
Total professional experience	3 years
Project-related experience	1–2 years of experience in projects with focus on community mobilization
Overseas/country experience	Should possess good communication skills

E. Additional Services

39. The consultant shall, if required by the Employer, provide any additional service at rates or on person-month rates as per the contract, or as mutually agreed upon, as a variation order.

F. Reports

40. The consultant will prepare and submit to the Employer the reports as listed in Table G4 based on the format prepared by the consultant and as approved by the Employer.

Table G4: Reports to be Submitted

Sl. No.	Report	Frequency	Due Date
1.	Inception report	One time	Within 30 days of commencement of services
2.	Road safety capacity review findings	One time	Within contract period
3.	Priority safe system project recommendations and implementation plan	One time	Within contract period
4.	Road safety audit reports	5 audit reports	Feasibility, preliminary design, detailed design, roadworks, and pre-opening
5.	Road safety awareness campaigns implementation plan	One time	Within contract period
6.	Road safety awareness campaigns effectiveness monitoring and reporting	One time	Within contract period
7.	Recommendations for advanced technologies in project planning, implementation, and monitoring	One time	Within contract period
8.	Review of report of current contract modalities for road maintenance	One time	Within contract period
9.	Final report for proposed contract modalities and draft contract documents	One time	Within contract period
10.	Good practice handbook for climate change adaptation and disaster risk reduction and management in road design and maintenance	One time	Within contract period
11.	Training on good practice handbook for climate change adaptation and disaster risk reduction and management in road design and maintenance for the MPWD staff	At least one time	Within contract period
12.	Guidelines for GESI-responsive state highway works programs	One time	Within contract period
13.	Progress report for implementation of GESI action plan with supporting material as relevant	Quarterly	30 days following the end of reporting quarter
14.	GESI completion report including all evidence on process and achievement of GESI action plan activities	At completion	End of contract
15.	Final report	At completion	End of contract

GESI = gender equality and social inclusion, MPWD = Maharashtra Public Works Department.

G. Staffing Schedule

41. After the award of the contract for the consulting service, the Employer expects all the proposed key personnel to be available during the implementation of the contract as per the agreed staffing schedule. The Employer will not consider substitutions during contract implementation except under exceptional circumstances. In case of such replacements, the consultant will ensure that there is a reasonable overlap between the staff to be replaced and the replacement wherever feasible.

H. Consultant's Proposal Submission

42. These terms of reference are prepared to address the QIIS consulting services package

in a general way. The consultants are also advised to go through the bidding documents of the associated construction packages which have been put to tender by the Employer before the submission of the proposal and include any provisions required or innovation suggestions for meeting the contract requirements.

I. Employer's Input and Counterpart Personnel

43. The Employer will make available the detailed project reports for each contract package that have been prepared generally in accordance with the Indian Roads Congress standards as well as access to data, records, and other information required to perform the assigned tasks.

TERMS OF REFERENCE FOR RESETTLEMENT PLAN IMPLEMENTATION SUPPORT AGENCY IN NANDED DISTRICT

A. Project Background

1. The Government of India has applied for financial assistance from the Asian Development Bank (ADB) toward the proposed project, Connecting Economic Clusters for Inclusive Growth in Maharashtra, with the primary objective of developing the Maharashtra state's strategic core road network (CRN) in line with the state's Vision 2030 and to (i) connect underdeveloped rural communities, in particular women and disadvantaged groups, with off-farm opportunities in city centers and nearby markets; (ii) provide direct and indirect opportunities to the primarily agrarian population, in particular women and disadvantaged groups, through improved access to health and social services; (iii) boost the road connectivity of border districts such as Nanded to neighboring states; (iv) improve agricultural value chains for small- and medium-sized enterprises by reducing transportation costs; and (v) enhance safety and climate and disaster risk resilience.

2. The project will involve upgrading state roads to a two-lane standard forming part of the core road network (CRN) in Maharashtra, which will enhance transport accessibility and efficiency, and improve the sustainability of the road network. It includes performance-based maintenance contracts to maintain the improved road assets for 10 years after construction.

3. The Maharashtra Public Works Department (MPWD), under the aegis of the project, is engaged in the rehabilitation and upgradation of state highways and major district roads across the state. The project proposes to develop 18 state highways and major district roads covering 468 kilometers (km). The project will have the following outcome: transport efficiency, safety, and access to markets and basic social services in Maharashtra improved and sustained. To achieve this outcome, the project's design incorporates four outputs:

- **Output 1:** State highways and major district roads of the core road network upgraded and maintained
- **Output 2:** New interstate roads connecting Nanded and Telangana developed and maintained
- **Output 3:** Capacity for project monitoring, road safety, and maintenance strengthened
- **Output 4:** Gender equality and social inclusion promoted in highway works, schools, and for access to health and social services

4. The project construction would necessitate the clearance of the alignment corridor and the displacement and loss of land and assets, livelihood, and community property resources. The displaced households include both titleholders and non-titleholders losing assets. Resettlement plan documents are prepared based on the detailed design for the subproject roads that will be implemented by the MPWD.

5. Two subprojects under the project in Nanded district involve land acquisition and displacement of both titleholders and non-title holders. These subprojects are considered Category A¹ for Involuntary Resettlement as per the ADB Safeguard Policy Statement (2009).

¹ According to the ADB Safeguard Policy Statement (SPS) (2009), Involuntary Resettlement Category A: Significant means 200 or more affected people will experience major impacts, which are defined as (i) being physically displaced from housing, or (ii) losing 10% or more of their productive assets (income generating). Involuntary Resettlement

The MPWD requires the services of a Resettlement Plan Implementation Support Agency (RPISA) that will support the project proponent in implementing the subproject resettlement plans.

6. The overall implementation period for the assignment is for 30 months from the commencement of the contract.

Table H1: Subprojects in Nanded District

S. No.	Package Road	Land Acquisition	Temporary Impact (Non-Titleholders)	Common Property Resources	Total Displaced Households
1.	Improvement of Nila Junction Brahmanwada Amdura Malkautha Balegaon Karegaon Phata Babli Phata Bellur to Naigaon to state border MDR 83 in Nanded District, (1) Part of Nila junction to Mugat Junction km 0/00 to 14/815, (2) Chaitanya Nagar Shiv Mandir to Asna Bridge Junction km 0/00 to 3/515, (3) Brahmanwada Road km 0/00 to 1/590, Total length 19.920 (DPR 27) EPC 17	3.87 ha (Brahmanwada) 99 landowners (Brahmanwada – 93 landowners Mugat – 6 landowners)	Total: 51 roadside kiosks and residential structures	Nil	150
2.	Improvement of Nila Junction Brahmanwada Amdura Malkautha Balegaon Karegaon Phata Babli Phata Bellur to Naigaon to state border MDR 83 in Nanded District (1) Part of Mugat junction to Khudja Junction 14/815 to 34/750 2) Amdura 0/0 to 3/330 3) Amdura Link Road 0/0 to 0/595 4) Malkautha Road km 0/00 to 1/975 Total length 25.835 km DPR 27 / EPC 18	15.40 ha – 258 landowners (1) Amdura – 9.99 ha (Mugat 6 landowners, Amdura 128 landowners), and (2) Malkota – 5.93 ha, 124 landowners	Nil	Total: 1 Temple stairs and veranda	258
TOTAL					408

CPR = common property resources, DPR = detailed project report, EPC = engineering, procurement and construction, ha = hectare, km = kilometer, MDR = major district road, NTH = non-titleholders.

Category B: Not Significant include involuntary resettlement impacts that are not deemed significant as per the ADB Operational Manual Involuntary Resettlement Category C: No involuntary resettlement impacts. A resettlement plan is required in the case of both Category A and Category B project.

B. Objectives of the Assignment

7. The RPISA shall be responsible for assisting the MPWD in resettlement plan implementation and livelihood restoration for the displaced persons under the project. The resettlement plan is guided by the Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013, and the ADB's Safeguard Policy Statement (2009).

8. The overall tasks of the RPISA, under the supervision of the Nanded Project Implementation Unit (PIU) Safeguard Focal Point and with guidance from the Social Expert of the project management unit (PMU) and project management services (PMS), are the following:

- (i) Support the entire process from start to finish for disseminating assistance to displaced persons.
- (ii) Under the direction of the Nanded PIU Safeguard Focal Point, provide support, where needed, to revenue officials and other relevant line agencies in expediting the land acquisition and resettlement process.
- (iii) Prepare micro plan(s) for project-affected non-title holders (NTH), detailing the total entitlement for each for approval by the MPWD.
- (iv) Review the government² and private sector programs on employment and micro, small, and medium enterprises (MSMEs) under the project for liaison and convergence.
- (v) Conduct needs assessment survey on existing skill for livelihood and income restoration.
- (vi) Design a livelihood and income restoration (LIR) survey, with appropriate options based on LIR survey.
- (vii) Implement the LIR program, including conducting skills training and financial management training or collaboration with local non-government organizations.
- (viii) Conduct continuing consultations and information dissemination on the project for displaced persons.
- (ix) Assist the displaced persons in redressing their grievances through the grievance redress committee set up for the project.
- (x) Collect data and submit progress reports on a monthly and quarterly basis on LIR program implementation so the MPWD can monitor the progress of resettlement plan implementation.
- (xi) Perform other tasks as assigned by the MPWD.

C. Scope of Work

9. The principal responsibilities of the RPISA will include, but not be limited, to the following:

1. Administrative Responsibilities of the RPISA

10. The RPISA will report to the Superintending Engineer, Nanded District and the Social Safeguard Focal Person at the PMU or any other authorized person. The RPISA shall assist the MPWD in carrying out the implementation of the resettlement plan for the above mentioned two subproject roads.

² The economic development schemes as compiled under the Samanvay (centrally sponsored and state schemes for convergence under the Saansad Adarsh Gram Yojana, SAGY) for Maharashtra by the Department of Rural Development, Ministry of Rural Development, Government of India and the National Institute of Rural Development and Panchayati Raj, Hyderabad.

11. The RPISA shall assist the MPWD in conducting all stakeholder consultations and disclosure meetings, and support the PIU in translating the summarized resettlement plan and entitlement matrix into the local language and in the form of a project information brochure for disclosure and dissemination to displaced persons.

12. The RPISA shall submit monthly and quarterly progress reports to the MPWD. The report should cover progress on livelihood restoration and resettlement plan implementation issues, grievances, and summary of consultations.

13. The RPISA shall be responsible for receiving the grievances and assist the PIU, authority engineer, and contractors in convening the field level meetings to resolve the concerns/grievances of the affected persons.

14. The RPISA shall assist the MPWD (PMU/PIU) in the management of the database of the displaced persons, and at the end of the assignment, ensure proper handover of all data and information to the project proponent.

2. Responsibilities for Implementation of the Resettlement Plan

15. The RPISA shall verify the information already contained in the resettlement plan and the individual losses of the relevant displaced persons (both the affected landowners and non-title holders) in the two subproject locations. They should validate the data provided in the resettlement plan and make suitable changes, if required, in consultation with the PIU and the consultants. Any changes made should be supported by documentary evidence. The RPISA shall establish rapport with all displaced persons, consult, and provide information to them about the respective entitlements as proposed under the resettlement plan, and distribute entitlement cum identity cards to the eligible displaced persons. The identity card should include a photograph of the displaced persons, the extent of loss suffered due to the project, and the choice of the displaced persons with regard to the mode of compensation and assistance.

16. The RPISA shall develop rapport between the displaced persons and the project authority. This will be achieved through regular meetings with both the PIU and the displaced persons. During the entire duration of the assignment, meetings with the PIU will be held at least fortnightly, and meetings with the displaced persons will be held monthly. All meetings and decisions taken shall be documented by the RPISA.

17. The RPISA shall display the list of eligible displaced persons in prominent public places like villages, Panchayat offices, Block/Tehsil headquarters, and the district headquarters.

18. During the verification of the eligible displaced persons, the RPISA shall ensure that each of the displaced persons is contacted and consulted either in groups or individually. The RPISA shall specially ensure consultation with women from the displaced families, especially women-headed households.

19. Participatory methods should be adopted in assessing the needs of the displaced persons, especially with regard to vulnerable groups, and carrying out the livelihood restoration program. The methods of contact may include village-level meetings, gender participation through group interactions, and Individual meetings and interactions.

20. The RPISA shall explain to the displaced persons the provisions of the policy and the

entitlements under the resettlement plan. This shall include communication with the roadside squatters and encroachers about the need for eviction, the timeframe for their removal, and their entitlements.

21. The RPISA shall disseminate information to the displaced persons on the possible consequences of the project on their community's livelihood systems and the options available so that they are aware of these.

22. In all of these, the RPISA shall consider women as a special focus group, and deal with them with care and sympathy.

23. The RPISA shall be responsible for ensuring livelihood restoration of the displaced landowners and vulnerable affected households under the two subprojects. The agency shall prepare a list for upskill/gradation training for one member of the affected family as mentioned in the entitlement matrix of the resettlement plans.

24. The RPISA shall map the existing skill sets of the listed members of the displaced and/or affected families, carry out needs assessment, and accordingly plan their upskill and/or gradation training upon discussion with each of them.

25. The RPISA will inform the displaced households about the various income generating schemes of the central and state governments and also relate with banks/government financial institutions about providing financial support to start income generating activities. The RPISA will also support displaced persons in accessing different development and social security programs. Based on the educational qualification of the affected landowner households, any one member from the family may be selected for receiving short-term technical training from the Industrial Training Institute (case-to-case basis).³

26. The RPISA can organize any existing self-help groups in the affected villages to implement the livelihood restoration program.

27. The RPISA will prepare a list, in consultation with the contractor and the displaced families, for hiring contractual unskilled labor during the construction of the subproject roads and provide the list to the PIU, PMU. It will ensure that willing contractual workers are hired by the contractor and keep the PIU updated on it.

28. The RPISA shall assist the displaced persons in opening bank accounts and explain the implications, rules, and obligations of a joint account and how they can access the resources they are entitled to.

29. The RPISA shall assist the project authorities in ensuring smooth relocation of the displaced persons (non-title holder and non-title holder affected persons), who are required to shift their residential/commercial structures outside the corridor of impact (COI), and help the displaced persons to take salvaged materials and to shift location. In close consultation with the displaced persons, the RPISA shall inform the PIU and contractors about the shifting dates agreed with the displaced persons in writing and the arrangements desired by the displaced persons with respect to their entitlements.

³ The per head skill training cost for any one member of the affected landowner household is considered under the entitlement matrix provided in the resettlement plan.

30. The RPISA shall ensure proper utilization of the resettlement and rehabilitation budget available for the subprojects. The RPISA shall assist the displaced persons in finding suitable economic investment options, encourage them to purchase land at adjacent locations, and help them in regaining the loss of land and other productive assets.

3. Responsibilities Related to Grievance Redress Mechanism

31. The RPISA shall make the displaced persons aware of the existence of the grievance redressal committees (GRC) at different levels in the two subproject locations.

32. The RPISA shall help the displaced persons from the two subproject locations to register their grievances/complaints, receive any complaint from the displaced persons at the field level, and communicate the same to the PIU.

33. To accompany the displaced persons to the grievance redress committee meeting on the decided date, the RPISA will help the displaced persons to express their grievance in a formal manner, if requested by the PIU/GRC, and also inform the displaced persons of the decisions taken by the PIU/GRC within 3 days of receiving a decision from the GRC.

4. Public Consultation

34. In addition to counseling and providing information to displaced persons, the RPISA will carry out periodic and ongoing consultations with displaced persons and other stakeholders.

35. The RPISA will assist the PIU in executing the project's social responsibilities in the two subproject locations.

36. The RPISA will assist and support the PIUs in organizing stakeholder consultative meetings in the two subproject locations as and when required.

37. The RPISA will document and collate all consultative meetings, minutes of meetings, signature sheets, and photographs of consultations held, and submit these to the PIU/PMU. It will also arrange video photography (if required) of shareholder meetings as requested by the PMU/PIU.

5. Monitoring and Reporting

38. The RPISA involved in the implementation of the resettlement plans will be required to supply all information, data, and documents to the external monitor.

6. Documentation and Reporting by RPISA

39. The RPISA shall submit all of the following reports, brochures, and outputs in a format approved by the MPWD.

- (i) **Inception report.** To be submitted within 2 weeks of mobilization, which includes the work plan against each deliverable for the whole contract period, staffing and personnel deployment plan, and a withdrawal plan at the end of the period of contract.
- (ii) **Project information brochure.** Summarize the resettlement plan, entitlement matrix, grievance redress mechanism, and translate the summary. Produce the

- brochure in the local language within 1 month of mobilization for distribution to all affected households.
- (iii) **Microplans for relevant non-titleholders.** Include issuance of ID cards, and preparation of micro plan for each affected non-title holder and other documents for the two subproject locations. To be completed at an agreed time with the MPWD.
 - (iv) **Monthly progress reports.** To be submitted to the PIU/PMU at the end of each month. Shall include weekly progress and work charts against the scheduled timeframe of resettlement plan implementation.
 - (v) **Quarterly progress reports.** To be submitted to the PIU/PMU at the end of each quarter. Shall include progress on implementation, livelihood restoration program, grievance redress committee, issues and challenges, etc.
 - (vi) **Completion report.** To be submitted at the end of the contract period summarizing the actions taken during the project, the methods and personnel used to carry out the assignment, and a summary of support/assistance given to the displaced persons.
 - (vii) All other reports/documentation as described in these terms of reference
 - (viii) Record minutes of all meetings.

D. Staffing Schedule

40. The table below details the required staffing structure for the assignment. Key personnel will be evaluated during the proposal evaluation stage. The RPISA is required to submit the CV for the key personnel positions. Non-key personnel will not be evaluated during proposal stage. At least one woman should be included as field support staff.

Table H2: Key Experts for the Assignment

No.	Particulars	Number of Positions	Estimated Person-Months
Key Personnel			
1.	Key Professional Land Acquisition, Involuntary Resettlement, Social Development Expert	1	12 (intermittent over 24 months)
Non-Key Personnel			
2.	Field Support Staff (Community Mobilizers)	2 (one for each subproject)	Full-time (for 24 months)
Total		3	60

41. All staff should be mobilized within a week of notice from the project authority.

E. Key Indicative Tasks per Position

42. The position-based tasks specified for each of the positions is mentioned below. The tasks are indicative and the RPISA needs to propose its own working arrangement as a team based on the overall requirements in the TOR.

Table H3: Indicative Tasks of RPISA Team

S.N.	Position	Task
1.	Key Professional: Land Acquisition, Involuntary Resettlement, Social Development Expert	<ul style="list-style-type: none"> • Provide overall technical and operational management of the RPISA team. • Act as main counterpart when communicating with the MPWD and relevant government agencies. • Draft a work plan and ensure this is followed. • Ensure deliverables and activities are completed in a timely and transparent fashion. • Review documentation and reports to verify accuracy. • Be responsible for the assigned section of alignment. • Provide guidance to field staff and verify information collected. • Ensure deliverables and activities are completed in a timely and transparent fashion. • Provide support for the grievance redressal mechanism. • Be responsible for community development and community awareness related assignment. • Be responsible for the implementation of livelihood restoration program and resettlement plan implementation. • Undertake continuing information disclosure and consultation. • Be responsible for land acquisition related matters and coordination with the revenue department of the district (if required). • Prepare micro plans for non-title holder affected persons. • Facilitate distribution of compensation. • Prepare/distribute the assistance amount. • Perform any other relevant work as asked by the PIU/PMU.
2.	Field Support Staff (Community Mobilizers)	<ul style="list-style-type: none"> • Be responsible for working on the field with displaced persons. • Organize stakeholders' consultative meetings. • Assess existing skills of displaced household members and conduct needs assessment for skill upgradation trainings. • Help displaced persons in accessing different development and social security programs. • Help displaced persons to open bank accounts for receiving compensation amount (if they do not have any bank accounts). • Help the displaced persons to register their grievances/complaints, receive any complaint from the displaced persons at the field level, and communicate the same to the PIU. • Ensure relocation of the non-title holder displaced persons who are required to shift their residential/commercial structures outside the corridor of impact, and help the displaced persons to take salvaged materials and with shifting. • In close consultation with the displaced persons, inform the PIU and contractors about the shifting dates agreed with the displaced persons in writing and the arrangements desired by the displaced persons with respect to their entitlements. • Prepare a list in consultation with the contractor and the displaced families for hiring contractual unskilled labor during the construction of the subproject roads. • Perform any other relevant work as asked by the PIU/PMU.

MPWD = Maharashtra Public Works Department, PIU = project implementation unit, PMU = project management unit, RPISA = Resettlement Plan Implementation Support Agency,

F. Qualification and Experience

43. The RPISA is expected to have proven experience in the implementation of livelihood and income restoration programs. Qualification and experience requirements for experts are listed below.

Table H4: Qualification of the Key Team Members

Position	Qualification and Experience
Key Professional: Land Acquisition, Involuntary Resettlement, Social Development Expert	<ul style="list-style-type: none"> • Minimum of bachelor's degree in social science (sociology/social work/anthropology/geography/economics). Postgraduate degree in social science is preferred. • Minimum of 10 years of professional experience • Minimum of 5 years of relevant experience in at least three linear projects implementing land acquisition, resettlement and rehabilitation activities, and community development • Previous experience in project funded by external donors is strongly preferred. • Good understanding of land acquisition process and The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013 • Proficiency in local language is preferred. • Should have experience in participatory management
Field Support Staff	<ul style="list-style-type: none"> • The field support professionals should be a graduate of social sciences or equivalent. • Knowledge of local language and experience of working in the region are essential. • Proficient in operating computers and in Microsoft Word and Excel • Ability to design and manage database • Proficient in English and the local language

G. Conditions of Services

44. The RPISA shall ensure that the resettlement plan is implemented in an effective and proper manner. The prime responsibility of the RPISA shall be to ensure that each and every eligible displaced person receives appropriate and due entitlement (as per the approved Entitlement Matrix) and that, at the end of the project resettlement and rehabilitation (R&R) services, the eligible displaced persons have improved (or at least restored) their previous standard of living. Additionally, the RPISA shall help the MPWD in all other matters required to implement the resettlement plan in spirit and entirety, including activities involving some financial implications.

45. All documents created, generated, or collected during the period of contract in carrying out the services under this assignment will be the property of the MPWD. No information gathered or generated during and in carrying out this assignment shall be disclosed by the RPISA without explicit permission of the MPWD.

H. Data, Services, and Facilities to be Provided by the MPWD

The MPWD will provide to the RPISA the copies of all relevant documents required for the RPISA to undertake its work. Documents will include the census on displaced persons and the resettlement plans. The MPWD will assist the RPISA in collaborating with the consultants. All facilities required in the performance of the assignment, including office space, office stationery,

transportation, and accommodation for staff of the RPISA, etc., shall be arranged by the RPISA.

I. Payment Schedule

46. The following indicative payment milestone is proposed as payment schedule for the RPISA. The payment will be made subject to the submission of a certificate from the MPWD that the targets have been achieved in a satisfactory manner.

Table H5: Payment Schedule

Sl. No.	Indicative Payment Milestone	Payment (% of Contract Value)
1.	On submission and approval of the inception report that should be complete in all respects	10%
2.	On completion of the identification, verification of displaced persons and initial consultation sessions, and submission of updated data on displaced persons (identification and verification report) and review of the same by the Maharashtra Public Works Department	10%
3.	On completion of 50% of the needs assessment and skill upgradation training list	5%
4.	On completion of the remaining 50% of the needs assessment and skill upgradation training list	5%
5.	On submission and approval of micro plans of displaced persons	5%
6.	On completion of distribution of compensation amount to non-titleholder displaced persons	5%
7.	On completion of 50% skill training and convergence with government schemes, and financial institutions for livelihood restoration program	15%
8.	On completion of the rest of the 50% skill training and convergence with government schemes, and financial institutions for livelihood restoration program	15%
9.	On submission of the final completion report	10%
10.	On approval of the final completion report	20%
	Total	100%

47. For any awareness training component, the MPWD will provide additional funding specific for those activities. The RPISA will submit a cost proposal to the MPWD for approval prior to implementation of the specific component. The RPISA will be reimbursed based on actual costs.

J. Indicative Budget for the Assignment

48. The RPISA is required to implement resettlement plans and livelihood restoration program for two subproject locations covering approximately 408 displaced persons. The budget for the assignment is as follows:

Table H6: Budget for the Assignment

S. No.	Particulars	No. of Position	Unit	Unit Rate (₹)	Total Amount (₹)	Amount in US \$
A	Remuneration					
A.1	Key Expert	1	360 days	1,200	432,000	5,917.81
A.2	Field Support Staff (Community Mobilizers) – Non-Key Expert	2	24 months	20,000	960,000	13,150.68
Subtotal (A)					1,392,000	19,068.49
B	Overhead Expenses					

S. No.	Particulars	No. of Position	Unit	Unit Rate (₹)	Total Amount (₹)	Amount in US \$
B.1	Local travel (for 24 months)			Lump sum	150,000	2,054.79
B.2	Office operations (for 24 months)			Lump sum	100,000	1,369.86
Subtotal (B)					250,000	3,424.66
C	Livelihood and Income Restoration Activities					
C.1	Identification, verification of displaced persons and initial consultation sessions, and submission of updated data on 408 displaced persons			Lump sum	30,000	410.96
C.2	Survey on existing skills and needs assessment and preparation of skill upgradation training list			Lump sum	40,000	547.95
C.3	Workshop and exchange program: Awareness on different skill trainings, agricultural extension program and exposure visits, convergence with government schemes, linkages with financial institutions and banks			Lump sum	250,000	3,424.66
C.4	Reporting and documentation		2 years	20,000	40,000	547.95
Subtotal (C)					360,000	4,931.55
Total = A + B + C					2,002,000	27,424.65
Contingency 10% (of A+B+C)^b					200,200	2,742.46
Total Budget for RPISA Services^c					2,202,200	30,167.00

^a Exchange rate: \$1 = INR73.

^b Includes any unforeseen expenses related to the livelihood and income restoration program.

^c The assignment budget excludes all applicable taxes.

49. The above remuneration includes all costs related to carrying out the services, including overhead. The service tax or any other tax component shall be reimbursed/paid to the RPISA upon the production of documents. The insurance cost will be separate from the total project cost; the client shall be billed for this.

TERMS OF REFERENCE FOR INVOLUNTARY RESETTLEMENT EXTERNAL MONITORING EXPERT

A. Project Background

1. The Government of India has applied for financial assistance from the Asian Development Bank (ADB) for the proposed project, Connecting Economic Clusters for Inclusive Growth in Maharashtra, with the primary objective to (i) develop Maharashtra's strategic core road network in line with the state's Vision 2030; (ii) connect underdeveloped rural communities, in particular women and disadvantaged groups, with off-farm opportunities in city centers and nearby markets; (iii) provide direct and indirect opportunities to the primarily agrarian population, in particular women and disadvantaged groups, through improved access to health and social services; (iv) boost the road connectivity of border districts such as Nanded to neighboring states; (v) improve agricultural value chains for small- and medium-sized enterprises by reducing transportation costs; and (v) enhance safety and climate and disaster risk resilience.

2. The project will involve upgrading state roads to a two-lane standard forming part of the core road network in Maharashtra, which will enhance transport accessibility and efficiency, and improve the sustainability of the road network. The project includes performance-based maintenance contracts to maintain the improved road assets for 5 years after construction.

3. The Maharashtra (Public Works Department (MPWD), under the aegis of the project, will be engaged in rehabilitation and upgradation of state highways and major district roads across the state. The project proposes to develop 18 state highways and major district roads covering 468 kilometers (km). The project will have the following outcome: transport efficiency, safety and access to markets and basic social services in Maharashtra improved and sustained. To achieve this outcome, the project's design incorporates four outputs:

- **Output 1:** State highways and major district roads of the core road network upgraded and maintained
- **Output 2:** New interstate roads connecting Nanded and Telangana developed and maintained
- **Output 3:** Capacity for project monitoring, road safety, and maintenance strengthened
- **Output 4:** Gender equality and social inclusion promoted in highway works, schools, and for access to health and social services

4. Two subprojects under the project in Nanded district involve land acquisition and displacement of both titleholders and non-title holders. These subprojects are considered Category A for Involuntary Resettlement as per the ADB Safeguard Policy Statement (SPS) (2009).¹ The MPWD requires the services of an External Monitoring Agency/Expert who will be required to carry out independent external monitoring and reporting of the resettlement plan implementation of the Category A subprojects as required by the ADB SPS (2009).

¹ According to the ADB Safeguard Policy Statement (2009), "Involuntary Resettlement Category A: Significant" means that 200 or more affected people will experience major impacts, which are defined as (i) being physically displaced from housing, or (ii) losing 10% or more of their productive assets (income generating). "Involuntary Resettlement Category B: Not Significant" include involuntary resettlement impacts that are not deemed significant as per the ADB Operational Manual Involuntary Resettlement Category C: No involuntary resettlement impacts. A resettlement plan is required in case of both categories A and B projects.

B. Objectives and Requirements of Monitoring and Evaluation

5. The objectives of monitoring and evaluation are to assess whether the resettlement plan is implemented on schedule and within budget and whether the goals and principles of the resettlement plan are achieved. Specifically, monitoring and evaluation will focus on the following aspects of the situation of displaced persons and the resettlement process:

- (i) Social and economic situation prior to and after resettlement
- (ii) Timely disbursement of funds
- (iii) Functioning of the grievance redress mechanism
- (iv) Social adaptability after resettlement
- (v) Rehabilitation of vulnerable groups
- (vi) Special items related to the vulnerable groups
- (vii) Condition and quality of land temporarily acquired when it is returned to the original land users
- (viii) Utilization of the compensation amount
- (ix) Measures taken to restore affected livelihoods
- (x) Living conditions and economic status of displaced persons following resettlement in comparison to the “without project” scenario

6. Monitoring and evaluation will include (i) the verification or establishment of a socioeconomic baseline of the displaced persons prior to actual land acquisition, physical displacement/relocation, loss of assets, or disruption of businesses (as relevant); (ii) the verification of internal monitoring data and reports; (iii) the regular monitoring of their (resettlement or displacement/relocation, as relevant) and adjustment during project implementation; and (iv) the evaluation of their situation for a period of 1 year after land acquisition or displacement or relocation (as relevant). In addition, qualitative and quantitative evaluation will be made on the sustainability of living conditions of displaced persons. Investigation will include consultations and observations with displaced persons, implementing agency local officials, village leaders, as well as a quantitative sample survey of displaced households. Focus group discussion will be conducted with male and female displaced persons and vulnerable groups.

7. If the findings of the external monitoring indicate significant compliance regarding displaced persons, the External Monitor will work with the implementing agency and project implementation unit (PIU) to prepare a separate corrective action plan (CAP) in cooperation with the relevant stakeholders, to address pending or new land acquisition and resettlement (LAR) impacts. The External Monitor will monitor and report on the implementation of the CAP.

C. Monitoring Indicators

8. Monitoring will include process, output, and outcome indicators. The monitoring framework and formats stipulated in the resettlement plan will be adopted. The following general indicators will be covered:

- (i) **Disbursement of entitlements to displaced persons and enterprises/businesses.** These include compensation, relocation, housing, cultivated farmland, and employment as specified in the resettlement plan.
- (ii) **Provision of relocation options.** The affected persons must move into the chosen resettlement/housing option at least 1 month before physical displacement/relocation. For those opting for self-construction, payment of compensation and provision of housing sites should be completed at least 3

months before physical displacement/relocation. The compensation for construction of houses should be equivalent to the replacement cost. The displaced persons must receive their entitlements and allowances on time.

- (iii) **Development of economic productivity.** These cover reallocation of cultivated land, land restoration, job opportunities available to displaced persons, and number of displaced persons employed or unemployed.
- (iv) **Standard of living.** Throughout the implementation process, the trends in standards of living will be observed and the potential problems in the way of restoration of standards of living will be identified and reported. The External Monitor will carry out a comprehensive socioeconomic survey after the completion of resettlement implementation to document the standards of living and the conditions of the displaced persons after resettlement. The survey will be updated annually.
- (v) **Restoration of civic infrastructure.** All necessary infrastructure should be restored at the resettlement sites at least up to a standard equal to the standard at the original location. The compensation for all infrastructure should be sufficient to reconstruct it to the same quality.
- (vi) **Effectiveness of resettlement planning.** These include adequacy of assets measurement, entitlements, sufficiency of budget, and timeliness of mitigation measures.
- (vii) **Level of satisfaction of displaced persons.** This includes the level of satisfaction of displaced persons with various aspects of the resettlement program. The operation of the mechanisms for grievance redress will be reviewed and the speed and results of grievance redress measures will be monitored.
- (viii) **Social adaptability and cohesion.** These cover impacts on children, indigenous peoples/ethnic minorities and other vulnerable groups, public participation, displaced persons' attitudes and reactions to post resettlement situation, number of complaints and appeal procedures, implementation of preferential policies, income restoration measures, and improvements in women's status in villages.
- (ix) **Other impacts.** The External Monitor will verify if there are unintended environmental impacts and impacts on employment and incomes.

D. Special Considerations

9. Special attention will be paid to women, indigenous peoples/ethnic minorities/groups, as well as the poor and vulnerable groups during monitoring, which include the following:

- (i) **Status and roles of women.** Closely monitor any change in women's status, functions, and situations.
- (ii) **Differential impacts on indigenous peoples/ethnic minority groups.** Closely monitor the socioeconomic status of indigenous peoples to ensure that they have not been further marginalized. Monitoring indicators should to the extent possible be disaggregated by gender and ethnicity.
- (iii) **Care and attention to vulnerable groups.** Closely monitor the living conditions of the poor, elderly, handicapped, female-headed households, and other vulnerable groups after resettlement to ensure that their livelihood is improved.
- (iv) **Status of resettlement funds.** Monitoring and evaluation will provide information on the utilization and adequacy of resettlement funds.

E. Data, Services, and Facilities to be Provided by the MPWD

10. The MPWD will provide to the External Monitor the copies of all relevant documents (updated resettlement plan reports, semi-annual social safeguard monitoring reports submitted by the MPWD to ADB, quarterly monitoring reports, any other relevant documents related to land acquisition and involuntary resettlement) required for the monitoring work. The MPWD will assist the External Monitor in collaborating with the consultants and displaced persons under the subproject. All facilities required in the performance of the assignment, including office space, office stationery, transportation, and accommodation, shall be arranged by the External Monitor.

F. Conditions of Services

11. All documents created, generated, or collected during the period of contract in carrying out the services under this assignment will be the property of the MPWD. No information gathered or generated during and in carrying out this assignment shall be disclosed by the External Monitor without explicit permission of the MPWD.

G. Deliverables

12. Following are the deliverables of the External Monitor:

- (i) Inception report (within 15 days from the contract assignment)
- (ii) Four external monitoring reports to verify the internal semi-annual social monitoring report (SMR) from the first SMR to the last SMR at resettlement plan completion²
- (iii) Final evaluation report (on completion of resettlement plan implementation)

13. The external monitoring reports will be approved by the MPWD and ADB.

H. Inputs

14. The External Monitor will be required to give inputs of 20 working days (i.e., 10 working days per year for 2 years), which involve both the visits to subproject locations and reporting from the home office.

I. Qualification and Experience

15. The External Monitor is expected to have proven experience in monitoring and evaluation of resettlement plan implementation of programs for similar projects. Qualification and experience requirements for the External Monitor are as follows:

- (i) Minimum of postgraduate degree in social science or sociology/economics or master's degree in social work/rural development, or Bachelor of Law shall be added qualification
- (ii) Minimum of 10 years of professional experience in land acquisition and involuntary resettlement field
- (iii) Minimum of 5 years of relevant experience with monitoring of three linear project experience in implementing land acquisition and resettlement and rehabilitation activities

² The estimated resettlement plan implementation period is 2 years.

- (iv) Previous experience in a project funded by external donors, good understanding of land acquisition process and The Right to Fair Compensation and Transparency in Land Acquisition, Rehabilitation and Resettlement Act, 2013

J. Budget for External Monitoring Services

16. The budget for the assignment is as follows:

S. No.	Particulars	Inputs	Unit	Unit Rate (\$)	Amount (\$)
1.	Remuneration ¹	20	Working day	200	4,000
2.	Travel-related expenses ² (includes air travel and local transport)	2	Round trip	500	1,000
3.	Per diem to Maharashtra	10	Day	140	1,400
	Total				6,400
	Contingency 10%				640
	Total Budget for External Monitoring Services				7,040

¹ Inputs of 10 working days (5 days field work + 5 days reporting from home office) per year for 2 years.

² Travel expenses include round trip air travel and local land transport.

GENDER EQUALITY AND SOCIAL INCLUSION ACTION PLAN MONITORING MATRIX

Date Prepared:

Project Title:

Country:

Project No.:

Loan No.:

Approval and Timeline/Duration of the Project:

Gender Category:

Name of Gender Specialist/Gender Focal Point:

Quarter Covered by Update:

Activities	Indicators and Targets	Progress to Date		Issues and Challenges (Please include reasons why an activity was not fully implemented, or if targets fall short, or reasons for delay, etc.)
		Progress for the Quarter (This should include information on progress for the current quarter—qualitative and quantitative updates including sex-disaggregated data.)	Cumulative Progress (This should include information on progress—qualitative and quantitative updates including sex-disaggregated data—from the start of the implementation of the GESI action plan to the previous quarter's progress report.)	
Output 1: State highways and major district roads of the core road network upgraded and maintained				
1.1 Include EWCD-responsive features at appropriate locations of state highways and major district roads.	1. EWCD-responsive features ^a installed along the state highways and major district roads at 50 appropriate locations (2022 baseline: 0)			
Output 2: New interstate roads connecting Nanded and Telangana developed and maintained				
2.1 Include EWCD-responsive features at appropriate locations of new interstate roads connecting Nanded and Telangana.	2. EWCD-responsive features installed along the roads in at least 2 appropriate locations. (2022 baseline: 0)			
Output 3: Capacity for project monitoring, road safety, and maintenance strengthened				
3.1 Hold road safety awareness campaigns of women-led self-help groups.	3. One training module prepared for training of trainers on road safety (2022 baseline: 0) 4. Training of trainers conducted for identified 5 SHG units (with			

Activities	Indicators and Targets	Progress to Date		Issues and Challenges (Please include reasons why an activity was not fully implemented, or if targets fall short, or reasons for delay, etc.)
		Progress for the Quarter (This should include information on progress for the current quarter—qualitative and quantitative updates including sex-disaggregated data.)	Cumulative Progress (This should include information on progress—qualitative and quantitative updates including sex-disaggregated data—from the start of the implementation of the GESI action plan to the previous quarter's progress report.)	
	total 20 women members) (2022 baseline: 0) 5. At least 54 villages in the project area reached by road safety awareness campaigns led by women's SHGs (2022 baseline: Not applicable)			
Output 4: Gender equality and social inclusion promoted in highway works, schools, health, and social services				
4.1 Organize health camps at villages alongside the highway with equal representation of women community members.	6. At least 18 health camps ^b organized for community members at villages alongside the project roads with representation of 50% women and girls (2022 baseline: Not applicable)			
4.2 Conduct gender-based awareness for contractors, especially on engaging female workforce and enhancing their participation across skilled and unskilled categories.	7. Contractors provided with an advisory on enhancing female workforce participation and maintaining sex-disaggregated data on construction workers 8. At least 50 contractors' personnel, including 25 women, report increased awareness of road safety and sexually transmitted infections (including HIV) (2022 baseline: Not applicable) 9. Post-training survey conducted to assess enhanced awareness of road safety and sexually			

Activities	Indicators and Targets	Progress to Date		Issues and Challenges (Please include reasons why an activity was not fully implemented, or if targets fall short, or reasons for delay, etc.)
		Progress for the Quarter (This should include information on progress for the current quarter—qualitative and quantitative updates including sex-disaggregated data.)	Cumulative Progress (This should include information on progress—qualitative and quantitative updates including sex-disaggregated data—from the start of the implementation of the GESI action plan to the previous quarter's progress report.)	
	transmitted infections (including HIV) (2022 baseline: Not applicable)			
4.3 Prepare and implement guidelines for GESI-responsive state highway works programs.	10. Guidelines for GESI-responsive state highway works programs ^c prepared and implemented at 8 locations (2022 baseline: Not applicable) 11. GESI readiness assessment for the MPWD to implement GESI-responsive state highway works program conducted and standard operating procedures prepared (2022 baseline: Not applicable) 12. At least 80% of eligible male and female MPWD staff oriented on GESI-responsive state highway works program (2022 baseline: Total=87, Male=70, Female=17) ^d 13. A post training assessment survey conducted to assess participants' acquired knowledge and skills (2022 baseline: Not applicable)			
4.4 Conduct livelihood skills training for people from poor and disadvantaged groups of enterprises led by women as	14. At least 36 people (of whom 80% are female) from 18 women-led enterprises ^e from poor and disadvantaged groups			

Activities	Indicators and Targets	Progress to Date		Issues and Challenges (Please include reasons why an activity was not fully implemented, or if targets fall short, or reasons for delay, etc.)
		Progress for the Quarter (This should include information on progress for the current quarter—qualitative and quantitative updates including sex-disaggregated data.)	Cumulative Progress (This should include information on progress—qualitative and quantitative updates including sex-disaggregated data—from the start of the implementation of the GESI action plan to the previous quarter's progress report.)	
wayside service providers.	provided with certified skills training for livelihood opportunities as wayside service providers (2022 baseline: Not applicable)			
4.5 Construct water and sanitation facilities in schools identified along project roads.	15. At least 18 water and sanitation facilities ^f provided at schools along project roads (2021: Not applicable)			
4.6 Establish the <i>Janassuvidha kendras</i> in project districts for women cane cutters and migrant population to provide basic health and sanitation, education, and other services. (2021: Not applicable)	<p>16. Feasibility study and O&M model prepared for development and management of <i>janasuvidha kendras</i>^g action plan</p> <p>17. At least 3 demonstration <i>janasuvidha kendras</i> in 3 project districts^h established for women cane cutters and migrant population to provide basic health and sanitation, education, and other services (2022 baseline: Not applicable)</p> <p>18. At least 15 people (of whom 90% are female) from women-ledⁱ SHGs^j reported increased knowledge and skills on operating the <i>janasuvidha kendras</i> (2022 baseline: Not applicable)</p>			

Activities	Indicators and Targets	Progress to Date		Issues and Challenges (Please include reasons why an activity was not fully implemented, or if targets fall short, or reasons for delay, etc.)
		Progress for the Quarter (This should include information on progress for the current quarter—qualitative and quantitative updates including sex-disaggregated data.)	Cumulative Progress (This should include information on progress—qualitative and quantitative updates including sex-disaggregated data—from the start of the implementation of the GESI action plan to the previous quarter's progress report.)	
Project Management Activities				
The MPWD oversees implementation, monitoring, and reporting of GESI action plan.	<div>1. Sex-disaggregated data on project staff, consultants, workforce participation, labor, and project related orientation and training programs maintained and reported in progress reports (2022 baseline: Not applicable)</div> <div>2. GESI action plan progress monitored regularly and reported every quarter with the project quarterly progress reports (2022 baseline: Not applicable)</div> <div>3. Combined GESI completion report highlighting lessons learned submitted upon project completion (2022 baseline: Not applicable)</div>			

EWCD = elderly, women, children, and people with disability, GESI = gender equality and social inclusion, MPWD = Maharashtra Public Works Department, O&M = operations and maintenance, PMS = project management services, QII = quality infrastructure investment, SHG = self-help group.

^a EWCD-responsive features may include well-marked crossings, safety signage, pedestrian walkways, railings along roads, covered drains, paved shoulder (hard shoulder) and earthen shoulder (soft shoulder), speed bumps, rumble strips, guard stones, and solar blinkers. Other gender-responsive features include streetlights; well-lit bus stops, with closed-circuit television (CCTV) cameras at warranted locations; and separate toilets suitable for women, children, and differently abled persons.

^b Based on the findings of the road safety audits.

^c GESI-responsive program includes GESI mainstreaming mechanism in planning, construction, and maintenance of state highway works. This will include but not be limited to (i) integration of GESI issues and concerns in project planning and design; (ii) mechanism for women's participation in project planning and design; (iii) elements for safety for women and children during construction and integration of requisite advisory and provisions in contractor's contract for the same; and (iv) GESI elements integrated into maintenance contracts.

- ^d Source: GESI Quarterly Progress Report October–December 2021, Maharashtra State Roads Improvement Project.
- ^e Woman-owned/led enterprise is defined using the International Finance Corporation's definition: (a) $\geq 51\%$ of the enterprise is owned by a woman/women; OR (b) $\geq 20\%$ of the enterprise is owned by a woman/women, AND (i) has ≥ 1 woman as CEO/COO/President/Vice President, AND (ii) has $\geq 30\%$ of the board of directors composed of women, where a board exists. Source: ADB. 2021. *Guidelines for Gender Mainstreaming Categories of ADB Projects*. Manila.
- ^f Water and sanitation facilities include (i) separate toilets for girls and disabled with running water, handwashing station with soap and water, (ii) space for change of clothes, dustbins, or incinerators for safe disposal of menstrual products, and (iii) safe piped drinking water facilities.
- ^g The *jansuvidha kendra* based on the feasibility study may include health services such as women's reproductive health care; primary health care; water and sanitation services; early childhood care, creche facilities, and education facilitation; child protection units; food grain public distribution system centers; and other one-stop service centers to ensure access to banking and social protection schemes.
- ^h The three project districts include Kolhapur, Sangli, and Satara, which are the major sugarcane producing districts of the Maharashtra state.
- ⁱ The project defines women-led self-help groups as those with more than 90% women members. This is based on the national government scheme, *Deendayal Antyodaya Yojana*-National Rural Livelihoods Mission (DAY-NRLM), where nearly all self-help groups are 100% women except in some cases like "persons with disabilities, and other special categories such as elderly, transgenders, DAY-NRLM will have both men and women in the Self-Help." Source: Government of India. 2019. [*Reserve Bank of India – Master Circulars*](#).
- ^j The SHGs will be identified through a needs assessment based on their availability and willingness to operate the *Jansuvidha kendras*.