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R111-17  
6 November 2017

Proposed Loans  
Khyber Pakhtunkhwa Provincial Roads  
Improvement Project  
(Pakistan)

1. The Report and Recommendation of the President (RRP: PAK 47360-002) on the proposed loans to Pakistan for the Khyber Pakhtunkhwa Provincial Roads Improvement Project is circulated herewith.
2. This Report and Recommendation should be read with *Country Operations Business Plan: Pakistan, 2017–2019*, which was circulated to the Board on 7 December 2016 (DOC.IN.481-16).
3. In the absence of any request for discussion and in the absence of a sufficient number of abstentions or oppositions (which should be communicated to The Secretary by the close of business on 28 November 2017), the recommendation in paragraph 33 of the paper will be deemed to have been approved, to be so recorded in the minutes of a subsequent Board meeting. Any notified abstentions or oppositions will also be recorded in the minutes.

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# Report and Recommendation of the President to the Board of Directors

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Project Number: 47360-002  
November 2017

## Proposed Loans Islamic Republic of Pakistan: Khyber Pakhtunkhwa Provincial Roads Improvement Project

Distribution of this document is restricted until it has been approved by the Board of Directors. Following such approval, ADB will disclose the document to the public in accordance with ADB's Public Communications Policy 2011.

Asian Development Bank

## CURRENCY EQUIVALENTS

(as of 24 October 2017)

Currency unit	–	Pakistan rupee/s (PRe/PRs)
PRe1.00	=	\$0.009496
\$1.00	=	PRs105.30

## ABBREVIATIONS

ADB	–	Asian Development Bank
EMP	–	environmental management plan
km	–	kilometer
LARF	–	land acquisition and resettlement framework
PAM	–	project administration manual
PCI	–	pavement condition index
PKHA	–	Pakhtunkhwa Highways Authority
PIU	–	project implementation unit
RAMS	–	road asset management system

## NOTES

- (i) The fiscal year (FY) of the Government of Pakistan ends on 30 June. “FY” before a calendar year denotes the year in which the fiscal year ends, e.g., FY2017 ends on 30 June 2017.
- (ii) In this report, “\$” refers to United States dollars.

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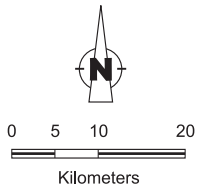
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## PROJECT AT A GLANCE

<b>1. Basic Data</b>		<b>Project Number:</b> 47360-002	
<b>Project Name</b>	Khyber Pakhtunkhwa Provincial Roads Improvement Project	<b>Department /Division</b>	CWRD/CWTC
<b>Country Borrower</b>	Pakistan	<b>Executing Agency</b>	Government of Khyber Pakhtunkhwa (KP)
<b>2. Sector</b>	<b>Subsector(s)</b>	<b>ADB Financing (\$ million)</b>	
✓ <b>Transport</b>	Road transport (non-urban)		140.00
		<b>Total</b>	<b>140.00</b>
<b>3. Strategic Agenda</b>	<b>Subcomponents</b>	<b>Climate Change Information</b>	
Inclusive economic growth (IEG)	Pillar 2: Access to economic opportunities, including jobs, made more inclusive	Adaptation (\$ million)	0.27
Environmentally sustainable growth (ESG)	Global and regional transboundary environmental concerns	Climate Change impact on the Project	Medium
<b>4. Drivers of Change</b>	<b>Components</b>	<b>Gender Equity and Mainstreaming</b>	
Governance and capacity development (GCD)	Institutional development	Some gender elements (SGE)	✓
Knowledge solutions (KNS)	Pilot-testing innovation and learning		
Partnerships (PAR)	Implementation Private Sector		
<b>5. Poverty and SDG Targeting</b>		<b>Location Impact</b>	
Geographic Targeting	No	Rural	High
Household Targeting	No		
SDG Targeting	Yes		
SDG Goals	SDG9, SDG13		
<b>6. Risk Categorization:</b>	Low		
<b>7. Safeguard Categorization</b>	Environment: B Involuntary Resettlement: C Indigenous Peoples: C		
<b>8. Financing</b>			
<b>Modality and Sources</b>		<b>Amount (\$ million)</b>	
<b>ADB</b>		<b>140.00</b>	
Sovereign Project (Concessional Loan): Ordinary capital resources		18.50	
Sovereign Project (Regular Loan): Ordinary capital resources		121.50	
<b>Cofinancing</b>		<b>0.00</b>	
None		0.00	
<b>Counterpart</b>		<b>24.00</b>	
Government		24.00	
<b>Total</b>		<b>164.00</b>	

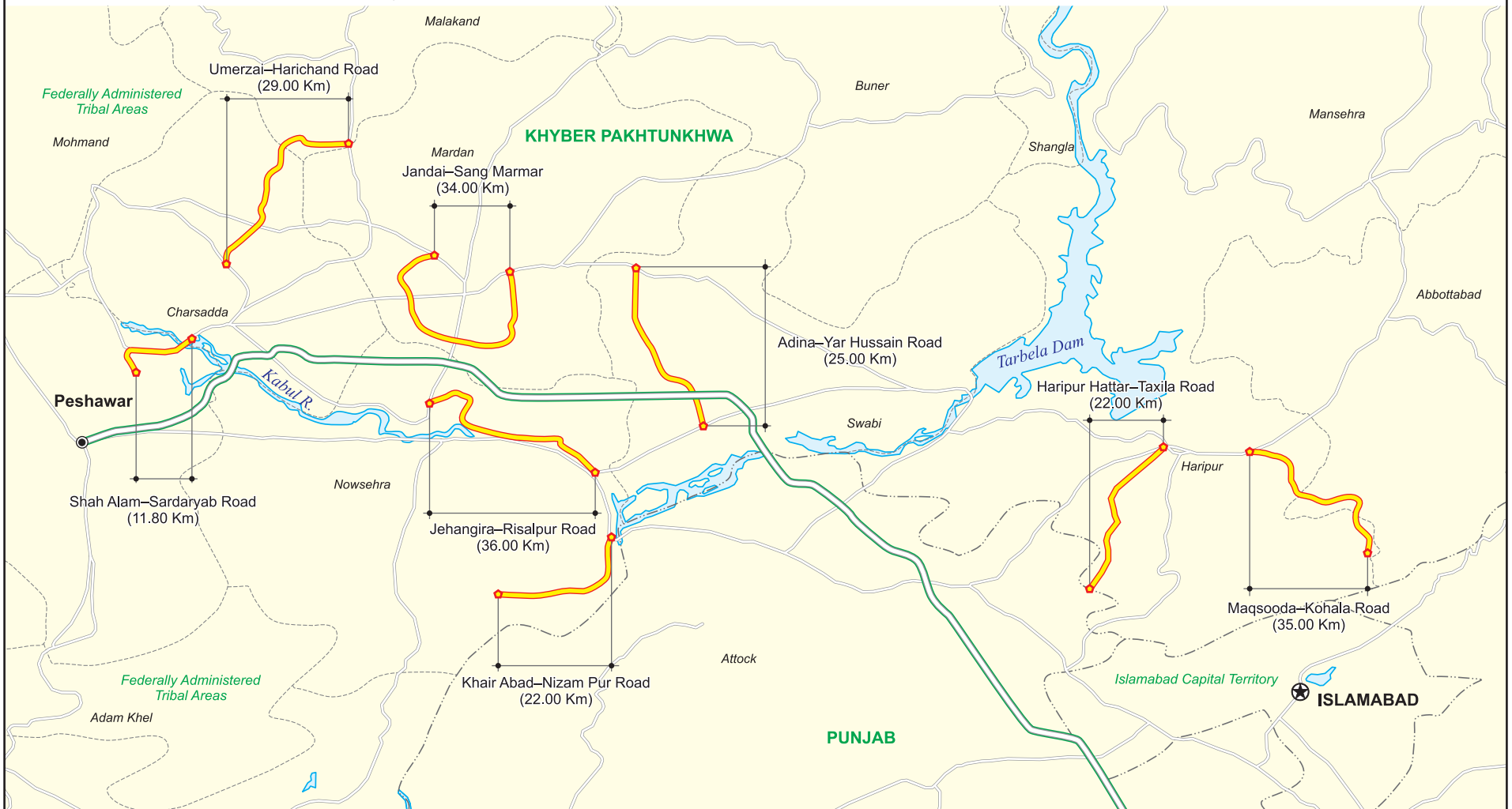
# PAKISTAN

## KHYBER PAKHTUNKHWA PROVINCIAL ROADS IMPROVEMENT PROJECT



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- National Capital
- Provincial Capital
- Project Road
- Road
- M1 Motorway
- River
- District Boundary
- Provincial Boundary





## I. THE PROPOSAL

1. I submit for your approval the following report and recommendation on the proposed loans to the Islamic Republic of Pakistan for the Khyber Pakhtunkhwa Provincial Roads Improvement Project.

2. The proposed project will rehabilitate 214 kilometers (km) of provincial roads in the province of Khyber Pakhtunkhwa, pilot two performance-based maintenance (PBM) contracts covering 104 km of provincial roads, and enhance road asset management.<sup>1</sup>

## II. THE PROJECT

### A. Rationale

3. **Country context.** Pakistan is the fifth most populous country in the world with an estimated population of 207 million people, and the most urbanized country in South Asia. Pakistan shares borders with Afghanistan, the People's Republic of China, India, and Iran. Due to its strategic location, it has great potential to become a regional transport and logistics hub providing the People's Republic of China and the landlocked Central Asian countries with access to the Arabian Sea. Pakistan's economy is among the better performers in South Asia with an estimated gross domestic product growth rate of 5.3% in FY2017, a substantial increase from 4.5% in FY2016<sup>2</sup>. Pakistan's economy is largely driven by strong growth in domestic consumption, recovery in agricultural production, and a marginal recovery in foreign direct investments; but is constrained by an inefficient transport system with poor levels of service.

4. **Khyber Pakhtunkhwa: a vulnerable and underperforming economy.** Khyber Pakhtunkhwa, which is located in northwest Pakistan, is geographically the smallest of the country's four provinces; however, it ranks third in terms of both population (about 30 million—16% of the country's population) and economic production (accounting for 10.5% of Pakistan's economy). Khyber Pakhtunkhwa's economy is dominated by forestry (about 61% of the national forestry output); mining (20% of national output); agriculture (its main cash crops include wheat, maize, tobacco, rice, sugar beets, and a wide variety of fruits and vegetables); and some manufacturing. These economic activities require a reliable transport system and efficient connectivity to lower transport costs and improve competitiveness.

5. Khyber Pakhtunkhwa shares a border with Afghanistan to the northwest, and is adjacent to the Federally Administered Tribal Areas to the west. The province has faced severe crises due to militant activity, particularly during 2007–2009 along the Afghan border. The conflict intensified the vulnerability of the region, which is already one of Pakistan's poorest and most disaster-prone, subject to catastrophic floods, earthquakes, and other natural disasters. Khyber Pakhtunkhwa lags other provinces across a wide range of social and economic indicators (this lag is even more pronounced when viewed in terms of gender). The militants destroyed local livelihoods, caused large-scale displacement, damaged infrastructure, and worsened the region's business connectivity with the rest of the country. Since 2012, the security situation has improved due to ongoing military operations by the Pakistan Army.

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<sup>1</sup> The Asian Development Bank (ADB) provided transaction technical assistance for preparing the Khyber Pakhtunkhwa Provincial Roads Improvement Project (TA 9194-PAK).

<sup>2</sup> ADB. 2017. *Asian Development Outlook 2017 Update: Sustaining Development Through Public-Private Partnership*. Manila.

6. **Need for improved connectivity.** Pakistan's transport sector contributes about 10% to its gross domestic product and accounts for over 6% of employment in the country.<sup>3</sup> Road transport dominates Pakistan's transport system, accounting for almost 96% of freight traffic in ton-km and 92% of passenger traffic in passenger-km. Dependence on road transport is even higher in Khyber Pakhtunkhwa. The province also provides the main transit corridor to Afghanistan across the Khyber Pass. Khyber Pakhtunkhwa's classified paved road network of 15,102 km includes 1,878 km of national highways managed by the National Highway Authority, 1,824 km of provincial highways<sup>4</sup> managed by the Pakhtunkhwa Highways Authority (PKHA), and 11,400 km of district roads managed by the Khyber Pakhtunkhwa Communication and Works Department. Provincial highways connect district centers with the national highway network, and play a vital role in the province's economic development. With average daily traffic counts at around 3,000–8,000 vehicles, provincial highways also connect provincial administrative and commercial centers with district headquarters and market towns. They are vital in facilitating intra-provincial trade and commerce; providing access to health, education, and other public services; and reducing poverty by creating jobs and business opportunities.

7. **Deteriorated road conditions.** Road surface conditions and riding quality are deteriorating due to ageing infrastructure and poor asset management. Inadequate drainage is a major cause of premature road failure. The pavement condition of more than half of the road network is rated *poor* or *bad*, according to road condition data surveyed in 2013. A significant maintenance backlog exists, with about 700 km of provincial roads having a pavement condition index (PCI) of less than 2;<sup>5</sup> at least one-third of this backlog requires reconstruction, while the remaining sections need major rehabilitation. Low technical standards and inadequate safety features have contributed to road safety hazards, especially at intersections near built-up areas. Rehabilitation interventions focused on road links in poor to bad condition will help reduce the maintenance backlog, ease the maintenance financial burden, and improve the overall condition and safety of the provincial road network.

8. **Overloading challenges.** Overloading, a common challenge in Pakistan, is a serious problem in Khyber Pakhtunkhwa due to logging, quarrying, and mining traffic, especially in the province's marble-producing areas. Although light vehicles account for 80%–90% of traffic in Khyber Pakhtunkhwa, a 2013 traffic survey revealed that over 95% of trucks in all categories were overloaded, some as high as 100% above permissible load limits. Road in the center region of the province carry the heaviest traffic while the southern region has the lowest traffic. Overloading reduces pavement design life and results in premature deterioration, often leading to catastrophic failure. The PKHA has established two stationary weighbridges, and is investing in mobile vehicle weighing equipment; however, controlling overloading requires a multifaceted approach, such as regulatory overhaul, self-regulation by the trucking industry, selective enforcement with modern technology, vehicle taxation to encourage the replacement of rigid single axles with multi-axle configurations, overloading control at the source, and the use of stronger pavements based on actual axle loads. The project design acknowledges the actual axle load spectrum, and the PKHA has begun enforcing overloading control measures at the source, such as at marble mines and factories.

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<sup>3</sup> Government of Pakistan, Ministry of Planning, Development and Reforms. 2014. *Pakistan 2025: One Nation, One Vision*. Islamabad. [www.pc.gov.pk](http://www.pc.gov.pk).

<sup>4</sup> Excluding 380 km of provincial highways located in the Federally Administered Tribal Areas.

<sup>5</sup> PCI is an indicator of pavement performance for asphaltic roads that ranges between 0 (extremely poor) and 7 (newly constructed and distress-free).

9. **Road asset management.** The PKHA established a road asset management system (RAMS) assisted by the Asian Development Bank (ADB)<sup>6</sup> with a dedicated RAMS directorate within the PKHA. A basic database, including road inventory data and condition data, was established with a Highway Development and Management Model (HDM-4) interface. A falling weight deflectometer and profilometer were provided, and have been used to survey pavement conditions and collect data.<sup>7</sup> An annual maintenance plan for FY2014–FY2015 was prepared with the assistance of a consultant utilizing the RAMS. The assessment showed that the existing RAMS should be enhanced with both hardware and software using the latest technology, an embedded geographic information system, and staff training. The RAMS should also be expanded to cover bridges and large drainage structures, road safety and traffic management infrastructure, and geotechnical infrastructure such as slope retaining structures, embankments, and tunnels. The PKHA will provide a dedicated annual budget allocation for data collection and operation expenditure of the RAMS.

10. **Sustainable road maintenance.** Road maintenance sustainability has been a challenge in Khyber Pakhtunkhwa. Annual budget allocations for road maintenance and preservation have been insufficient to operate and maintain the road system at an acceptable service level. Khyber Pakhtunkhwa Communication and Works Department, including the PKHA, receives about 2.0%–2.5% of the province’s annual budget for the road sector, on average, but most of this allocation is spent on new road and bridge construction and upgrading works (especially during 2014–2017). Expenditure on road repairs and maintenance accounted for over 10% of total spending on roads in 2014–2015, but this fell to 8% in 2015–2016, and is expected to fall to around 6% in 2016–2017.<sup>8</sup> The PKHA established a Road Maintenance Fund with financing from the provincial budget allocation (98%) and revenues generated from road tolls and leasing of property within rights-of-way (2%). The government is also promoting public–private partnerships in the road sector to improve the efficiency of road investment and maintenance under long-term, build-operate-transfer arrangements. The project will expand toll roads, increase tolling revenue, and help the PKHA increase its maintenance budget allocation.

11. **Performance-based maintenance.** Routine and periodic maintenance is currently carried out in small road sections about 100–200 meters long, resulting in an uneven road surface full of patches that disintegrate with the movement of traffic. Maintenance (mostly focused on emergency repairs) is carried out by small contractors through contracts bid annually. The budget allocation for routine maintenance cannot be guaranteed; thus, large sections of the road network do not receive regular systematic maintenance based on sound asset management practice. PBM is a relatively new approach designed to increase the efficiency and effectiveness of road maintenance. It changes the role of a contractor from that of executor to road asset manager, and the contractor is paid on the basis of outputs or predefined service levels instead of inputs. PBM focuses on incentives to encourage good performance and sustainable results under a multi-year maintenance contract. The project includes a PBM component to be financed by Khyber Pakhtunkhwa to pilot two 5-year PBM contracts covering about 104 km of provincial roads that are still in fair to good condition. This will be the first time that PBM has been piloted in Khyber Pakhtunkhwa. These PBM contracts are intended to maintain high road serviceability,

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<sup>6</sup> ADB. 2004. *Report and Recommendation of the President to the Board of Directors: Proposed Loans to the Islamic Republic of Pakistan for the North-West Frontier Province Road Development Sector and Subregional Connectivity Project*. Manila.

<sup>7</sup> A falling weight deflectometer is a testing device used by civil engineers to evaluate the physical properties of pavement. Profilometer is a measuring instrument used to measure pavement’s profile, in order to quantify its roughness.

<sup>8</sup> During 2016–2017, Khyber Pakhtunkhwa released an additional \$85 million for the construction of the Swat Expressway, leading to an approximately 250% increase in the PKHA’s budget for new works compared with 2015–2016.

while ensuring the durability of all road infrastructure elements: pavements, shoulders, slopes, drainage structures, and road safety furniture. Based on the pilot results, PBM will be replicated to cover the entire provincial road network. This PBM experience could provide a road maintenance contracting model to be applied in other jurisdictions.

12. **Previous lessons and experience.** The project design incorporated the main lessons from previous projects in Khyber Pakhtunkhwa, including a previous ADB-financed road project (footnote 6) and other road projects in the province financed by development partners such as the World Bank and Japan International Cooperation Agency that mainly focus on flood emergency assistance. The subprojects were selected based on both the highest economic internal rate of return, and security conditions (all are located in central and eastern Khyber Pakhtunkhwa where security conditions are better and well-controlled). Advance procurement for civil works and consultant recruitment were synchronized with project preparation to minimize start-up delays. The civil works contracts are packaged to accommodate the capacity of international and local bidders. The government agreed to allocate a dedicated fund in its annual budget for upgrading, data collection, and operation of the RAMS.

13. **Value added by ADB assistance.** ADB's assistance in Khyber Pakhtunkhwa's transport sector has not only improved regional connectivity within the province, but also strengthened the PKHA's capacity on the RAMS, overloading control, and road safety improvement. With ADB's previous assistance, the PKHA established a road maintenance unit to operate the RAMS and procured portable weighbridges to control overloading. ADB will continue the policy dialogue with the government on increasing road maintenance expenditure with a mandatory budget allocation; modernizing and enhancing the RAMS with the latest technology (both hardware and software), training, and technical support; and improving maintenance efficiency by piloting PBM contracts. The PBM contracts are expected to establish a successful case that can be replicated and scaled up in Khyber Pakhtunkhwa and other provinces.

## **B. Impact and Outcome**

14. The project's impact will be an efficient and integrated transport network in Khyber Pakhtunkhwa established (footnote 3). The project's outcome will be efficiency and safety along key sections of Khyber Pakhtunkhwa's provincial road network improved.<sup>9</sup>

## **C. Outputs**

15. **Output 1: Provincial roads rehabilitated.** The project will rehabilitate eight road sections with a total length of 214 km to relevant provincial highway standards, while improving road safety and providing climate resilience features to withstand damage and disruption from natural disasters (e.g., floods, landslides, and slope erosion).

16. **Output 2: The Pakhtunkhwa Highways Authority's institutional capacity on road maintenance strengthened.** The PKHA's capacity will be strengthened through pilot PBM contracts, enhancement of the RAMS, the provision of maintenance equipment and laboratory equipment, and training.

## **D. Summary Cost Estimates and Financing Plan**

17. The project is estimated to cost \$164 million (Table 1).

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<sup>9</sup> The design and monitoring framework is in Appendix 1.

**Table 1: Summary Cost Estimates (\$ million)**

Item	Amount <sup>a</sup>
<b>A. Base Cost<sup>b</sup></b>	
1. Road rehabilitation	130.5
2. Institutional strengthening on road maintenance	21.7
<b>Subtotal (A)</b>	<b>152.2</b>
<b>B. Contingencies<sup>c</sup></b>	<b>5.1</b>
<b>C. Financial Charges During Implementation<sup>d</sup></b>	<b>6.7</b>
<b>Total (A+B+C)</b>	<b>164.0</b>

<sup>a</sup> Includes a performance-based maintenance pilot (\$10 million), partial rehabilitation works (\$11.5 million) including taxes and duties (\$5 million), and resettlement costs (\$2.5 million) to be financed from government resources.

<sup>b</sup> In mid-2017 prices as of 31 August 2017.

<sup>c</sup> Physical contingencies computed at 3% for civil works. Price contingencies computed at an average of 1.4%–1.5% on foreign exchange costs and 5.0%–5.5% on local currency costs; includes a provision for potential exchange rate fluctuation under the assumption of a purchasing power parity exchange rate.

<sup>d</sup> 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 0.5% and maturity premium of 0.1%. Commitment charges for the ordinary capital resources loan are 0.15% per year to be charged on the undisbursed loan amount. The interest rate for the concession loan will be 2.0% per year during the grace period and thereafter; and such other terms and conditions set forth in the draft loan and project agreements.

Source: Asian Development Bank estimates.

18. The government has requested the following two loans totaling \$140 million to help finance the project:

- (i) A regular loan of \$121.5 million from ADB's ordinary capital resources. The loan will have a 25-year term, including a grace period of 7 years; an annual interest rate determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; a commitment charge of 0.15% per year; the interest and other charges during construction to be capitalized in the loan; and such other terms and conditions set forth in the draft loan and project agreements. Based on the custom-tailored method, the average maturity is 16 years, and the maturity premium payable to ADB is 0.10% per year.
- (ii) A concessional loan of \$18.5 million from ADB's ordinary capital resources. The loan will have a 25-year term, including a grace period of 5 years; an interest rate of 2.0% per year during the grace period and thereafter; and such other terms and conditions set forth in the draft loan and project agreements.

19. The summary financing plan is in Table 2. ADB will finance expenditures relating to road rehabilitation civil works, consulting services, equipment, and implementation support. The proceeds of ADB loans will be relented to the provincial government and, through the government, will be made available to the PKHA for the purposes of the project.

**Table 2: Summary of Financing Plan**

Source	Amount (\$ million)	Share of Total (%)
Asian Development Bank	140.0	85.4
Ordinary capital resources (regular loan)	121.5	74.1
Ordinary capital resources (concessional loan)	18.5	11.3
Government of Khyber Pakhtunkhwa <sup>a</sup>	24.0	14.6
<b>Total</b>	<b>164.0</b>	<b>100.0</b>

<sup>a</sup> The Government of Khyber Pakhtunkhwa will provide a maximum of \$10 million through its current maintenance budget to finance the PMB pilot in five years.

Source: Asian Development Bank estimates.

## E. Implementation Arrangements

20. The provincial government will be the executing agency, and the PKHA will be the implementing agency. The PKHA will undertake the actual project implementation. The PKHA has established a functional project implementation unit (PIU) with the formal appointment of a full-time project director and other key staff; and the government has agreed that PIU staffing will remain stable throughout project implementation. Any replacement of key staff will be subject to ADB's prior approval. The provincial government will be responsible for causing the PKHA to comply with its obligations in relation to the project.

21. Advance contracting for the road rehabilitation civil works and the recruitment of the construction supervision consultant have already begun. The government has been advised that approval of advance contracting will not constitute a commitment from ADB to finance the project until the loan and project agreements are signed and made effective. The project is categorized as procurement- and design-ready. The implementation arrangements are summarized in Table 3 and described in detail in the project administration manual (PAM).<sup>10</sup>

**Table 3: Implementation Arrangements**

Aspects	Arrangements		
Implementation period	January 2018–December 2022		
Estimated completion date	31 December 2022		
Loan closing date	30 June 2023		
<b>Management</b>			
(i) Oversight body	Steering committee comprising officials from the communication and works department, Finance Department of Khyber Pakhtunkhwa, Planning and Development Department of Khyber Pakhtunkhwa, and PKHA, as well as other relevant line departments. The steering committee is chaired by the additional chief secretary, and the PKHA's managing director will be the secretary.		
(ii) Executing agency	Khyber Pakhtunkhwa Provincial Government		
(iii) Implementing agency	PKHA		
Procurement	Procurement of ADB-financed goods, civil works, and related services will follow ADB's Procurement Guidelines (2015, as amended from time to time).		
	ICB (works)	Three packages with a total of nine lots for the rehabilitation component	\$130.000 million
	NCB (goods)	One contract for maintenance equipment	\$1.000 million
		One contract for the road management unit laboratory equipment	\$1.200 million
	Shopping (goods)	Three contracts for 10 vehicles	\$0.253 million
	Procurement of government-financed civil works will follow the applicable laws of Pakistan and Khyber Pakhtunkhwa		
	NCB (works)	Two contracts for the PBM component	\$10.000 million
Consulting services	Consultant recruitment will follow ADB's Guidelines on the Use of Consultants (2013, as amended from time to time).		

<sup>10</sup> Project Administration Manual (accessible from the list of linked documents in Appendix 2).

Aspects	Arrangements		
	Quality- and cost-based selection (90:10)	One contract for a supervision consultant (533 person-months: 51 person-months of international and 380 person-months of national consultants)	\$5.100 million
		One contract for road asset management enhancement including training, software, and hardware (24 person-months: 6 person-months international, 18 person-months national)	\$1.600 million
	Individual consultants	Three contracts for technical advisors (12 person-months)	\$0.200 million
Retroactive financing and advance contracting	Road rehabilitation civil works, consulting services, and eligible incremental administrative costs, incurred up to 12 months before the signing of the respective loan agreements, subject to the ceiling of 20% of the respective loan amounts.		
Disbursement	The loan proceeds will be disbursed following ADB's <i>Loan Disbursement Handbook</i> (2017, as amended from time to time) and detailed arrangements agreed between the Government of Khyber Pakhtunkhwa and ADB.		

ADB = Asian Development Bank, ICB = international competitive bidding, NCB = national competitive bidding, PBM = performance-based maintenance, PKHA = Pakhtunkhwa Highways Authority.  
Source: ADB estimates.

### III. DUE DILIGENCE

#### A. Technical

22. Eight road sections were selected based on the outcomes of the PKHA's 2013 RAMS data; two design consultant firms engaged by the PKHA conducted the detailed design; and the ADB team reviewed and verified the design considering traffic volume, road conditions, and the PKHA's priority. Preliminary screening rated the project as being at *medium risk* of climate change impacts, primarily flooding risks. A further climate risk and vulnerability assessment was undertaken during project preparation, and the rehabilitation strategy focuses on improving pavement structure, including drainage, slope stability, and safety enhancements. All road sections will follow existing alignments, with some sections widened to standard, 7.3-meter, two-lane carriageways, with shoulders of varied width per design standards (except for one road, where the existing four-lane pavement will be rehabilitated). The proposed pavement design aligned with the results of the condition survey and falling weight deflectometer data, while taking the reuse and recycling of the existing pavement into consideration. The project team also surveyed the road sections using the International Road Assessment Program methodology,<sup>11</sup> and found that some road sections have a low (one- or two-star) rating with significant safety hazards, especially at junctions and built-up areas. The design will incorporate the recommended safety measures to improve these high-risk sections to a three-star rating or better. The detailed design addressed climate change impacts by improving drainage facilities, stabilizing slopes with bio-engineering measures to minimize erosion, and ensuring the height of embankments with design flood frequency.

<sup>11</sup> International Road Assessment Program methodology is to inspect high-risk roads and develop Star Ratings and Safer Roads Investment Plans to help countries make road safe.

## **B. Economic and Financial**

23. **Economic.** The economic analysis confirms that the project is economically viable, with an economic internal rate of return of 15.6%, and a net present value of \$98.0 million at a 9% discount rate. The project's economic benefits comprise reduced routine and periodic maintenance costs for the road agency, and vehicle operating cost and travel time savings for users. Economic viability is robust against increases in capital costs, as well as reductions in benefits. A review of the PKHA's financial position indicates that the province should be able to allocate sufficient funds for road maintenance to ensure that these assets can be sustained.

24. **Financial.** The project will reduce the 30% rehabilitation backlog, which currently takes up 80% of the rehabilitation and maintenance budget, by rehabilitating road sections with a minimal residual life, thereby reducing future reconstruction and maintenance costs. In FY2016, the PKHA had a resource envelope of about PRs903 million for the rehabilitation and maintenance of provincial highways, versus an unconstrained need of about PRs3,298 million. Of this, 80% was required to eliminate the maintenance backlog by rehabilitating 700 km of provincial roads in the worst condition. If this maintenance backlog can be eliminated or largely reduced, the road network will be stabilized with no more than 5%–7% of the network requiring strengthening or rehabilitation each year, and the current budget envelope of about PRs903 million should be sufficient for routine and functional periodic maintenance of provincial highways. Tolling is being considered on four project roads with higher commercial traffic volumes before rehabilitation works are completed. Additional revenue from these tolls is expected to contribute further to the maintenance budget and the project's sustainability.

## **C. Governance**

25. The PKHA was assessed as having sufficient capacity to manage procurement, financial management, and project implementation functions, including maintaining the accounting systems, financial controls, and audit arrangements. The PKHA's financial management pre-mitigation risk is substantial, and an action plan is highlighted in the Financial Management section of the PAM. The PKHA is experienced in the procurement and recruitment of consultants, as mandated by the provincial government to plan and implement the development and maintenance of provincial roads, and is familiar with ADB's procurement and consultant recruitment procedures. Further training on strengthening the grievance redress mechanism, procurement, accountability, and contract management will be conducted during project implementation.

26. ADB's Anticorruption Policy (1998, as amended to date) was explained to and discussed with the government and the PKHA. The specific policy requirements and supplementary measures are described in the PAM.

## **D. Poverty, Social, and Gender**

27. Consultations with local communities were held during field visits to the road sections. An analysis of key stakeholders' perceptions of and concerns about the project shows positive feedback and no major social impacts. The main direct project beneficiaries will be agricultural traders, freight forwarders, transporters, commuters, and those living and working along the project road sections. Indirect beneficiaries include large sections of the population who will gain increased employment opportunities in trade and transport business as well as ready access to markets and resources in Khyber Pakhtunkhwa. Local populations will gain employment opportunities during the construction and operation project stages. The project has been categorized as "some gender elements," as it will benefit women by improving access to basic

social services such as health, education, and social networking facilities. Road safety features will reduce accidents and fatalities. Key gender actions will include (i) consultations with separate men's and women's groups to mitigate any negative project impacts; (ii) the rehabilitation of 20% of road sections with gender-sensitive design features (such as pedestrian sidewalks, rest areas for families, and bus stops for women, children, and the elderly); (iii) capacity building of the PKHA in social safeguards and gender-sensitive planning and the implementation of road sector projects; and (iv) the provision of additional assistance to households headed by women as part of the resettlement plan.

## **E. Safeguards**

28. **Environment (category B).** The PKHA prepared a consolidated initial environmental examination, including an environmental management plan (EMP), in accordance with ADB's Safeguard Policy Statement (2009). The potential environmental impacts are largely related to the construction stage, and are temporary and site-specific. These include soil erosion and water contamination, noise, vibration, air pollution, the felling of roadside trees, traffic disruptions, and impacts pertaining to occupational and community health and safety. During operation, the project will have potential impacts related to increased noise and air pollution levels, and community safety. Adequate mitigation measures were designed and will be implemented through the EMP. As the PKHA's environmental safeguard capacity is limited, the EMP will include capacity building and training of PIU personnel in environmental management. An environment specialist under the construction supervision consultant will support the PIU in ensuring that the project complies with the environmental requirements of ADB and the local government. Two series of public consultations were conducted in the project area in March–April and June–July 2017. The initial environmental examination and EMP were disclosed on ADB's website on 22 September 2017.

29. **Involuntary resettlement (category C).** No land acquisition is required for the project because improvement works will be limited to existing rights-of-way owned by the PKHA. The rehabilitation design of some road sections whose carriageways are of less-than-required width have been modified by reducing the proposed construction limit to the existing carriageway, along with other technical solutions (e.g., traffic calming measures) to avoid impacting structures within the rights-of-way. A due diligence report was prepared to verify how the designs had been modified to avoid all potential impacts on structures. A land acquisition and resettlement framework (LARF) was prepared to guide the PKHA in addressing any unforeseen land impact that may arise during implementation due to contractor negligence or any unanticipated change in the road cross-sections. The LARF has been prepared in accordance with ADB's Safeguard Policy Statement, and it has been agreed that resettlement plans will be prepared and implemented in the event of unforeseen impacts. The due diligence report and LARF were disclosed on ADB's website on 25 September 2017 and will be closely monitored by the PIU during construction.

30. **Indigenous peoples (category C).** The project does not trigger requirements on indigenous peoples under ADB's Safeguard Policy Statement because no distinct ethnic minority communities are present in any of the project areas.

## **F. Summary of Risk Assessment and Risk Management Plan**

31. Significant risks and mitigating measures are summarized in Table 4 and described in detail in the risk assessment and risk management plan.<sup>12</sup>

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<sup>12</sup> Risk Assessment and Risk Management Plan (accessible from the list of linked documents in Appendix 2).

**Table 4: Summary of Risks and Mitigating Measures**

<b>Risks</b>	<b>Mitigating Measures</b>
The Government of Khyber Pakhtunkhwa's insufficient budget for the road sector and unbalanced public investments (favoring road construction over road maintenance) result in unsustainable road maintenance.	The Asian Development Bank will maintain policy dialogue with the provincial government to increase its annual budget for road maintenance. The target will be linked with the outcomes of the road asset management system. Tolling is considered for some project roads to increase the PKHA's revenue. The PBM pilot under the project will test multiyear maintenance fund commitments as part of the contract.
The PBM pilot cannot be implemented due to the reluctance of the government and the local contracting industry.	The PBM design considers local contractors' capacity, maintenance culture, and political willingness. The design customized international practices to local conditions and institutional capacity. Several rounds of consultations and workshops have been conducted with the PKHA and local potential contractors.

PBM = performance-based maintenance, PKHA = Pakhtunkhwa Highways Authority.  
Source: Asian Development Bank.

#### **IV. ASSURANCES**

32. The government and PKHA have assured ADB that implementation of the project shall conform to all applicable ADB policies, including those concerning anticorruption measures, safeguards, gender, procurement, consulting services, and disbursement as described in detail in the PAM and loan documents. The government and PKHA have agreed with ADB on certain covenants for the project, which are set forth in the draft loan agreements and project agreement.

#### **V. RECOMMENDATION**

33. I am satisfied that the proposed loans would comply with the Articles of Agreement of the Asian Development Bank (ADB) and recommend that the Board approve

- (i) the loan of \$121,500,000 to the Islamic Republic of Pakistan for the Khyber Pakhtunkhwa Provincial Roads Improvement Project, from ADB's ordinary capital resources, in regular terms, with interest to be determined in accordance with ADB's London interbank offered rate (LIBOR)-based lending facility; for a term of 25 years, including a grace period of 7 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board; and
- (ii) the loan of \$18,500,000 to the Islamic Republic of Pakistan for the Khyber Pakhtunkhwa Provincial Roads Improvement Project, from ADB's ordinary capital resources, in concessional terms, with an interest charge at the rate of 2% per year during the grace period and thereafter; for a term of 25 years, including a grace period of 5 years; and such other terms and conditions as are substantially in accordance with those set forth in the draft loan and project agreements presented to the Board.

Takehiko Nakao  
President

2 November 2017

## DESIGN AND MONITORING FRAMEWORK

<b>Impact the Project is Aligned with</b> An efficient and integrated transport network in Khyber Pakhtunkhwa established (Pakistan Vision 2025) <sup>a</sup>			
<b>Results Chain</b>	<b>Performance Indicators with Targets and Baselines</b>	<b>Data Sources and Reporting Mechanisms</b>	<b>Risks</b>
<p><b>Outcome</b></p> <p>The efficiency and safety of key sections of the Khyber Pakhtunkhwa provincial road network improved</p>	<p>a. Average travel speed along the project roads increased to 60 km per hour by 2024 (2017 baseline: 45 km per hour)</p> <p>b. The International Road Assessment Program safety rating for the project roads increased to three stars or higher by 2024 (2017 baseline: one star)</p>	<p>a.–b. The PKHA and consultants' project completion reports</p>	<p>The government's insufficient budget for the road sector and unbalanced public investments (favoring road construction over road maintenance) result in unsustainable road maintenance.</p>
<p><b>Outputs</b></p> <p>1. Provincial roads rehabilitated</p> <p>2. The PKHA's institutional capacity for road maintenance strengthened</p>	<p>1a. Approximately 214 km of provincial roads rehabilitated by 2023 (2017 baseline: not applicable)</p> <p>1b. Pavement international roughness index of project roads increased to 3 meter/km by 2023 (2017 baseline: 7.0 meter/km)</p> <p>1c. 20% of the project road sections rehabilitated with gender design features</p> <p>2a. Two pilot PBM contracts with a total length of 104 km completed by 2023 (2017 baseline: none)</p> <p>2b. Laboratory and maintenance equipment acquired and used by the PKHA from 2019 (2017 baseline: none)</p> <p>2c. More than 30 PKHA staff trained in the RAMS, social safeguards, and gender-sensitive planning by 2020 (2017 baseline: none)</p>	<p>1a.–c. The PKHA and consultants' completion reports</p> <p>2a.–2c. Consultant's report as endorsed by the government, PKHA project progress reports</p>	<p>The PBM pilot cannot be implemented due to the reluctance of the government and local contracting industry</p>

<b>Impact the Project is Aligned with</b>			
An efficient and integrated transport network in Khyber Pakhtunkhwa established (Pakistan Vision 2025) <sup>a</sup>			
<b>Results Chain</b>	<b>Performance Indicators with Targets and Baselines</b>	<b>Data Sources and Reporting Mechanisms</b>	<b>Risks</b>
	2d. Annual maintenance plans and budget reports prepared with the RAMS from FY2021 onwards (2017 baseline: none)	2d. Annual PKHA road maintenance plan and budget reports	
<b>Key Activities with Milestones</b>			
<p><b>1. Provincial roads rehabilitated</b></p> <p>1.1. Recruit construction supervision consultant by March 2018. 1.2. Award civil works contracts by March 2018. 1.3. Complete civil works contracts by March 2021.</p> <p><b>2. The Pakhtunkhwa Highways Authority's institutional capacity on road maintenance strengthened</b></p> <p>2.1. Award PBM contracts by March 2018. 2.2. Complete PBM contracts by April 2022. 2.3. Procure laboratory and maintenance equipment by December 2018, and install by May 2019. 2.4. Conduct RAMS training sessions by December 2020. 2.5. Implement the RAMS from January 2021. 2.6. Develop an annual PKHA maintenance plan and budget based on RAMS inputs from 2021.</p>			
<b>Inputs</b>			
Asian Development Bank: \$140 million (\$121.5 million regular loan and \$18.5 million concessional loan) Government of Pakistan: \$24 million			

km = kilometer, PBM = performance-based maintenance, PKHA = Pakhtunkhwa Highways Authority, RAMS = road asset management system.

<sup>a</sup> Government of Pakistan, Ministry of Planning, Development and Reforms. 2014. *Pakistan 2025: One Nation, One Vision*. Islamabad. [www.pc.gov.pk](http://www.pc.gov.pk).

Source: Asian Development Bank.

**LIST OF LINKED DOCUMENTS**

<http://www.adb.org/Documents/RRPs/?id=47360-002-3>

1. Loan Agreement (Ordinary Operations)
2. Loan Agreement (Ordinary Operations [Concessional])
3. Project Agreement
4. Sector Assessment (Summary): Transport (Road Transport [Nonurban])
5. Project Administration Manual
6. Contribution to the ADB Results Framework
7. Development Coordination
8. Economic and Financial Analysis
9. Country Economic Indicators
10. Summary Poverty Reduction and Social Strategy
11. Initial Environmental Examination
12. Resettlement Framework
13. Risk Assessment and Risk Management Plan

**Supplementary Documents**

14. Social Due Diligence Report
15. Project Climate Risk Assessment and Management Report