Executive Summary

1. The Reconstruction of A-27 Highway Atyrau-Dossor Section Project (the “Project”) will reconstruct an 87-kilometer road in western Kazakhstan, rehabilitating the existing two-lane carriageway and expanding it to four lanes. The total project cost is approximately USD265 million, of which the Asian Infrastructure Investment Bank (AIIB) will finance JPY35,928.819 million (~USD233 million) through sovereign-backed financing, and USD32 million will be provided by the Government of Kazakhstan. The Project will be implemented by the “KazAvtoZhol National Company” JSC, under the administration of the Ministry of Transport. The Project will be AIIB’s first stand-alone investment in Kazakhstan’s road sector.

2. The Project road is a vital segment of the international transit corridor within Central Asia, facilitating the transit of goods from Turkmenistan and Uzbekistan to western Kazakhstan. The Project will enhance road capacity, improve safety, reduce travel time and vehicle operating costs and strengthen resilience to climate risks such as extreme heat, salinization and flooding. Improved connectivity and logistics efficiency are expected to boost trade competitiveness and support regional economic growth. In addition, this road will be the first toll road in the Atyrau Region. The Project introduces an integrated Design-Build-Maintenance (DBM) model based on the FIDIC Yellow Book (2017), consolidating design, construction and maintenance responsibilities under a single contract. This approach promotes lifecycle asset management and reduces cost overruns and delays. Through implementation support, AIIB will help strengthen the Borrower’s procurement and fiduciary management capacity.

3. The Project overall risk is rated as medium. Key risks relate to the complexity and novelty of the DBM model in Kazakhstan: (a) the design is available only during the first year, requiring strong implementation capacity; and (b) the limited national experience, which may cause procurement delays and quality risks. Mitigation measures include (a) the engagement of construction supervision and project management consultants; (b) deployment of AIIB’s technical advisor for DBM oversight; (c) close supervision and support from AIIB in procurement and contractual management; and (d) application of lessons from other ongoing co-financing projects, such as the Karagandy–Jezkazgan Project with the World Bank and the M-32 Highway Aktobe-Karabutak-Ulgaisyn Section Project with EBRD.

Project No. and Name	P001023 Reconstruction of A-27 Highway Atyrau-Dossor Section Project		
AIIB Member	Kazakhstan		
Borrower	"KAZAVTOZHOL NATIONAL COMPANY" JOINT STOCK COMPANY		
Guarantor	Republic of Kazakhstan		
Project Implementation Entity			
Proposed AIIB financing (USDm)	USD233.30	**Instrument type/subtype**	Loan/Sovereign Guarantee
		Currency of financing requested	Yen
Sector (Subsector)	Transport (Roads)	**E&S Category and Comments (if any)**	B
Project Objective	To provide safe, efficient and climate-resilient connectivity along the Atyrau-Dossor Section of the A-27 Highway in Kazakhstan's Atyrau Region.		
Project Description	The Project will reconstruct an 87-km section of the Atyrau–Dossor road in Kazakhstan, upgrading the existing two-lane carriageway to a four-lane Category I-b dual carriageway. The works include 136 culverts, 30 cattle underpasses, four bridges, three railway overpasses, 18 agricultural machinery passes, one interchange, and two rest areas, along with construction supervision, implementation support and institutional capacity-building activities. A tolling system will be introduced after the improvement of this road section—the first in the Atyrau Region—to strengthen the road's long-term financial sustainability.		
Implementation Period	Start Date: December 01, 2025 End Date: December 31, 2030	**Expected Loan Closing Date**	July 31, 2031
Co-financing type	Standalone	**Following other Financier's E&S Policy?**	No
Lead financier		**Following other Financier's Procurement Policy?**	No

Financing Plan	Estimated Total Project Cost: USD265 million AIIB Financing: USD233 million Government of Kazakhstan Financing: USD32 million Multi-tranche Financing Structure: AIIB will provide sovereign-backed financing for an amount of JPY35,928.819 million (approximately USD233.3 million). The financing is proposed to be committed in two loan tranches, each in a separate loan agreement over the Project's implementation period. The first loan tranche of JPY13,155.942 million (approximately USD85.4 million) will be committed following the approval. The second uncommitted loan tranche of JPY22,772.877 million (approximately USD147.8 million) is subject to the AIIB Management's verification of agreed conditions.
Policy Assurance	The Project has passed a policy compliance review. No derogation or exception to the Bank's operational policies is required.

Risk	
Key Risks	**Mitigation Measures**
Procurement risk	To mitigate risk from lack of experience in the application of a complex DBM contract, (a) International consultants conducted detailed market research and assessment to ensure the bidding documents include sound qualification criteria that promote sufficient competition among qualified bidders. (b) The Project Team will provide close supervision and support in the procurement and contract execution of all works contracts through procurement prior review and field missions. (c) The Project Team will build on the experiences gained and lessons learned from the current ongoing road projects financed by AIIB and other MDBs of a similar nature and size.
Project Implementation Risk	To mitigate risk from delays in commencement of works due to utilities relocation, (a) A detailed list of utilities is being prepared with owners and estimated costs. It will be finalized upon the completion of the detailed design to ensure that all utilities are relocated and restored before the commencement of civil works. (b) A detailed roadmap for utilities relocation has been developed and agreed upon with the government.

	(c) The local akimat has been involved and it has committed to provide its full support to relocate these utilities. (d) The cost for relocating utilities is included in the project budget. (e) A dedicated staff in the Project Management Consultant team will be mobilized to support utility relocation.
Project Preparation Risk	To mitigate risk due to insufficient experience on integrated DBM contracts, (a) AIIB has provided upstream support for the Borrower in gap filling and quality enhancement in procurement preparation. (b) The Project team has involved a senior technical consultant experienced in the preparation, assessment and monitoring, quality of design, operational activities, implementation of critical aspects of DBM contracting and performance-based maintenance. (c) The experience and lessons learned from other ongoing projects financed by AIIB and other MDBs with similar nature will be incorporated in the project design to minimize the risk.
ECap	17.31USDm 7.40%

Strategic Alignment	
Alignment with AIIB's thematic priorities	Green infrastructure; Connectivity and Regional Cooperation
Alignment with AIIB's strategies	Transport Sector Strategy

Key Outcomes			
Indicator	**Unit of measure**	**Baseline (Year)**	**Target (Year)**
Average travel time along the section.	Minutes	85 (2024)	56 (2030)
AADT along the Atyrau-Dossor section (Passenger Car Unit)	Number	7,864 (2024)	9,273 (2030)
Increase in average IRAP star rating of the project road	Number	1 (2024)	3 (2030)

Climate Action		
Climate Finance	Adaptation Finance (USDm)	USD35.00
	Mitigation Finance (USDm)	USD0.00
	Dual Benefit (USDm)	USD0.00
	Total (USDm)	USD35.00

Other Key Financing Requirements

Conditions of Effectiveness	• The Partnership Framework Agreement has been executed and delivered and all conditions precedent to its effectiveness have been fulfilled. • The Borrower has established a Project Implementing Unit (PIU) with staffing, capacity, expertise and terms of reference acceptable to the Bank.
Key Conditions for 1st Disbursement	• The Service Agreement has been executed on behalf of the Borrower and the authorized bodies of the Government of the Republic of Kazakhstan, and all conditions precedent to its effectiveness have been satisfied.
Key Covenants	• The Borrower shall maintain, throughout the period of implementation, a PIU, with composition, powers, functions, staffing, facilities and other resources satisfactory to the Bank. • The Borrower shall adopt a Project Manual which sets forth (a) the Project objective, Project activities and arrangements, flow of funds of the proceeds of the Loan, and agreed procedures in procurement, financial management, disbursement and ES risks management; (b) the institutional arrangements for the implementation of the Project, and the roles and responsibilities of the entities involved in implementation; and (c) monitoring and evaluation, reporting and information disclosure arrangements, and the indicators and targets for purposes of monitoring and evaluation of the progress of the Project. • The Borrower shall carry out the Project in accordance with the ES Policy and Standards.

President	Jiayi Zou
Chief Investment Officer	Konstantin Limitovskiy
Director General	Xiaohong Yang
Manager	Evren Dilekli
Project Team Leader	Anzheng Wei
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Project Team Members	Gulru Azamova, Social Development Specialist Hyewon Kim, Investment Analyst Jingyu Gao, Economics Officer Mahendra Bhattarai, Environment Specialist Sáni Ye Zou, Climate Specialist Yi Geng, Financial Management Specialist Yuning Chen, Project Lawyer Yunlong Liu, Procurement Specialist Yuyou Guo, Senior Project Assistant

ASIAN INFRASTRUCTURE INVESTMENT BANK

Sovereign-backed Financings

Approval Project Document
P001023 Kazakhstan - Reconstruction of A-27 Highway Atyrau-Dossor Section Project

Currency Equivalents
As of July 17, 2025

Currency Unit – Kazakhstani Tenge (KZT)
USD1.00 = KZT522.19
KZT1.00 = USD0.0019

Fiscal Year
January 1 – December 31

Abbreviations

AADT	Average Annual Daily Traffic
ADB	Asian Development Bank
AIIB	Asian Infrastructure Investment Bank
CESMP	Construction Environmental and Social Management Plan
CRA	Climate Resilience Assessment
CSC	Construction Supervision Consultant
DBM	Design-Build-Maintenance
EBRD	European Bank for Reconstruction and Development
EIRR	Economic Internal Rate of Return
ES	Environmental and Social
ESAP	Environmental and Social Action Plan
ESF	Environmental and Social Framework
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
EV	Electric Vehicle
EWRP	East-West Roads Project
FM	Financial Management
GDP	Gross Domestic Product
GHG	Greenhouse Gas
km	Kilometer
kph	Kilometer Per Hour
KZT	Kazakhstani Tenge
MDB	Multilateral Development Bank
MoT	Ministry of Transport of the Republic of Kazakhstan
MYRP	Multi-year Rolling Pipeline
NDC	Nationally Determined Contribution
NPV	Net Present Value
O&M	Operations and Maintenance
OHS	Occupational Health and Safety
PAA	Paris Agreement Alignment
PIU	Project Implementing Unit
PMC	Project Management Consultant

PPM	Project-affected People's Mechanism
PPMS	Project Procurement Management System
PT	Project Team
QAJ	"KazAvtoZhol National Company Joint Stock Company"
RAP	Resettlement Action Plan
RC	Roads Committee
SEP	Stakeholder Engagement Plan
SOE	State-owned Enterprise
SWRP	South-West Roads Project
TMA	Trust Management Agreement
USD	United States Dollar
vpd	Vehicle Per Day
WB	World Bank

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1. Context

1.1. **Country and Macroeconomic Overview.** With 2.7 million square kilometers (km²) stretching across Central Asia, Kazakhstan is a large, landlocked economy–the world's ninth largest in terms of area. It has a population of 20.3 million in 2024 and a density of just seven people per km². Surrounded by other Asian Infrastructure Investment Bank (AIIB) Members, Kazakhstan also has a significant Caspian Sea shoreline.

1.2. Kazakhstan has maintained robust economic growth over the past two decades despite global and regional shocks. Gross domestic product (GDP) expanded by 5.1% in 2023, driven by fiscal stimulus and higher oil output, before moderating to 4.8% in 2024; growth is projected at 4.9% in 2025. The economy remains reliant on hydrocarbons and household consumption, with notable urban–rural disparities in income and living standards. Accelerating diversification and addressing regional inequalities are key to achieving sustainable, inclusive growth.

1.3. **Regional Connectivity.** Kazakhstan's location at the crossroads of Eurasian transport corridors offers substantial opportunities for trade and investment. The Government of Kazakhstan has made notable progress in strengthening corridor connectivity through investments in national road and rail networks, supported by international financial institutions. These initiatives have enhanced infrastructure and developed key transit routes. However, gaps in regional connectivity continue to limit exports to neighboring and European markets and constrain the economy's potential as a major east–west transit hub.

1.4. Kazakhstan's international trade is currently dominated by the "Northern Corridor" of the Asia–Europe route. In response to shifting geopolitical dynamics, the government is pursuing diversification by developing and improving other international corridors, such as the Trans-Caspian International Transport Route, which traverses Kazakhstan. Unlocking its full potential is estimated to triple trade volumes by 2030. However, it requires significant operational improvements and targeted investments in ports, highways and railway infrastructure along the corridor, alongside improvements in connectivity and synergies with surrounding regional road networks to the Middle Corridor.

1.5. The Project road, the A27, is a vital segment of the international transit corridor within Central Asia, facilitating overland transit of goods from Turkmenistan and Uzbekistan to the western part of Kazakhstan. It also connects the Atyrau Region to Aktau, a port city along the coast of the Caspian Sea and an important transit hub on the Middle Corridor. With the road improvement, it will position the Atyrau Region as a critical feeder zone for the Trans-Caspian International Transport Route. It will also serve as an important linkage to connect the Atyrau and Aktobe regions, the two major industrial regions in the west of Kazakhstan, to the Middle Corridor.

1.6. Many segments of this international road transit corridor have already been rehabilitated or upgraded to four-lane highways in recent years due to the significant increase in traffic. For instance, in 2016, the Asian Development Bank (ADB) and the Islamic Development Bank financed the reconstruction of the Aktobe-Atyrau-Astrakhan ("Aktobe – Makat") section, which is 459 kilometers (km) long. This project was completed in 2024. In 2019, the European Bank for Reconstruction and Development (EBRD) provided a loan to finance the section km 616-833 (Atyrau–Astrakhan) on the same corridor on the west side, including the construction of

the northern bypass of Atyrau City. The Atyrau-Dossor road section had become a bottleneck, impeding smooth traffic along this international corridor and the economic development of the Atyrau Region.

1.7. **Regional Development.** The Atyrau Region is situated in southwestern Kazakhstan, on the Caspian Lowland, north and east of the Caspian Sea between the lower reaches of the Volga in the northwest and the Ustyurt plateau in the southeast. The terrain is generally flat and sandy, interspersed with salt marshes along the Ural River. Its capital, Atyrau City, is known as the "oil capital" of Kazakhstan. The Atyrau Region is one of the most dynamic developing regions of Kazakhstan. Its petrochemical, oil and gas, agro-industrial complex and fishing industries cooperate with more than 50 economies worldwide. In 2024, the regional GDP was ranked third in Kazakhstan, just behind Almaty and its capital, Astana.

1.8. **Transport Sector Overview.** Kazakhstan's road and railway transport networks remain insufficient to meet both domestic needs and growing international transit demands, considering its large area. The economy's population is sparsely distributed across an extensive landmass, contributing to one of the lowest road densities globally. The existing road network totals approximately 98,000 km, of which 25,000 km are classified as national highways. Much of the infrastructure was constructed during the former Soviet Union era and has since deteriorated considerably, undermining both safety and operational efficiency. In 2021, Kazakhstan recorded a road traffic mortality rate of 12 per hundred thousand population.[1] As of 2023, an estimated 2.89 million rural residents still lacked access to an all-season road.[2]

1.9. Transport in the Atyrau Region is primarily reliant on land transport networks. In 2024, the transportation sector contributed approximately 7% of the region's GDP. Atyrau railway network includes approximately 800 km of both main lines and branches. The railway system in the Atyrau Region is single-track and non-electrified. There is a plan to expand the single-track to double-track. However, there is no clear agenda for electrifying the railway line in the Atyrau Region's short- and medium-term plans.

1.10. In Kazakhstan, roads are classified into republican roads and local roads. Republican roads, managed by the national operator of highways and roads, connect regions and form part of the national and international transport network. Local roads are managed by local governments and form the supporting network. The overall road condition in the Atyrau Region needs to be improved. For instance, of the total 1,118 km of republican roads in the Atyrau Region, only 469 km are in good condition (less than 42%), far below the national target of 65% by 2025.[3] Safety concerns are compounded by deteriorating road conditions and the lack of proper safety facilities, as well as the high risk of head-on collisions when overtaking on this two-lane highway. These factors contribute to elevated accident risks and underscore the urgency of the reconstruction project.

[1] WHO. 2025. Road traffic mortality rate.
[2] Asian Transport Outlook. 2023. Green Roads Profile.
[3] Qazjol Engineering. 2025. Feasibility Study.

1.11. **Toll System.** As of October 2025, out of 24,900 km of national highways, 26 road sections with a total length of 4,883 km are tolled, including 12 sections of Category I[4] with a length of 2,231 km, 14 sections of Category II and Category III with a length of 2,652 km.[5] Another 8,000 km of toll roads are to be introduced in the near future, once these are constructed or rehabilitated and fully comply with regulatory requirements. Toll road revenues have grown rapidly, reaching KZT46 billion in 2024 and projected to rise to about KZT66 billion in 2025—an increase of more than 40% within a year. However, there are currently no toll road sections in the Atyrau Region due to the poor road conditions.

1.12. The "KazAvtoZhol National Company Joint Stock Company" (QAJ) is a national joint stock company and the national operator of highways and roads. QAJ manages a network of approximately 25,000 km of roads, including toll roads. The company is responsible for constructing, repairing and maintaining roads, as well as implementing and managing toll systems. QAJ also focuses on improving road safety and ensuring efficient travel while reducing travel costs. QAJ has implemented various information technologies across Kazakhstan's road tolling system. Toll revenues for the rapidly expanding network are managed and collected through the KazToll portal, overseen by the Directorate of Toll Roads within QAJ. Toll collection and use follow a pooled mechanism. Since 2022, just four years after the introduction of the toll system, QAJ has been able to finance road maintenance on tolled roads exclusively through toll revenues. The objective is to expand the already self-sustaining toll mechanism to cover not only maintenance but also support capital expenditure (capex) investment in the road sector.[6]

1.13. **Development Challenges.** Despite the efforts to upgrade and modernize the road sector over the past years, there is still room to improve its governance, including the adoption of road asset management systems for investment and maintenance decisions, corporatization of state-owned enterprises (SOEs), development of segmented road user charges, promotion of public-private partnerships and the implementation of systematic processes to address climate change. A recent analysis showed that Kazakhstan faces significant challenges in adapting its transport infrastructure to climate change, with Kazakhstan's road network ranking 28th out of 208 economies in terms of potential climate vulnerability.[7]

1.14. Road safety has been challenging in Kazakhstan. There were 13,900 road accidents in Kazakhstan in 2023, causing 18,100 injuries and 2,300 fatalities. According to the World Bank (WB), the annual damage from road accidents in Kazakhstan is USD7 billion. The main factors contributing to the high accident and fatality rates include non-compliance with road safety regulatory requirements; lack of driver training, enforcement and discipline; insufficient

[4] According to the different road design standards, republican roads in Kazakhstan has been categorized into Category I, II and III. Category I represents higher standards.
[5] According to the State Regulations in the Field of Architecture, Urban Planning, and Construction—Code of Rules of the Republic of Kazakhstan (SP RK 3.03-101-2013 "Automobile Roads")—public roads in Kazakhstan are classified into five categories (I–V) based on their geometric design standards, including the number of lanes, pavement width and design speed. Category I (Ia/Ib) roads are high-standard highways of international or national importance with two or more carriageways and design speeds of 150 kilometers per hour (kph) for Ia and 120 kph for Ib. Category II roads are high-speed highways of international or republican significance (two-lane, 120 kph). Categories III and IV are highways of republican or local significance (two-lane, 100 kph for III and 80 kph for IV), while Category V roads are local access roads (60 kph). Information on tolled roads as of October 2025 can be found at QAJ. Toll Roads. https://en.qaj.kz/tollroads/.
[6] According to Order No. 1 issued by the Acting Minister of Transport of the Republic of Kazakhstan on Sep. 15, 2023, funds for the maintenance of toll roads are not allocated from the state budget. Maintenance is funded exclusively by toll fee revenue.
[7] Asian Transport Observatory (ATO). 2025. Transport Sector Sustainability Assessment Kazakhstan.

provision of emergency communication and assistance and lack of information and educational work with target groups of the population.

1.15. **Project Contributions.** The reconstruction of the Atyrau-Dossor road section of A-27 Highway (the Project) is poised to have a substantial impact on connectivity across Central Asia. This highway is a vital segment of the international automobile transit corridor connecting Aktobe through Kandyagash, Makat and Atyrau. It links with the A-33 Highway at Dossor and facilitates the overland transit of goods from Turkmenistan and Uzbekistan to the industrial areas in the western region of Kazakhstan. The Project aims to enhance the road's capacity, eliminate bottlenecks along the corridor and improve traffic flow, safety and climate resilience, thereby promoting export-import operations and regional economic growth. In addition, the Project road will be the region's first toll road.

1.16. This 87 km road is used by residents commuting between residential areas and the industrial complex, while freight traffic mainly consists of agricultural products, machinery and equipment and construction materials. By enhancing the road's capacity, the Project is expected to contribute to the fast growth of the region, promote local economic diversification and strengthen regional connectivity, along with improving road safety, service and riding quality, climate resilience and reducing road user costs. The road provides significant connectivity, which the Project can improve at three levels:

(a) *Enhancing local connectivity within the Atyrau Region*: The Project will improve transport efficiency and mobility by connecting the urban residential and business areas in Atyrau city with the remote industrial parks and plants along the road section, including many manufacturing plants located in Karabatan, Dossor and Mascat.
(b) *Strengthening regional connectivity*: By linking the Atyrau and Aktobe Regions, the two major industrial regions in western Kazakhstan, the Project will enhance the growth of domestic trade, flows of key materials and products and the integration of industrial value chains in the region. It will also strengthen the link between Atyrau and Aktau, thereby positioning the Atyrau Region as a feeder zone for the Middle Corridor, supporting the supply of goods and services and meeting growing regional demands.
(c) *Improving connectivity within Central Asia*: As a key segment of the international road transit corridors in Kazakhstan, particularly an important feeder freight route of the Middle Corridor, the A-27 Highway will enhance international trade and logistical efficiency, reinforcing Kazakhstan's role as a regional transit hub in Central Asia.

1.17. **Multilateral Development Bank (MDB) Joint Efforts.** The Project is part of the ongoing joint MDB efforts to improve the road network and connectivity in western Kazakhstan. The Project starts at the connection with the Dossor Bypass, which is part of the already completed Aktobe-Makat Road project financed by ADB. On the other side, the Project road links to Atyrau City, which links to the EBRD-financed Atyrau-Astrakhan Road project, including the Atyrau Northern Bypass at K593, currently under construction. The government is collaborating with various MDBs to improve Kazakhstan's road network as a priority in using sovereign-backed financing resources, and the works in the Atyrau Region provide a good example. Coordination among MDBs and the government is conducted through the Coordination Council meeting, which is a well-established consultation mechanism that includes the Ministry of National Economy, the Ministry of Finance (MoF), the Ministry of Transport (MoT) and other concerned ministries, as well as relevant MDBs operating in Kazakhstan. These MDB-funded projects are independent, and the economic viability of each

does not depend on the implementation or completion of the others. Synergies from improvements in the road sector are expected to be achieved in the long term, especially after addressing key issues such as border crossings, transshipment between nodes and operational efficiency.

1.18. The Project is the continuation of AIIB's operations in Kazakhstan's road sector. AIIB's first intervention was the Transport Resilience and Connectivity Enhancement Project (the Jezkazgan-Karagandy section of the Trans-Caspian International Transport Route), cofinanced with the WB, with a loan amount of around USD650 million approved in December 2024. The second project is the Kazakhstan: Reconstruction of M-32 Highway Aktobe-Karabutak-Ulgaisyn Section Project, cofinanced with EBRD, with a proposed financing amount of around USD450 million, approved in November 2025.

2. Rationale

2.1 Reconstructing this road is essential to unlock the corridor's transit potential and catalyze regional economic growth. The existing 87 km Atyrau–Dossor road was last reconstructed in 2009 to Category III standards. As one of the final corridor sections requiring upgrade, its reconstruction will substantially enhance Kazakhstan's regional transit capacity. The Project will deliver the first Category I and first toll road section in the Atyrau Region. The improved infrastructure will ease transport flows, attract trade and investment and support the region's economic growth.

2.2 This section requires an urgent upgrade due to severe overcapacity and deterioration. Traffic on the existing Atyrau-Dossor highway has exceeded its design capacity of 3,200 vehicles per day, reaching 7,972 in 2024. The section from km 598 to km 512 is particularly in critical condition, having undergone no major repairs. The pavement suffers from continuous patching, extensive cracking, rutting, alligator cracks, and severe deformation. Bridges and culverts are also in poor condition and require urgent reconstruction and widening to meet current and projected traffic needs.

2.3 Strengthening climate resilience is critical as extreme weather increasingly threatens road performance. Kazakhstan is warming at twice the global average, with nine of its 10 hottest years occurring in this century.[8] The Project will incorporate climate adaptation measures—raising embankments, stabilizing slopes, enhancing culvert capacity, using durable pavement material, and improving the drainage—to ensure the road performs reliably under mounting climate stresses.

2.4 **Sovereign Guarantee Envelope of the Government of Kazakhstan**. The government implements sovereign guarantee envelopes for each budget year. Consequently, sovereign guarantees for infrastructure projects financed by MDBs need to be split into annual tranches to stay within the ceiling. This approach reflects the government's prudent fiscal management, aiming to ensure the efficient and effective use of sovereign resources while supporting Kazakhstan's long-term development and debt sustainability. It is particularly well-suited to road improvement projects that increasingly adopt the Design-Build-Maintenance (DBM) contract model. Under this model, the first year of implementation typically focuses on design activities, requiring limited funding, while the majority of construction and financing needs occur in subsequent years. Splitting the sovereign guarantee in line with actual project implementation needs offers a more realistic and responsive budgeting mechanism.

2.5 The Resolution of the Government of Kazakhstan dated Aug. 4, 2025, No. 595 decided that the allocation of sovereign guarantees for this Project has been split into two tranches: KZT44,600.0 million (equivalent to approximately USD85.4 million) in 2025 and KZT77,202.4 million (equivalent to approximately USD147.8 million) in 2026.

2.6 **Project Objective.** To provide safe, efficient and climate-resilient connectivity along the Atyrau-Dossor Section of the A-27 Highway in Kazakhstan's Atyrau Region.

[8] NewSecurityBeat. 2024. Can Kazakhstan Meet Its Climate Goals?

2.7 **Expected Beneficiaries.** The improved road conditions, safety and services from the Project will directly benefit road users, particularly drivers, the local population residing in the corridor, workers at the industrial zones along the road, and long-distance travelers. Local industries and regional and international freight companies that rely on this corridor for transportation will also benefit from reduced travel costs, increased logistical efficiency and savings in working capital. Additionally, the road owner and operator will benefit from adopting an integrated DBM model that includes built-in incentives to ensure the life-cycle quality of the assets and incorporates climate resilience measures into the road design.

2.8 **Expected Results.** The Project is expected to reduce the average travel time along the Atyrau-Dossor section, incorporate climate adaptation measures into the road design, increase traffic volume along the road section, improve the road condition and safety and enhance the population's access along the Project road. The Project's Results Monitoring Framework is presented in Annex 1.

2.9 **Strategic Alignment with AIIB.** The Project is in line with AIIB's Corporate Strategy and Transport Sector Strategy. It responds to at least two thematic priorities of the Bank:

(a) *Connectivity and Regional Cooperation*: The Project supports a strategic section of the A-27 Highway, a key segment of the domestic, regional and international road corridor, facilitating the overland transit of goods between Turkmenistan and Uzbekistan to western Kazakhstan. The Project therefore aligns with both domestic connectivity and Type A cross-border connectivity.

(b) *Green Infrastructure*: The Project aims to improve the road's quality by integrating climate-resilient standards into its design and implementation. This aligns with the AIIB's thematic priority of promoting sustainable and climate-resilient infrastructure.

2.10 The Project also aligns with most of the priority areas outlined in the Bank's Transport Sector Strategy:

(a) *Trunk linkages*: The Project is a key section of the A-27 Highway and the first Category I road and toll road in the Atyrau region, connecting the region's capital city to the major industrial zones.

(b) *Cross-border connectivity*: The Project is a vital part of the international transit corridor, facilitating the overland transit of goods among Central Asian economies.

(c) *Upgrading of existing infrastructure*: The Project aims to reconstruct 87 km of the existing road, primarily a Category III highway between Atyrau and Dossor, upgrading it into a Category I dual-carriageway with four lanes. The upgrade will incorporate climate-resilient measures and road-safety standards to meet AIIB's requirements, thereby improving the quality, service and efficiency of the existing infrastructure.

2.11 The Project also aligns with AIIB's recently approved Health Strategy, strategic priority 1: pursuing health benefits across infrastructure sectors. By incorporating road safety elements into the design and construction, the Project is expected to reduce the incidence of injuries and deaths along the road, thereby contributing to addressing Kazakhstan's persistent road safety issues and generating significant health co-benefits. The Project road will also enhance access for residents of Dossor town and surrounding remote areas to health and social welfare services in Atyrau City. The improved connectivity will foster stronger social connections among the capital city of Atyrau Region, industrial zones along the road and Dossor town.

2.12 **Strategic Fit for Kazakhstan**. The proposed Project aligns closely with Kazakhstan's Strategy-2050 and National Plan-2025, which prioritize the development of the road sector to enhance global economic integration and regional connectivity. The National Plan-2025 includes ambitious goals to upgrade 13,000 km of republican roads by 2030, ensuring all roads meet national standards. This effort aims to integrate economic activity centers into a unified transport network using a "radial" principle, thus fostering economic growth and improved living standards. The Project's importance and priority have been highlighted in several national plans, including the National Infrastructure Plan of the Republic of Kazakhstan until 2029, Strong Regions: Driver of the Country's Development (by Decree No. 729), and Action Plan for the Development of the Transport and Logistics Potential of the Republic of Kazakhstan until 2030. The Project is also consistent with Kazakhstan's Nationally Determined Contribution to reduce greenhouse gas (GHG) emissions by 15% unconditionally by 2030 and adheres to Kazakhstan's climate change strategies, including the Strategy of Kazakhstan for Achieving Carbon Neutrality by 2060.

2.13 **Paris Agreement Alignment (PAA) and Climate Finance**. In line with the AIIB methodology for assessing the alignment with the mitigation and adaptation goals of the Paris Climate Agreement, the Project is assessed as aligned. Details of the assessment are provided in Annex 3. In line with the joint MDB methodology for tracking adaptation finance, it is estimated that USD35 million of the Project's cost supports adaptation. No mitigation finance has been attributed to this road project following the joint MDB methodology for tracking mitigation finance.

2.14 **Value Addition by AIIB.**

(a) *Upstream Budget Support for Project Preparation*: AIIB provides upstream budget support to QAJ to enhance project preparation quality and accelerate the client's capacity development, specifically in procurement and environmental and social (ES) aspects.

(b) *Technical Expertise*: AIIB brings valuable technical expertise and knowledge gained from its previous and ongoing road projects in Kazakhstan and other Members in the region. The Bank has a deep understanding of the complexities and challenges of upgrading road infrastructure under this DBM contract model. A holistic approach will be adopted to improve risk management, taking into account structural and non-structural measures.

(c) *Road Safety and Climate Adaptation Measures*: AIIB contributes climate adaptation design measures to the Project to ensure that the rehabilitated and newly built infrastructure is resilient to future natural events, in line with its focus on sustainability and commitment to the Paris Agreement. A safety assessment in line with international best practice will be conducted at the design stage to eliminate potential road safety hazards and ensure that the new road meets international safety standards. This aligns with AIIB's objective of pursuing health benefits across all infrastructure investments.

2.15 **Value Addition to AIIB.** The Project is AIIB's third sovereign-backed investment project financing in Kazakhstan's road sector and the first stand-alone one. Kazakhstan has vast and diverse infrastructure needs, aligning well with AIIB's mandate to support regional connectivity and development. AIIB's first Multi-year Rolling Pipeline (MYRP) in Kazakhstan was signed in September 2025. The MYRP comprises 14 projects with a total investment estimated at USD6.07 billion. Out of the pipeline, eight projects totaling USD2.49 billion are in

the road sector, reflecting significant demand and potential in this area. The Project will further enhance the partnership between AIIB and Kazakhstan, establishing a project network in Kazakhstan and expanding AIIB's experience and influence in the region.

2.16 As AIIB's first stand-alone sovereign-backed investment project financing in Kazakhstan, the Project can serve as an "anchor project," presenting AIIB's capacity and agility to respond to its Members' needs while also supporting the government's efforts to entrench public debt sustainability. It will also create opportunities to deepen strategic engagement, build in-country networks and experience and foster sustained collaboration with the government.

2.17 **Lessons Learned.** Several MDB-financed road projects have faced high cost and time overruns, including the ADB-funded "Aktobe–Makat" project and the EBRD-funded "Atyrau–Astrakhan" project. These projects offer valuable lessons for the design of this Project. Key challenges observed include: (a) reliance on traditional input-based contracting, which often leads to frequent changes and adjustments in large-scale road projects, ultimately driving up costs; (b) lack of incentives to ensure timely completion of both design and construction, resulting in delays; (c) delays in mobilizing labor, equipment and materials, particularly during the coronavirus disease (COVID-19) period, caused by international contractors lacking sufficient local experience; (d) utility relocation delays that further contributed to project setbacks and (e) state budget constraints that resulted in inadequate maintenance of road assets by SOEs.

2.18 The government has introduced an integrated DBM model with the aim of embedding incentives to safeguard asset life-cycle quality, control costs through a lump-sum structure and ensure timely completion of project activities. The approach also strengthens private sector participation across the project cycle, particularly in asset management, through performance-based maintenance contracts. The DBM contract model has only recently been introduced in Kazakhstan's road sector. Good practices and lessons learned from procurement and tender documents for ongoing road projects funded by other MDBs have been incorporated into the Project Delivery Strategy (PDS) and procurement documentation for this Project. A detailed roadmap for utility relocation for this Project has been developed and included in the Appraisal Aide Mémoire during the appraisal mission.

2.19 The experience gained from two AIIB road projects in Kazakhstan—the Reconstruction of M-32 Highway Aktobe–Karabutak–Ulgaisyn Section Project and the Transport Resilience and Connectivity Enhancement Project (Jezkazgan-Karagandy section of Trans-Caspian International Transport Route (Middle Corridor)) (Previously: Strategic Road Connectivity and Sector Modernization Project)—has been incorporated into the design of this Project. These projects highlighted QAJ's limited capacity in project preparation, necessitating support from AIIB. In response, the AIIB Project Team (PT) mobilized upstream budget to accelerate addressing capacity gaps and enhance the quality and efficiency of project preparation in key areas, such as safeguard arrangements and procurement planning. This strategic use of upstream budget has yielded strong results: this stand-alone Project was prepared within just five months. This achievement demonstrates AIIB's agility and capacity to meet its Members' needs, particularly under the tight timelines imposed by sovereign guarantee allocation constraints, and marks a significant milestone as the Bank's first stand-alone road sector project in Kazakhstan.

2.20 **Correlation with M-32 Highway Aktobe–Karabutak–Ulgaisyn Section Project.** Kazakhstan has a vast land area, and although both roads are located in its western region, they do not directly complement each other from an international corridor perspective. Each supports a different strategic international route: the M-32 forms part of the West China–West Europe Corridor, while the A-27 connects Aktobe to Atyrau and further links to Uzbekistan and Turkmenistan in the south via the A-33. However, from a regional connectivity standpoint, both roads contribute significantly to enhancing integration between the Aktobe and Atyrau regions, two of the fastest-growing and most industrialized areas in Kazakhstan. From a long-term perspective, these regions will serve as feeder zones, supplying goods and demand to the Middle Corridor via these two roads.

3. Project Description

3.1. **Project Description**. The Project will include the reconstruction of an 87 km section (km 598 – km 512) of the A-27 Highway between Atyrau city and Dossor town in the Atyrau Region of Kazakhstan, including the rehabilitation of the existing carriageway and upgrading it from two to four lanes. The road upgrade is driven by the need to increase capacity, improve safety and enhance climate resilience. The Project's scope includes the expansion and construction of the Category I-b dual-carriageway, with key features including: new embankments with raised vertical alignment, climate-resilient pavement and drainage infrastructure, 136 culverts, 30 cattle underpasses, four bridges, road signs and markings, slope protection along embankment, three railway overpasses, 18 agricultural machinery passes, one interchange and two rest areas with heated toilet facilities. According to the feasibility study, the dual carriageway will be placed up to 500 meters apart in the majority of road sections. Additionally, the Project will cover the relocation or protection of existing utility networks, such as water pipes, electrical transmission lines, telecommunications lines and gas and oil pipelines to ensure their safety and functionality during construction. The Project also plans to support the required construction supervision, implementation support and capacity-building activities.

3.2. **Design-Build-Maintenance Model**. The Project will use the DBM contract model, a practice adopted in ongoing road projects in Kazakhstan. This integrated approach offers several key advantages over conventional, input-based contracts: it mobilizes private-sector expertise to optimize maintenance budgets, reduces life-cycle costs and improves long-term road quality and service levels. It also reduces the risk of cost overruns and implementation delays common under traditional contracts. This model establishes a single point of responsibility, eases contract administration and fosters the transfer of technological know-how and operational excellence from the private sector.

3.3. The successful implementation of the DBM contract model depends on the Borrower's institutional capacity, which will be strengthened through AIIB's technical support. Regarding market competitiveness, a market analysis confirms sufficient competition in the sector, as demonstrated by responses from both domestic and international bidders in recently co-financed road projects with the WB and EBRD, as well as an ADB stand-alone project.

3.4. The Project will be implemented with three components:

3.5. **Component 1: Design and construction of the selected road sections of A-27 Highway.** This is the major component of the Project and encompasses the design, construction and maintenance of 87 km between Atyrau and Dossor to meet up-to-date climate-resilience and road-safety standards.[9] Under a DBM contract, this component will mainly finance the design and civil works, including the rehabilitation and upgrading of the existing carriageway and the relocation of utilities along the Project road.

3.6. **Component 2: Construction Supervision Consultant (CSC) of the selected road sections of A-27 Highway.** This is to engage the CSC as the Engineer to supervise the

[9] The road safety standards refer to compliance with the International Road Assessment Programme (iRAP) or an equivalent standard, a global non-profit initiative supported by the World Bank and the FIA Foundation that evaluates and improves road safety performance through a star rating system.

design and construction of the road improvement works of the Atyrau and Dossor road section, monitor implementation progress, certify payments, and ensure quality compliance.

3.7. **Component 3: Project implementation support and Institutional Capacity Enhancement.** This component involves hiring project management consultants, whether as a firm or as individual consultants, with proven qualifications and experience in engineering, environmental and social, contractual management, and financial management. It will support the Borrower and the Project Implementing Unit (PIU) during the preparation and implementation stages to facilitate institutional capacity enhancement and ensure high-quality implementation in full compliance with the Bank's requirements.

3.8. In addition to the total project cost, the AIIB loan amounting to USD233.3 million includes a capitalized front-end fee of USD0.6 million.

3.9. **Cost Estimation and Financing Plan.** The total Project cost is estimated at USD 265 million (Table 3.1), including design, construction supervision, implementation support and capacity building, as well as capitalized front-end fees. The Project cost does not include any maintenance costs. In the tender document for the DBM contract, the maintenance cost will be included as a provisional cost item, calculated in accordance with national standards and norms, and will not be included in the tender competition. The government will pay the contractor for maintenance expenditures under the DBM contract within seven years of road construction completion. The commitment fee and interest during the construction are also not included in the Project cost, which will be financed by government funds through budget allocation.

Table 3.1: Project Components, Cost Estimation and Financing Plan*

Project Component	Total Cost		AIIB Financing (USD m)	Gov Fund (USD m)
	(KZT m)	(USD m)		
Component 1 Road Rehabilitation and Improvement. A-27 "Atyrau-Dossor" (km 598 – km 512)	**137,155.6**	**262.7**	**231.1**	**31.5**
1.1 Design and Civil Works	135,349.8	259.2	228.1	31.1
1.2 Equipment related to Utility Relocation	1,805.8	3.5	3.0	0.4
Component 2 Construction Supervision Consultant	**712.3**	**1.4**	**1.2**	**0.2**
Component 3 Project Implementation Support and Institutional Capacity Enhancement**	**240.0**	**0.5**	**0.4**	**0.1**
Net Project Cost Total:	**138,107.9**	**264.5**	**232.7**	**31.7**
Capitalized Front End Fee	303.8	0.6	0.6	0
Grand Total:	**138,411.7**	**265.1**	**233.3**	**31.7**

* The exchange rate of USD1=KZT522.19 as of July 17, 2025 was used to present USD amounts in the table.

** The major scope of PMC will include: (a) improve the capacity of PIU in the project implementation to meet the Bank's requirements in procurement, contractual management, ES, FM and reporting and (b) improve QAJ's institutional capacity in other aspects as needed.

3.10. **Multi-tranche Financing Structure.** AIIB will provide a sovereign-backed financing for an amount of JPY35,928.819 million (approximately USD233.3 million). The financing is

proposed to be committed in two loan tranches, each in a separate loan agreement over the Project's implementation period. The first loan tranche of JPY13,155.942 million (approximately USD85.4 million) will be committed following the approval. The second uncommitted loan tranche of JPY22,772.877 million (approximately USD147.8 million) is subject to AIIB Management's verification of agreed conditions described in paragraph 3.13.

3.11. The two loan tranches are designed to (a) correspond with the government's sovereign guarantee envelopes, and (b) align with the schedules of the DBM contract. It is important to note that each financing tranche is expected to support all three components of the Project, with funds committed in phases over time.

3.12. Subject to financing approval, this first loan tranche will finance up to 37% of the total Project costs for all eligible activities. It will primarily cover the procurement of the DBM contractor, the construction supervision consultant (CSC) and the project implementation support consultants. It will also fund the detailed road design, updates to the ES instruments and initial construction works. The second loan tranche is expected to be committed approximately 12 months after the signing and effectiveness of the first loan tranche. The second loan tranche will cover the remaining 63% of the Project costs, with focus on construction, continued implementation support and institutional capacity-building activities.

3.13. **Conditions for Second Tranche.** The commitment of the second loan tranche is contingent upon the following conditions: (a) the performance of the first tranche loan is satisfactory to the Bank;[10] (b) a formal request by the Borrower for the second tranche financing, and (c) availability of AIIB funds for the second tranche.

3.14. Table 3.2 summarizes the Project Cost and Financing Plan by tranches:

Table 3.2: Project Cost and Financing Plan by Tranches

Source	**Total financing,** USD million (% of total Project cost)	**1st loan tranche,** USD million (% of total Project cost)	**2nd loan tranche,** USD million (% of total Project cost)
AIIB	233.3 (88%)	85.4 (32%)	147.8 (56%)
Government of Kazakhstan	31.8 (12%)	11.6 (4%)	20.2 (8%)
Total	**265.1* (100%)**	**97.1 (37%)**	**168.0 (63%)**

[10] Assessment will focus on performance in the procurement of the DBM contractor and the construction supervision consultant; the engagement of the project management consultant/s; and the progress made by the DBM contractor in the design and in updating the relevant ES instruments satisfactorily for AIIB and in reflecting the updated detailed design results.

3.15. Implementation Arrangements and Readiness of the Project

3.15.1. Implementation Arrangements.

(a) **Project Implementing Unit (PIU)**. The Project adopts typical project implementation structures for road projects in Kazakhstan. "KazAvtoZhol National Company JSC" (QAJ), the national road operator, will be the Borrower and responsible for implementing the Project. At the preparation stage, QAJ's Chief Engineer leads QAJ's Technical Policy and Quality Control Department, taking responsibility for Project preparation, including procurement, until the completion of loan negotiation, with the support of international and local consultants, as well as the technical support of the design institute that developed the feasibility study of the Project.

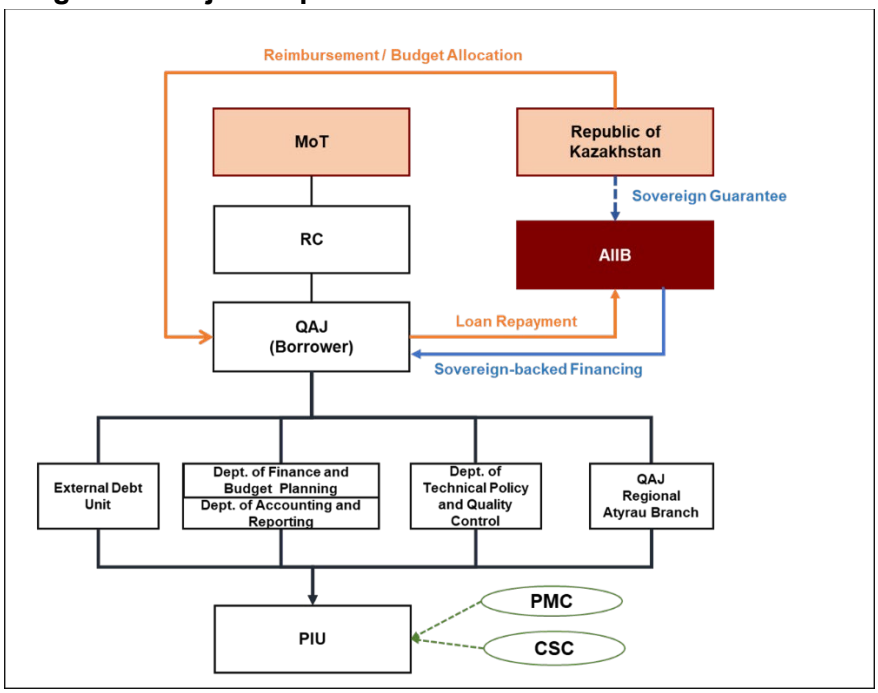
(b) At the implementation stage, a Project-specific PIU[11] will be established under QAJ's External Debt Department, responsible for the overall Project implementation, including technical decisions, contract management, ES implementation and oversight, disbursement, financial management, monitoring, reporting and evaluation. The Project-specific PIU consists of in-house capacity and expertise from QAJ functional departments, with support of project management consultants (PMCs) throughout the implementation process. The PIU will coordinate specialists from QAJ's Accounting and Reporting Department, Finance and the Budget Planning Department to conduct Project financial management, disbursement, accounting and auditing and to provide information to the PIU to generate the necessary reports for AIIB.

(c) The PIU will coordinate with the QAJ Chief Engineer and specialists from the Technical Policy and Quality Control Department to ensure smooth knowledge transfer and quality assurance throughout implementation, particularly for procurement and project design. For daily monitoring of implementation progress, the PIU will leverage the on-the-ground support of the CSC and PMC to coordinate with QAJ's Atyrau Regional Branch and ensure regular reporting to QAJ Headquarters. To bolster its capacity, the PIU will be supplemented by a qualified and experienced PMC, to be financed under Component 3, with a focus on incorporating ES, climate, technical and other implementation requirements as needed.

(d) The PIU will serve as the primary implementation body, managing engagements with all project partners, including civil works contractors, CSC, PMCs (both firms and individual consultants), local government, and relevant authorities and suppliers. QAJ, through the PIU, will be responsible for all post-completion evaluation arrangements related to the Project, and ensure quality and compliance with the agreed ES requirements. The implementation structure and fund flows are illustrated in Figure 1.

[11] Structured as a "Core Team" and leveraging on the relevant functional departments of QAJ.

Figure 1. Project Implementation Structure and Fund Flows



AIIB: Asian Infrastructure Investment Bank, CSC: Construction Supervision Consultant, MoT: Ministry of Transport, PIU: Project Implementing Unit, PMC: Project Management Consultant, QAJ: KazAvtoZhol National Company Joint Stock Company,RC: Road Committee.

(e) **Procurement Arrangements**. The procurement of goods, works, non-consulting services and consulting services contracts wholly or partially financed by AIIB under the Project will be carried out in accordance with the AIIB Procurement Policy (June 26, 2024), as well as its associated Directive on Procurement Instructions for Recipients (July 26, 2024) (PIR). Given QAJ is a public entity as per the definition of Public Entity of the Procurement Policy, procurement shall comply with subsections 2.A, 2.B, and 2.C of the PIR.

(f) The QAJ is responsible for carrying out the Project's procurement process and contract management. The advance procurement has been led by QAJ's Technical Policy and Quality Control Department during the preparation stage with the support of external consultants. The procurement and contract management staff will be assigned to PIU from relevant functional departments of QAJ, including HQ and Regional Branch, as well as individual consultants to be hired as the PMC from the market. The PIU will oversee and coordinate procurement and contract management for the Project during the implementation stage, with intensive participation from relevant functional departments at the QAJ HQ and regional offices, as well as the professional support of PMC and CSC.

(g) To strengthen the procurement preparation capacity of QAJ, and considering the complexity of the DBM contract, AIIB provided upstream support through both an international procurement consultant and a national procurement consultant during the project preparation stage to identify procurement needs and gaps and to provide capacity-building and gap-filling support to QAJ for fast and effective preparation of the procurement documents.

(h) QAJ has prepared a draft Project Delivery Strategy (PDS) and a Procurement Plan (PP) that set out the specific procurement arrangements for the Project. According to the draft PP, the AIIB loan will finance one DBM contract with a cost estimate of USD253 million and two types of consulting services contracts to support construction supervision, as well as QAJ's capacity strengthening and implementation support. The latest Project PP, dated Oct. 22, 2025, covering contract packages, cost estimates, contract types, procurement methods and expected procurement timelines, has been prepared, reviewed and accepted by AIIB in accordance with its Procurement Policy requirements.

(i) During project preparation, the client considered two packaging options: either two lots under one tendering process or one single lot, and a comparison of the potential advantages and disadvantages of the two options was conducted. The single package contract was decided upon based on the following considerations:

(1) This is only an 87-km stretch of road. Dividing the whole section into two packages will make each lot too small and unattractive to large international contractors.
(2) A large contract enables centralized management of road maintenance for seven years after construction, enabling a unified design across the entire road section.
(3) A similar approach had been used in other projects financed by ADB and WB, where sufficient competition had been demonstrated based on market surveys and the outcomes of prequalification and bid opening. The cost estimate for each contract was around USD200 million to USD300 million, similar to this DBM contract in terms of size, nature and packaging strategy, and is also managed by the same client.

(j) Advance procurement has commenced. QAJ has prepared the draft bidding document for the DBM works contract based on the ADB Standard Bidding Documents for Design and Build contracts using a single-stage, two-envelope approach with rated criteria and post-qualification. The Project Procurement Management System (PPMS) account has been created in the AIIB system and a PPMS introduction training was conducted. The General Procurement Notice (GPN), PDS and PP have been uploaded to the PPMS. According to AIIB's Procurement Policy, all procurement process documents must be uploaded to the PPMS. All of AIIB's prior reviews, including no objections to procurement documents/decisions/complaints, will be conducted and archived in the PPMS. The procurement process of the DBM contract started in November 2025 and is ongoing.

(k) **Financial Management (FM) Arrangements.** QAJ will oversee daily implementation and assume FM responsibilities. It will also serve as the primary reporting entity to AIIB. QAJ has implementing and managing over 10 projects financed by nine international financiers, including ADB, EBRD, WB, and other bilateral development banks. There are sufficient staff in the Finance and Budget Department and the Accounting Department to conduct the Project FM and disbursement work. The Project's Interim Unaudited Financial Reports will be submitted to AIIB within 60 days after the end of each calendar semester. Audited annual project financial

statements and entity-level audit reports in English will be submitted to AIIB within six months after the end of each financial year.

(l) **ES Arrangements.** The PIU, with support from the PMCs, will be responsible for overall oversight and quality control of ES management, ensuring compliance with ES requirements. The PIU's ES staffing and implementation arrangements have been discussed and agreed upon with QAJ. The establishment of the PIU with acceptable staffing, as required by AIIB, is a condition for loan effectiveness for the first loan tranche. At the PIU level, QAJ will engage at least one environmental specialist and one social development specialist by the time the Project becomes effective, either through the PMC or in-house staff. Additional ES staff will be recruited under the PMC to support QAJ and the Atyrau Regional Branch as needed throughout the implementation process. The DBM contractor will also be required to engage qualified ES specialists. These requirements are outlined in an Environmental and Social Action Plan (ESAP) prepared for the Project.

(m) **Project Implementation Plan**: As a stand-alone project, preparation and implementation of the Project will be carried out in accordance with AIIB's policy, standards, and specific requirements stipulated in the legal documents. During preparation and in consideration of QAJ's capacity, AIIB provided upstream support aligned with other MDBs' practices in Kazakhstan. The support was designed to identify and address client needs and offer targeted technical assistance to ensure effective project preparation in line with AIIB requirements. During implementation, the CSC and PMC will support the PIU. The Terms of Reference (TOR) for these two key consultants will be developed to meet AIIB's requirements, ensuring that the PIU receives quality, sufficient support.

3.15.2. **Implementation Period.** The Project implementation period will be five years, from December 2025 to December 2030, primarily covering the design and construction phases of the contracts.

3.15.3. **Implementation Readiness.** The Project implementation readiness is high, as per the design and feasibility study, domestic approvals, procurement, institution establishment and ES document approval.

(a) **Status of Feasibility Studies.** QAJ prepared the feasibility study for the Project in accordance with national standards and obtained approval State Expertise approval.[12] The investment proposal, using AIIB's sovereign-backed loan for the Project, has been approved by the State Public-Private Partnership Center.[13] The budget allocation to finance the Project has been approved by the Republic Budget Committee. The Project is at an advanced stage in its domestic procedures.

[12] Republican State Enterprise "State non-departmental Project Expertise"(RSE "Gosexpertiza"): state enterprise of the Committee on construction and housing utility of the Ministry of Industry and Infrastructural Development of the Republic of Kazakhstan, which examines, evaluates and approves the development of, among others, transport infrastructure projects.
[13] State Institute for attracting investments in infrastructure through the implementation of PPP projects. The sole shareholder of the PPP Center is the Ministry of the National Economy of the Republic of Kazakhstan. As the leading think tank for PPPs in Kazakhstan, the PPP Center brings together government, business and financial institutions on its site.

(b) **Status of Procurement.** The Project is procurement-ready. The PDS and PP have been prepared, and GPN has been published. The draft bidding document was prepared and reviewed by the Bank. The works contract procurement started in November 2025, and the contract award is expected in April 2026. The procurement of CSC and PMC is planned to start in March 2026 after AIIB clears the TORs for both consulting services.

(c) **Required Clearances/Approvals for Project Implementation**. To commence Project implementation, AIIB must approve the proposed financing for the Project and commitment to the first loan tranche, and the corresponding legal documents must be signed and become effective.

(d) **Institutional Set-up and Readiness**. The PIU will be established and functional with the support of the concerned departments of QAJ, procurement consultants and the design institute. The draft ESAP was prepared, reviewed and cleared by AIIB after several rounds of public consultations and was publicly disclosed on the Borrower's and AIIB's websites. The ESAP is also included in the civil work bidding document.

3.15.4. **Monitoring and Evaluation**. The Project performance and progress will be monitored through periodical reports as stipulated in the loan agreement. These reports are proposed to be submitted semi-annually, within two months of the end of each reporting period. The majority of the reports will be prepared by PIU with support from the qualified PMC. These reports will provide regular updates on the Project's implementation status, key issues, physical and financial progress, compliance with ES standards, stakeholder engagement and any registered complaints. The PT will launch field implementation support missions at least once a year. Key mission objectives include conducting a physical review and supervising the Project's performance, identifying key issues and discussing solutions and action plans. The annual External Audit report will provide an additional layer of safeguard in monitoring the Project implementation.

3.15.5. **AIIB's Implementation Support.** The PT will oversee the Project's implementation in accordance with AIIB's applicable policies and procedures, as well as the agreed provisions in the legal documents. To ensure quality and policy compliance of Project implementation, AIIB will field at least one implementation support mission annually during the Project implementation stage, with the frequency to be adjusted as needed. For specific support required during the implementation, AIIB will field specific missions on an as-needed basis.

4. Project Assessment

A. Technical

4.1. **Project Design.** The Project road will start at km 598 of A-27 Highway, at the east border of Atyrau City, and the ending point of an existing four-lane urban road, cross an interchange with Atyrau Northern Bypass at km 592, cross the Ural River, then end at the outskirts of Dossor town at km 512 of A-27, to connect with the newly rehabilitated Aktobe-Makat road. The Project will include rehabilitating the existing two-lane carriageway and expanding it into a four-lane highway with updated technical standards. The width of the space between the old and new carriageways varies between 50 and 500 meters (m) to minimize the relocation of various utilities (gas and oil pipelines, power transmission lines, telecommunications cables, water pipelines and others).

4.2. There is no technical challenge in the Project design. The Project road is in a semi-desert area, and all design parameters are set high to comply with Category I-b national standards to ensure safety, efficiency and a smooth flow of traffic. The design speed will be 120 kilometers per hour (kph). This is in line with the Category 1-b standards and is appropriate given the flat terrain, higher horizontal and vertical geometric design parameters, sufficient sight distance and minimal roadside distractions, as there are no residents or communities along the road.

4.3. Various climate-resilience and road-safety features have been considered in the design. The design of the embankment height has considered the impact of snow, flood protection and road safety. Embankment heights and slopes have been designed to address winter snow, thaw, and flood risks, with permeable rockfill layers, elevated road alignments, increased culvert capacity, improved drainage systems for roads and bridges, and upstream diversion berms to optimize water flow based on hydrological studies. In sections near Atyrau, the embankment will also function as a temporary flood-control bank during Ural River flooding. Carriageways are separated across most sections, using available space to minimize utility relocation and enhance safety. Adequate drainage facilities, including expanded bridges, culverts, and upstream berms, have been incorporated to accommodate extreme weather and climate-change-induced flooding. Polymer-modified Asphalt (PMA) will be used to improve pavement strength and durability under high-temperature and heavy-truck conditions. The design also includes fully equipped service areas and maintenance depots, with electric-vehicle charging facilities, upgraded sanitation, and heated amenities. These adaptation measures will be further reviewed and refined by the DBM contractor during detailed design, and the final design will present the climate-risk assessment and corresponding measures acceptable to the Bank.

4.4. The Atyrau-Dossor road section currently consists of a two-lane, single-carriageway Category III road with a width of 11-13 m. The proposed upgrade will first construct the new two-lane carriageway, shift traffic to it, then rehabilitate the existing carriageway to ensure uninterrupted traffic movement. The design also considers the smooth transition between the new and the existing road.

4.5. **Road Maintenance.** Maintenance is carried out by KAZHService LLC, a subsidiary of QAJ,[14] for all non-tolled republican roads in Kazakhstan. Maintenance activities are paid based on the inputs, as per the standard scheduled unit rates for each road category, approved by the government. The government also defines detailed maintenance standards and implements a manual inspection and monitoring system. For periodic maintenance and rehabilitation, QAJ will select contractors through open competition. Most maintenance activities prioritize emergency response, periodic maintenance and rehabilitation, leading to insufficient routine maintenance. The maintenance budget allocation was largely based on visual inspections and subjective decisions with less proper data support. It is necessary to optimize the limited maintenance budget with a data-supported road maintenance management system. This initiative is supported by other MDBs that have already implemented projects in the region.

4.6. The budget for routine maintenance of toll road sections is sourced from toll revenues, which are allocated to a dedicated fund managed by QAJ. QAJ is directly responsible for carrying out routine maintenance activities through KAZHService LLC. In 2024, toll revenues amounted to KZT46 billion, with a target of increasing to KZT66.0 billion by the end of 2025 as more toll sections become operational and the traffic volume increases. For the Project, the DBM model is adopted, introducing a new mechanism to ensure that the established facilities are maintained in accordance with defined standards and budget allocations over a specified period, through engagement with the private sector. After the maintenance period under the DBM contract, routine maintenance will revert to the current model, carried out by KAZHService LLC and supported by toll revenues.

4.7. **Capacity and Traffic Demand.** The current traffic intensity of 7,972 vehicles per day (as per 2024 data) on the existing road section has exceeded its design capacity of 3,200 vehicles per day and is projected to exceed 10,175 vehicles per day by 2028. Due to a higher percentage of heavy trucks, there has been a significant risk of head-on collisions on this two-lane highway when overtaking, especially at night.

4.8. **Road Safety.** Road safety has been a challenging issue in Kazakhstan. It has one of the highest road accident rates in Central Asia and 12.2 fatalities per 100,000 people,[15] even though the number of reported fatalities decreased from a peak of 4,365 in 2007 to 2,425 in 2022. On the Atyrau-Dossor road, eight accidents were reported in 2024, resulting in four fatalities and four injuries. Most accidents occurred due to insufficient overtaking opportunities on the two-lane highway, especially during the night. Furthermore, the region's harsh climate conditions make the road highly vulnerable to extreme weather events, including heavy snowfall, flooding and extreme temperatures. Therefore, the Project will introduce adequate safety elements, including guardrails, reflective road markers, lighting of critical areas, appropriate road signing and marking, reduction of the number of entry/exit points, and avoidance of long straight alignment lines, to minimize accident risks. As aforementioned, the embankment slope is designed at 1:4 when the embankment height is less than 4 m, and 1:1.5-1.75 when the embankment is 3-6 m high. Both carriageways are divided and separated

[14] QAJ took ownership of 100% capital of limited liability partnership "KAZHService" on April 17, 2023 based on the Resolution of the Government of the Republic of Kazakhstan dated Sep. 8, 2022 No. 670 "On certain issues of republican property", the decision of the Board of Directors of Joint Stock Company "National Company " KazAutoZhol " dated March 13, 2023 No. 90/23, and the order of the Committee dated March 20, 2023 No. 283.
[15] ADB. 2017. *Safely Connected: A Regional Road Safety Strategy for CAREC Countries, 2017–2030*.

for most sections, with a 50-500 m gap between the existing and new embankments, to eliminate head-on collisions. It is also agreed that the Project will include road safety enhancement activities to conduct a road safety assessment and audit and meet international standards and requirements.

4.9. There is an existing railway line in parallel along the Project road corridor. It is single-track and unelectrified, used mainly to transport crushed stone from the Aktobe Region to the Atyrau Region due to a shortage of construction materials in Atyrau. According to the local government, there are plans to expand the railway lines from single-track to double-track. Thus, the Project design needs to accommodate this by providing a longer bridge at the overhead crossing over the existing railway line.

4.10. **Operational Sustainability.** The government is fully committed to enhancing transport resilience, connectivity and safety along the Atyrau-Dossor road section. This Project aligns with Kazakhstan's national objectives to strengthen the transport network by addressing critical infrastructure gaps and fostering more equitable and resilient infrastructure. The upgrade of this corridor is designed to improve the efficient movement of goods and people, reduce travel times and operating costs, enhance regional economic integration, and promote industrial development and economic growth. The Project road will be tolled, and the toll revenue is projected to be sufficient to finance its operation and maintenance, ensuring its sustainability.

4.11. The DBM contract model provides a strong legal foundation for formalizing the government's obligations with private-sector contractors through a legally binding agreement. It ensures that sufficient maintenance funding is allocated in accordance with national standards and norms. This model represents a step toward addressing chronic underfunding of road maintenance in Kazakhstan through a more market-oriented approach. Maintenance will be carried out based on the Law of the Republic of Kazakhstan on Road Traffic,[16] Road Maintenance Rules of the Republic of Kazakhstan 2024 (PDS RK 2024), and Winter Maintenance Regulation of Public Roads (R RK 218-138-2017). Maintenance will be paid on a lump-sum basis in monthly installments, based on the defined maintenance standards and indicators, and detailed penalty clauses for non-compliance.

4.12. After the seven-year maintenance period with the DBM contractor, responsibility for maintenance can be transferred to KAZHService LLC. According to appraisal mission findings, KAZHService LLC has over 4,000 staff and sufficient maintenance equipment. While the quality and efficiency can be enhanced, it is assessed to have sufficient capacity to carry out routine maintenance in accordance with the maintenance plan developed by QAJ. Upon completion of the DBM contract for this Project, the expected growth in traffic and toll revenue on this road section is estimated to be sufficient to cover maintenance costs, thereby ensuring the road's sustainability throughout its service life.

B. Economic and Financial Analysis

4.13. **Economic Analysis.** A cost-benefit analysis (CBA) was conducted to assess the economic viability of the Project by comparing the "with-project" and "without-project"

[16] Law of the Republic of Kazakhstan (Z1400000194) dated April 17, 2014, most recently amended on April 6, 2024.

scenarios. The economic internal rate of return (EIRR) and the economic net present value (ENPV) were calculated using a discounted cash flow analysis, assessing the Project's economic and societal benefits against its costs over a 25-year period (2026-2050). The economic costs of the Project include capital expenditures for road rehabilitation and construction, as well as associated O&M costs, including repair costs. The Project's quantifiable economic benefits primarily include savings in vehicle operating costs (VOC) for various vehicle types using the road and value-of-time (VOT) savings for passengers. The analysis also includes net additional GHG emissions generated during the Project's construction and operations period. Note that expanding from a two-lane to a four-lane road will also significantly reduce traffic collisions. While not quantifiable due to challenges in estimating the value, the Project's road improvement activities will yield qualitative benefits.

4.14. **Traffic Demand Analysis.** The traffic demand forecast is based on 2024 baseline traffic data from FSR, which provided detailed average annual daily traffic (AADT) figures. In 2024, AADT was nearly 7,972, including cars, buses and trucks. Using 2024 as a base year, the demand analysis forecasts future traffic by linking it to various economic and population growth assumptions. The analysis assesses traffic for three types of vehicles: cars, buses and trucks. Table 4.1 shows the AADT traffic demand for selected years in line with the project scenario. Annex 3 has more details.

Table 4.1: Demand Forecast (AADT)

Year	Cars	Buses	Trucks	**Total**
2026	6,405	221	1,938	**8,563**
2027	6,582	223	2,012	**8,817**
2028	6,687	225	2,065	**8,977**
2029	6,823	227	2,128	**9,178**
2035	7,718	241	2,555	**10,514**
2045	9,477	267	3,466	**13,210**
2050	10,502	280	4,036	**14,819**

4.15. **Economic Benefits and Costs.** The largest source of economic benefits is VOC savings, with a total economic value of USD478.07 million over the Project cycle. VOT savings are around USD406.70 million. Regarding costs, the total economic capital expenditure (capex) is USD228.22 million after adjusting for financial capex. O&M economic costs over the Project cycle are USD104.22 million. The total additional GHG emissions generated from operations are monetized as a cost item at USD18.98 million (presented in negative terms) using AIIB's carbon pricing for CBA. Annex 2 has more details.

4.16. **Results and Sensitivity Analysis.** The baseline EIRR is 11.17%, with an ENPV of USD42.42 million. Both indicators suggest the Project is economically viable (EIRR>9%, ENPV>0). Note that EIRR is highly sensitive to traffic: a 10% lower projection would immediately bring EIRR to 8.70%, holding cost unchanged. A 10% cost overrun would also lower the EIRR to 10%, which is still above the threshold.

4.17. **Financial Sustainability**. According to a preliminary financial analysis of the Feasibility Study Report, both FNPV and FIRR are negative, indicating that the Project is not financially

viable. As a result, public investment, including sovereign-backed financing, is considered the most suitable financing approach for this significant road sector initiative. While capital expenditures for the Project road will be funded by public budget, including sovereign-backed financing from AIIB, in the long term, the operational expenditure of the road following its completion is expected to be self-financed through toll revenues collected over its lifespan. Once the Project road is completed, the Government of Kazakhstan plans to apply its self-sustaining model to the Project road as well, with toll revenues covering operating expenditures over its lifecycle.

4.18. Toll revenues for the rapidly expanding toll road network are managed and collected through the KazToll portal, overseen by the Directorate of Toll Roads within QAJ. In 2024, toll road income reached KZT46 billion (approximately USD98 million), and QAJ estimates collections will rise to KZT66 billion (USD122 million) in 2025. With the continued expansion of the toll section network and tolling rate updates, the objective is to collect KZT100 billion (USD186 million) in 2026. To date, the toll revenue has been sufficient to cover maintenance costs on QAJ's toll road sections. The toll revenue projection for this Project road is provided in Annex 2. The projection analysis confirms that the project's toll revenue will be sufficient to cover O&M costs once the road becomes operational.

C. Fiduciary and Governance

4.19. **Procurement.** In terms of institutional capacity, QAJ is carrying out over 10 ongoing or pipeline highway projects financed by nine international banks, including AIIB, WB, ADB, EBRD and other bilateral development partners. QAJ also serves as the project management entity for the Roads Committee (RC) in implementing the ongoing WB-financed SWRP and EWRP projects. As such, QAJ is very familiar with the procurement policy requirements and practices of the dominant MDBs, including WB, ADB, and EBRD. The PIU to be established for this Project will broadly consist of procurement staff/consultants with the appropriate skills and experience in project procurement and contractual management, in accordance with MDB procurement policy and practices. QAJ has been assessed as having sufficient procurement and contract management capacity to carry out procurement and contract management for the Project. Although it lacks experience in managing a complex DBM contract, the Project includes professional support from external procurement consultants, the CSC and the PMC to strengthen preparation, construction supervision and contract administration.

4.20. QAJ has formulated a Project Delivery Strategy based on analyzing procurement packages and their responsiveness to the technical, financial and managerial capacities of potential contractors in the market, including local and foreign tenderers actively operating in Kazakhstan. This analysis leads to informed decisions on structuring proper work packages and contract modality to ensure robust tenderers' participation. It is determined that one large-value works contract will be procured through International Open Competitive Tendering (IOCT) and will be subject to prior procurement review by AIIB. Consulting services contracts have also been packaged based on market research and engagement, with an appropriate scope of services, consultant capacity, and alignment with dominant contracting market practices. Procurement strategic measures have been reflected in the Project's PP.

4.21. The Project is designed to include: (a) one DBM works contract using the FIDIC Yellow Book contract format and (b) one CSC and one or more PMC in the form of firms or individual

contracts. There may be additional consulting services required for institutional capacity building and implementation support, which will be determined further during the implementation stage.

4.22. Since AIIB does not have suitable Standard Procurement Documents for DBM contracts, ADB's standard procurement documents relevant to DBM contracts have been considered with appropriate adaptations to ensure adherence to AIIB's policy requirements. Based on similar procurements in Kazakhstan financed by other MDBs, there is sufficient competition for contracts of this scale, as evidenced by the strong presence of international contractors in the local market. The PT thus considered the post-qualification process for the DBM contract proposed by the government during the procurement stage to be acceptable.

4.23. While QAJ is experienced with the traditional contracting model, the new DBM contract model necessitates advanced operational design, complex procurement procedures and tender evaluation criteria, and contract management-specific skills. An assessment conducted for similar MDB-financed projects implemented by QAJ in Kazakhstan identified several potential risks, including (a) lack of experience with the DBM contract model, which might affect the quality of the tender documents; (b) lengthy government internal procedures for review and approval in procurement, design and construction procedures and (c) shortage of technical capacity for complex procurement.

4.24. To address those potential challenges, several proactive measures will be or have been implemented, including (a) providing upstream support by engaging an experienced international procurement support consultant and a domestic procurement consultant to support QAJ and enhancing the quality of the bidding document, technical specifications, as well as qualification and evaluation criteria; (b) requiring all large-value contracts, including the DBM, CSC and PMC contracts to be subject to the Bank's prior review and (c) hiring a CSC to supervise DBM contracts' execution and a PMC to enhance QAJ's institutional capacity in contractual management and project implementation.

4.25. Based on the PIU capacity assessment, the Project's procurement arrangements and associated risks, and the proposed mitigation measures implemented or planned, the overall project procurement risk rating remains High.

4.26. **Financial Management.** Discussions with QAJ and review of its documents determined that QAJ's project financial management system is acceptable to the Bank. As per the roles designated by the government, QAJ has been managing project implementation for other MDB-financed operations for years and has accumulated experience in financial management and disbursement. According to the roles and responsibilities assigned within QAJ, designated staff from the Department of Finance and Budget Planning and the Department of Accounting and Reporting of QAJ, coordinated by the PIU, will be responsible for Project financial management work, including but not limited to budget, accounting, financial reporting, payment and treasury and engaging the Project audit.

4.27. For contract payments, the documents will be prepared and verified by Employer representatives from the Atyrau Regional Branch, reviewed by financial staff in the regional branch offices and uploaded to the corporate accounting system of 1C. It will then be submitted to the Department of Finance and Budget Planning for registration in the system

and the filing of hard copies, and then passed to the Department of Accounting and Reporting for payment and recording in 1C, which is commonly used in Central Asian economies and can record financial transactions in dual currencies. QAJ is currently implementing or managing over 10 projects financed by nine development banks. All transactions of each project are recorded in the accounting system with separate profiles. The PIU will prepare the Project financial statements in the format required by the Bank. The records are reconciled with the accounting system to ensure data consistency, and project financial statements are subject to annual audits to make sure information is fairly and accurately presented.

4.28. According to the Project cost estimation and financing plan, the government will finance around 12% of each component, with the remaining 88% financed by AIIB. QAJ enters into a Trust Management Agreement with the State Property and Privatization Committee under the MOF and RC under the MoT. This agreement allows QAJ to act as an agent to implement the rehabilitation and reconstruction of specific road projects on behalf of the RC. All expenses related to this agent service will be reimbursed by the government budget. QAJ prepares the annual budget covering the counterpart funding provision and the repayment of existing loans based on the Project's implementation progress. The annual budget for the following year is normally approved by the MOF before December. During the year, the budget can be adjusted no more than four times to accommodate funding needs based on actual implementation progress and cost variations (for example, due to price inflation or foreign exchange fluctuations). QAJ makes the payment from its Treasury Account to contractors within the approved budget.

4.29. In adherence with local legislation and rules, QAJ recruits a Project auditor annually through a bidding process from a government-accredited private accounting firm. Payment is covered by government funds. The Project and the Entity's financial statements will be audited in accordance with the TOR agreed upon by AIIB. During the implementation period, such Audit Reports and Management Letters will be submitted to AIIB within six months after the end of the calendar year.

4.30. **Disbursements.** The loan proceeds will finance various expenditures for goods, civil works, consultant services, non-consulting services and incremental operating costs. All the disbursement methods—advance, reimbursement, direct payment and special commitment—are available. The primary methods will be advance and direct payment. Under the advance method, a Designated Account (DA) in the loan currency will be opened in the Treasury system and managed by QAJ. The ceiling of the DA will be variable based on QAJ's semiannual forecast. For contract payments, QAJ converts foreign currency into the local currency and requests replenishment from AIIB, in accordance with the requirements defined in the Disbursement Letter issued by the Bank. The threshold for Direct Payment will be agreed upon during negotiations and formally documented in the Disbursement Letter.

4.31. For retroactive financing, any advance procured contracts financed by AIIB loan proceeds must comply with the Bank's Procurement and ES policies. Eligible expenditures are capped at 20% of the total loan amount and paid no more than 12 months before the loan agreement's signing date.

4.32. **Financial Crime and Integrity (FCI) and Counterparty Due Diligence/Know Your Counterparty (CDD/KYC).** QAJ is an SOE established in 2013 under the MOT and is the

national operator for the primary Republican Road Network, including international transit roads. KYC and required due diligence have been carried out, and no substantial issues have been identified.

4.33. **Governance and Anti-corruption.** AIIB is committed to preventing fraud and corruption in the projects it finances and will ensure strict compliance with AIIB's Policy on Prohibited Practices (2016). AIIB reserves the right to investigate, directly or indirectly through its agents, any alleged corrupt, fraudulent, collusive, coercive or obstructive practices, and misuse of resources and theft or coercive practices relating to the project and to take necessary measures to prevent and redress any issues in a timely manner, as appropriate. The Bank will also oversee activities related to the preparation of tender documents and the evaluation of tenders/proposals under AIIB financing. The specific requirements pertaining to these measures will be outlined in the Loan Agreement and the Project's tender documents.

4.34. **Cybersecurity.** The infrastructure financed is not considered critical cybersecurity-related Infrastructure. Eventual tolling infrastructure financed by the Government will use electronic tolling, implying a certain degree of data privacy risk. However, QAJ is assessed as having a robust approach to cybersecurity.

4.35. **Domestic Legal Context.** Peer MDB experience in Kazakhstan suggests that a legal framework document, a Partnership Framework Agreement (PFA) between AIIB and the Republic of Kazakhstan, is required for stand-alone sovereign-guarantee operations to enable the application of AIIB's policies and procedures. AIIB has started PFA negotiations with the government, and good progress has been made. The PFA is expected to be signed in 2026. The ratification of this PFA will serve as the effectiveness condition for the Project Loan Agreement.

D. Environmental and Social

4.36. **ES Policy and Categorization.** AIIB's Environmental and Social Framework (ESF), including ESP, ESEL and the ES Standards (ESS) 1 & 2 will apply to this Project. ESS 3 is not relevant, as no Indigenous People are present in Kazakhstan as per ESS 3 definition. The identified potential ES risks and impacts relate mostly to public land acquisition and the resultant moderate economic displacement and livelihood disruptions, as well as construction-induced risks and impacts, including occupational and community health risks and habitat disturbance, dust generation, noise and vibration, and pollution from construction waste and fuel spills. Given the scale, terrain and risks, the Project is classified as Category B under AIIB's ESF. Potential adverse ES impacts are site-specific and can be effectively mitigated through readily available measures. Appropriate assessment and management plans are in place to address identified risks and impacts in line with AIIB's ESF requirements. Extensive discussions were held during the mission, and it was concluded that there were no Associated Facilities-related issues.

4.37. **ES Instruments.** To address potential ES issues, QAJ has prepared an Environmental and Social Impact Assessment (ESIA), including an Environmental and Social Management Plan (ESMP), in accordance with the national regulations and AIIB requirements. This ESIA package is further supported by four complementary stand-alone documents: the Stakeholder Engagement Plan (SEP), Labor Management Procedures (LMP), Land Acquisition and

Resettlement Framework (LARF) and Gender Action Plan (GAP). These draft documents were reviewed and discussed during the appraisal mission. QAJ will refine and finalize them, incorporating feedback and recommendations from the PT's deliberations. Upon finalization, the documents will be disclosed on QAJ's official website to facilitate public dissemination. QAJ also plans to organize a disclosure workshop to present the finalized drafts and further engage with stakeholders.

4.38. The ESIA adequately addresses the following key risks and impacts: (a) avoiding impacts on sensitive cultural sites, including the Onay Ata burial site, through physical avoidance and buffer zones; (b) managing borrow pits and quarry activities by specifying requirements for permitted sourcing and site restoration; (c) assessing and mitigating baseline and cumulative noise and vibration during construction and operation in accordance with national and international standards; (d) mitigating risks and disturbances from relocation or protection of existing utility networks by ensuring coordination, budgeting, and public notification; (e) fostering community health and safety by addressing labor influx and promoting disease prevention and emergency preparedness and (f) enhancing road safety through comprehensive traffic management planning, signage and public awareness measures. The final ES instruments, including the Land Acquisition Resettlement Plan (LARP) and site-specific ESMPs, will be prepared based on the final technical design. These documents will be reviewed, approved and publicly disclosed prior to the commencement of civil works. In addition, the DBM contractor will prepare a Contractor's ESMP consistent with the approved ESIA, ESMP and other relevant ES instruments, prior to mobilization. At the appraisal stage, PT also discussed and reached an agreement with QAJ on the Environmental and Social Action Plan (ESAP), which defines key actions, timelines, staffing requirements, capacity-building and training measures, as well as monitoring, reporting and grievance redress arrangements. The ESAP will serve as a guiding framework for effective ES management throughout the entire project cycle.

4.39. **ES Capacity.** QAJ has demonstrated satisfactory performance in previous MDB-funded projects, supported by consultant assistance during preparation and implementation through the PMC and its oversight CSC. Following this model, ES specialists will be recruited under the PMC to support QAJ's central and the regional offices. The PMC will recruit one environmental and one social development specialist to support the PIU in managing the Project's ES risks and impacts. Additional ES staff will be recruited as needed before the civil work commences. QAJ will contract one DBM contractor for civil works under the Project. The contractor must have Environmental, Social, and Health and Safety (ESHS) experts in their team to provide on-site support, implement site-specific CESMPs and report to the PIU/PMC. In addition, capacity-building activities will be embedded within the scope of both the PMC and the CSC. Broader ES capacity building initiatives are also planned under the Project. Appropriate ES provisions are included in the bidding documents to secure appropriate ES staffing and budgetary resources at the PMC, CSC and EPC. The Client has committed in the ESAP to maintain qualified ES staff and resources to support the management of the Project's ESHS risks and impacts. Furthermore, the Project aims to enhance QAJ's institutional capacity by strengthening its ES management systems, labor management practices, land acquisition and resettlement procedures, stakeholder engagement mechanisms and occupational health and safety (OHS) standards.

4.40. **Environmental Aspects.** The Project's key environmental risks stem from the widening of the existing A-27 highway between km 598 and km 512, construction of a bypass and the sourcing and transportation of construction materials from quarries near Aktobe and other regional suppliers. The alignment passes through the steppe and desert terrain of the Caspian Lowland within the Makat District of the Atyrau region, characterized by Yerkek-Astrakhan wormwood shrublands and brown saline soils. The field survey confirmed that the corridor passes through modified habitats already disturbed by industrial and transport activity, including areas near the Karabatan Petrochemical Complex and NCOC facilities, with no designated protected areas, Ramsar sites, or key Biodiversity Areas within the Area of Influence. Accordingly, no Critical Habitat Assessment is required. The potential impacts are limited to temporary disturbance, fragmentation of semi-natural habitats and risks of roadkill to small mammals, reptiles and steppe birds. Construction activities may generate dust, noise and vibration from heavy machinery and asphalt plants and pose pollution risks from waste mismanagement, fuel spills and drainage runoff. Additional risks relate to quarrying and long-distance aggregate transport from Aktobe, which may lead to dust emissions, increased fuel consumption, accidental spillage and soil degradation. In sections with gentle slopes and high groundwater tables, improper drainage could exacerbate erosion, slope instability and surface or groundwater contamination.

4.41. The Project will implement optimized material sourcing, erosion control, slope stabilization and drainage management, along with the use of climate-resilient construction materials to enhance long-term sustainability. A comprehensive waste management plan will ensure segregation, reuse, recycling and safe disposal at authorized facilities, while hazardous materials will be handled only by trained personnel. Spill prevention measures and equipment and drainage maintenance will be implemented to reduce pollution risks. Dust and noise will be controlled through frequent water spraying, low-noise surfacing and scheduling noisy activities outside sensitive hours. The Traffic Management Plan will mitigate congestion and safety risks during long-haul material transport. Contractors will develop and implement site-specific CESMPs aligned with the Project's ESMP and ESIA, and all staff will receive environmental and safety training. As the final design is completed, the ES documents will be updated to address site-specific impacts, including quarrying, material transport and other auxiliary activities such as batching and crushing plants. Noise dispersion modeling will also be carried out to confirm the adequacy of mitigation measures for sensitive receptors such as residential clusters near Atyrau and Dossor.

4.42. **Social Aspects.** The Project is expected to generate positive social benefits for the local population, including improved travel conditions and road safety and reduced transportation costs, travel time and congestion. The Project is expected to impact approximately 1,100 hectares of mainly public land with some private grazing land. No forest or agricultural land will be affected. No physical displacement is anticipated, as there are no settlements along the route and only a few industrial businesses are located at least 1 kilometer away. Other adverse impacts include loss of permanent and temporary access, livelihood disruptions and physical relocation of utilities. Based on the preliminary design, the estimated number of Project-affected People (PAP) and public entities is 63. Relocation of a significant number of utility networks, including electric poles/pylons, gas, oil, water pipelines and communication lines will be necessary. Relevant mitigation measures related to the relocation of on- and underground utility networks are included in the ESIA/ESMP and will be cascaded to Contractors' ESMPs. Contractors will employ and supervise the subcontractors for utilities

relocation in collaboration with utility owners. Temporary land acquisition will also be required for the establishment of worker accommodation facilities and construction storage areas. A preliminary socioeconomic census of PAPs is being carried out by the government. The draft LARF has been prepared, disclosed and consulted upon 30 days prior to Project approval. The detailed technical design will inform the LARP preparation.

4.43. Other social risks include community health and safety issues due to civil works associated with social tensions and sexual exploitation and abuse/sexual harassment (SEA/SH) risks to workers and communities during construction and operations phases. These risks will be further assessed and addressed through detailed surveys and consultations to ensure that appropriate mitigation measures are integrated into the project's ESMP and cascaded to the CESMPs. The site-specific ES management plans will be part of the CESMPs, including the Community Health and Safety Plan, Emergency Preparedness and Response Plan, Blasting Management Plan, Traffic Management Plan, Camp Management Plan, Labor Management Plan and others.

4.44. **Occupational Health and Safety (OHS), Labor and Working Conditions (LWC).** The construction will entail typical OHS risks such as worksite accidents, exposure to hazardous substances, operating heavy machinery, electric shock and extreme weather conditions. Additional issues, such as dust, vehicle emissions, noise, vibration and increased road traffic from construction may affect both workers and nearby communities. The potential for vehicular accidents and road safety incidents is particularly significant, given the scale of construction and movement of heavy equipment. Some sections are characterized by arduous environmental conditions and potential soil instability, followed by challenging weather events during certain seasons, which may increase construction-related hazards. To address these concerns, the ESMP includes detailed OHS measures/mitigation plans, which will be further integrated into the Contractors' OHS Plan, Traffic Management Plan, and site-specific CESMPs.

4.45. The Project is expected to employ a large and diverse workforce, including labor from outside the project area and possibly from abroad. This labor influx brings additional social risks, such as potential tensions with local communities, increased pressure on local infrastructure and public services, and community health risks, including gender-based violence and harassment (GBVH) and the spread of communicable diseases. To mitigate these impacts, a Labor Management Procedure has been developed, which defines measures to ensure safe working conditions, fair treatment of workers and compliance with national and international labor standards.

4.46. **Stakeholder Engagement, Consultation and Information Disclosure.** SEP has been prepared to identify key stakeholders and define communication channels and engagement activities throughout the project cycle. A series of public consultation meetings was carried out along with the alignment during the 2024 feasibility study and national EIA preparation. The main concern people raised include the crossing points and livestock corridors at various junctures of the future road, location of recreation sites, and the permanent bypass design at the Dossor town junction. These concerns will be addressed in the final design. The ES

documentation has been disclosed in English and the local language(s) on the Borrower's[17] and AIIB's[18] websites 30 days before financing approval.

4.47. **Project Grievance Redress Mechanism (GRM).** The Borrower has an operational grievance mechanism already in place to address issues related to resettlement, ES issues, and information sharing. The two-tier mechanism allows grievances to be submitted through multiple channels, including in person, via call center, email, social media webpages or the websites of QAJ (https://ru.qaj.kz/) and the respective local governments (*Akimats*). The GRM's efficiency will be further strengthened to enable QAJ to segregate and address the project-specific complaints. SEP I includes a detailed description of the Project-level GRM to be available at national and local levels. A Worker Grievance Mechanism will be established to address worker grievances and to take specific measures to address SEA/SH complaints.

4.48. **Independent Accountability Mechanism.** Since the Project is an AIIB stand-alone project, AIIB's Project affected Peoples Mechanism (PPM) Policy applies. The PPM has been established by AIIB to provide an opportunity for an independent and impartial review of submissions from PAP who believe they have been or are likely to be adversely affected by AIIB's failure to implement its ESP in situations where their concerns cannot be addressed satisfactorily through the Project-level GRM or the processes of AIIB's Management. For information on AIIB's PPM, please visit: https://www.aiib.org/en/about-aiib/who-we-are/project-affected-peoples-mechanism/how-we-assist-you/index.html

4.49. **Monitoring and Supervision Arrangements.** The Borrower will be responsible for the coordination, supervision and monitoring of the Project in compliance with the AIIB's ESP and ESSs, and for the management of the project-level GRMs. The Borrower will submit semi-annual monitoring reports in the agreed format to AIIB. AIIB will retain the right to conduct field supervision as needed.

E. Climate Change

4.50. **Paris Alignment.** In line with the joint MDB and AIIB's methodology for assessing the alignment of direct lending projects with the goals of the Paris Agreement, a detailed analysis was conducted for mitigation (BB1) using the five specific criteria and for adaptation (BB2). Swiss re conducted a climate risk and vulnerability assessment (CRVA).

4.51. **Climate Finance.** Following the 2025 Guideline on Estimating Climate Adaptation Finance in AIIB Investments and in line with the joint MDB methodology for tracking climate adaptation finance, 15% of AIIB's financing for the road infrastructure and 100% of the cost of culverts and bridges, at a total amount of USD 35million, can be claimed as climate adaptation finance. The Project does not contribute to climate mitigation finance.

4.52. **GHG assessment.** It is estimated that the Project will generate 36,105 tons of carbon dioxide (tCO_2) annually during the four years of construction and 1,479 tCO_2 annually for 21 years of operations. GHG emissions from traffic are estimated by calculating additional emissions by comparing the with- and without-project scenarios. Traffic emissions are

[17] QAJ. https://ru.qaj.kz/news/obyavleniya-polzovatelyam/3383/
[18] AIIB. Kazakhstan: Reconstruction of A-27 Highway Atyrau-Dossor Section Project

estimated based on unit fuel consumption, and a 2,234 g CO_2 per liter of fuel emission factor is applied to calculate the total annual traffic emissions. The total additional emissions from traffic during operations are about 54,166 tCO_2.

F. Gender Aspects

4.53. Gender-based occupational segregation is high in Kazakhstan due to the exclusion of women from 287 occupations prior to the Labor Code reforms in 2022. A 2024 sample of 12 road construction companies operating in Kazakhstan found that the sector exemplifies this gender divide. It remains male-dominated, with women occupying fewer than 6% of highly skilled technical roles, such as road engineers, laboratory engineers and surveyors. The challenges construction companies face in recruiting women are multifaceted and include working conditions, distance from homes and prevailing social norms that discourage women from pursuing careers in construction. The contractor will prepare and implement Local Employment and Procurement Plans to improve female representation within their workforce.

4.54. The Project's Gender Action Plan will support women's engagement via: (a) gender-disaggregated socioeconomic survey of PAPs, (b) women's participation in consultations, (c) hiring of women in construction and administrative roles, (d) providing gender-sensitive facilities at construction and worker accommodation areas and (e) recognizing informal land use and ensuring women are consulted during asset valuation. Given the large influx of labor in the region, SEA/SH cases may arise during the construction phase. Relevant mitigation measures will be incorporated into the CESMPs.

G. Risks and Mitigants

Table 4.2: Summary of Risks and Mitigating Measures

Risk Description	Assessment (H/M/L)	Mitigation Measures
Project Preparation Risks		
Technical designs		
Insufficient experience on integrated DBM contracts may lead to uncertainty and require higher capacity in project management.	H	▪ AIIB has provided upstream support for QAJ in gap-filling and quality enhancement in procurement preparation. ▪ The PT has engaged a senior technical consultant with proven expertise in the preparation, assessment, and monitoring of project designs, ensuring high design quality standards. The consultant is also experienced in overseeing operational activities and implementing critical aspects of DBM contracting, including performance-based maintenance. ▪ The experience and lessons learned from other ongoing projects financed by AIIB and other MDBs with a similar nature will be incorporated into the project design to minimize the risk.
Project Implementation Risks		
Implementation capacity		
Insufficient capacity and resources in QAJ to implement multiple large projects simultaneously, especially DBM contracts.	M	▪ Both CSC and PMC are included in the project design and are financed by the loan proceeds to support QAJ and PIU in their daily implementation management. The TORs of CSC and PMC will be reviewed and cleared by the Bank. ▪ The PT will carry out close monitoring of the Project, leveraging the scale efficiency and synergies of a few ongoing road sector projects. AIIB will intervene with support in a timely manner when it is needed.
Implementation		
Various utilities relocation may delay the commencement of works.	H	▪ A detailed list of utilities has been prepared with owners and estimated costs. It will be finalized upon completion of the detailed design to ensure that all utilities are relocated and restored before the commencement of civil works. ▪ A detailed roadmap for utilities relocation has been developed and agreed upon with the government during the appraisal stage. ▪ The *akimat* has been involved and committed to providing full support for relocating these utilities. ▪ The cost for relocating utilities is included in the project budget. ▪ A dedicated staff in PMC will be mobilized to support utility relocation.
Financial management		

Risk Description	Assessment (H/M/L)	Mitigation Measures
Lack of experience in implementing AIIB-financed projects.	M	▪ Project FM-related arrangement has been agreed upon with QAJ and will be documented in the legal documents. Implementation will be managed by PIU with sufficient support from PMC. PT will closely monitor project implementation, especially in the initial stage.
Procurement of large and complex packages		
Lack of experience in the application of a complex DBM contract modality that may result in low competition and cost overrun.	H	▪ International consultants conducted detailed market research and assessment to ensure the bidding documents include sound qualification criteria that promote sufficient competition among qualified bidders. ▪ Provide close supervision and support in procurement and contract execution of the works contract by AIIB through procurement prior review and field missions. ▪ Leverage the experiences gained and lessons learned from ongoing AIIB- and MDB-financed road projects of a similar nature and size.
ES risks and impacts during construction and operation		
Weak institutional capacity of QAJ to manage risks and oversee ES and OHS compliance.	M	▪ QAJ will hire relevant, experienced ES staff and experts through PMC to strengthen its capacity on ES and OHS. ▪ Dedicated ES staff will be recruited under CSC before civil works commence to ensure the compliance. ▪ The DBM contractor will also be required to engage qualified ES and OHS specialists. ▪ In addition, ES capacity-building activities will be implemented during the implementation through PMC.
Legal risks		
Delayed ratification of the PFA between AIIB and the Government of Kazakhstan.	L	▪ The concerned ministries have committed to following up on the ratification of the PFA. ▪ As a standard condition of effectiveness, the AIIB's Loan Agreement and the Guarantee Agreement will require a legal opinion from the Borrower and the Guarantor to certify that the Loan Agreement and the Guarantee Agreement are legally binding on the Borrower and the Guarantor, respectively. ▪ The ratification of AIIB's PFA will be set out as a Loan effectiveness condition.

Annex 1: Results Monitoring Framework for the Project

Project Objective (PO):	To provide safe, efficient and climate-resilient connectivity along the Atyrau-Dossor Section of the A-27 Highway in Kazakhstan's Atyrau Region.									
Indicator Name	**Unit of Measure**	**Baseline Data 2024**	**Cumulative Target Values**					**End Target 2030**	**Frequency**	**Responsibility**
			2025	**2026**	**2027**	**2028**	**2029**			
Project Objective Indicators:										
1. Average travel time along the section.	minute	85	85	85	85	85	85	56	Annual	QAJ
2. Climate adaptation measures incorporated into road design of A-27 Highway	Yes / No	No	Yes	Yes	Yes	Yes	Yes	Yes	Annual	QAJ
3. AADT along the Atyrau- Dossor section	number of vehicles	7,864	8,175	8,453	8,706	8,864	9,065	9,273	Annual	QAJ
4. Improvement of International Roughness Index (IRI).	m/km	6	6	6	6	6	6	2	Annual	QAJ
5. Road safety improvement along the Atyrau-Dossor section expressed as iRAP rating or equivalent.	number	1	-	-	-	-	-	3	Annual	QAJ
Intermediate Results Indicators:										
1. Length of road reconstructed and upgraded.	km	0	0	0	0	0	0	87	Annual	QAJ
2. Actions are developed and implemented to address issues related to Sexual Exploitation and Abuse/ Sexual Harassment (SEA/SH) towards creating safe, respectful, and equitable environments**.**	Yes / No	No	-	-	Yes	Yes	Yes	Yes	Annual	QAJ

Project Objective (PO):	To provide safe, efficient and climate-resilient connectivity along the Atyrau-Dossor Section of the A-27 Highway in Kazakhstan's Atyrau Region.									
Indicator Name	**Unit of Measure**	**Baseline Data 2024**	**Cumulative Target Values**					**End Target 2030**	**Frequency**	**Responsibility**
			2025	**2026**	**2027**	**2028**	**2029**			
3. Increase of annual toll collection from the Atyrau-Dossor section once the Project is completed.	USD million	0	-	-	-	-	-	6.4	Annual	QAJ

iRAP = International Road Assessment Programme

Annex 2: Economic and Financial Analysis

A. Economic Analysis

1. **General.** The economic analysis, or cost-benefit analysis (CBA), aims to identify and quantify the key economic benefits and costs associated with the Project. The CBA for the Project identifies the benefits and costs of rehabilitating and upgrading the 87-km section of the A27. The proposed rehabilitation will improve local road quality, thereby generating savings in value of time (VOT) and vehicle operation cost (VOC). These benefits all come from forecasting non-incremental traffic demand of the involved local roads in both regions. The additional greenhouse gas (GHG) emissions from construction and traffic are assessed as a cost item in the CBA. Expanding the two-lane road into a four-lane one will also significantly reduce traffic collisions. While not quantifiable due to challenges in value of life estimation, the Project's road improvement activities will have qualitative benefits.

2. The CBA is carried out using discounted cash flow (DCF) to obtain the economic internal rate of return (EIRR) and the economic net present value (ENPV) for the proposed investments linked with the Project. This is followed by a standard sensitivity analysis that assesses the viability of EIRR and ENPV under optimistic and pessimistic traffic and cost scenarios. The social discount rate in this analysis is 9%.

3. **Analytical Framework.** The CBA calculations are based on the net benefits and costs, by comparing the with- and without-project scenarios described here.

- **Without the Project:** This scenario means the financed local roads will remain as two-lane roads without any major rehabilitation in the future. Traffic demand, measured in average annual daily traffic (AADT) will grow along with income levels, population and gross domestic product (GDP). However, due to poor road surface conditions, all types of vehicles currently traveling on these local roads are traveling much slower (under 70 kilometers per hour [kph]) and incurring higher operating costs. The existing International Roughness Index (IRI) is around 6 meters per kilometer (m/km), according to the AIIB technical consultant's assessment.
- **With the Project:** The rehabilitation will significantly improve the local road conditions by resurfacing, widening (to four lanes) and improving its climate resilience. With enhanced road capacity and better safety measures, travel speeds are expected to increase, with cars able to drive at 109 kph, buses at 82 kph and trucks at 89 kph. The average IRI after the Project will aim to reach 2 m/km, given the design and materials used. These improvements will lead to lower unit VOC and shorter driving times.

4. **Economic Costs.** Economic capital expenditure (capex) and O&M costs are adjusted from the total financial costs by excluding VAT and using a standard shadow conversion factor of 0.96.[1] After adjustment, the economic capex is USD223.92 million. It is distributed evenly across the four construction years. For O&M, it is adjusted from financial O&M costs, which include annual routine maintenance and major repairs that recur every seven years, using 2025 constant prices. For routine maintenance, the economic O&M is USD0.85 million. For years when major repairs are needed, the total economic O&M cost is USD33.54 million after

[1] From an ADB Project in Kazakhstan: Almaty-Bishkek Economic Corridor Regional Improvement of Border Services Project: Economic Analysis

adjustment. Residual value is also incorporated as a negative item in the cost, by assuming 30% of economic capex in civil work will remain in 2050.

Table A2.1: Economic Capex

Year	2026	2027	2028	2029	Subtotal
Financial Cost (USD million, incl. VAT)					
	66.27	66.27	66.27	66.27	265.06
Economic Cost (USD million, excl. VAT and other taxes)					
	55.98	55.98	55.98	55.98	223.92

5. **Economic Benefits Identification Approach.** Approaches to identify and quantify benefits are based on consultations with the feasibility study team, literature on similar projects conducted by other MDBs and various databases that provide essential parameters for the estimates. The quantified benefits are summarized in Table A2.2.

Table A2.2: Identified Economic Benefits

VOT savings: Average driving speed of vehicles will increase significantly for two reasons. First, the expansion from a two-lane to a four-lane highway allows easier and safer overpasses. Second, the speed limit will be adjusted accordingly from 90 kph to 120 kph. Using the HDM-4 model, the average speed including all types of vehicles is expected to increase from the current 61 kph to 93 kph. This translates into saved VOT for passengers and freight.
VOC savings: Overall, the improvement of IRI from 6 to 2m/km results in unit VOC reductions for all three types of vehicles using the World Bank's HDM4 model. Unit VOC reduction is higher for trucks and buses driven by sharper reduction in vehicle maintenance. Unit maintenance costs as part of VOC for cars will also be lower in with-project scenario, but the reduction is offset by much higher fuel consumption due to faster speed.
GHG emissions: Net CO_2 emissions are incorporated in the CBA, including the emission from civil construction, operations and additional emission from the traffic. Overall, the net impact to CBA is negative, largely due to higher fuel consumption as results of faster driving in the with-project scenario.

6. **AADT Traffic Demand and Key Assumptions.** The CBA assumed one year of design in 2025, four years of construction (2026-2029) and 21 years of operations (2030-2050). The following are the key assumptions used in the analysis:

7. **AADT Demand Forecast.** Based on the 2024 baseline AADT, AADT is forecast to grow at the same rate as Kazakhstan's GDP per capita. Trucks are expected to grow at the same rate as real total GDP. Growth assumptions are drawn from the International Monetary Fund (IMF) World Economic Outlook (April 2025). Table A2.3 shows the AADT in the with-project scenario.

Table A2.3: AADT Forecast

Year	Cars	Buses	Trucks	**Total**
2026	6,405	221	1,938	**8,563**

Year	Cars	Buses	Trucks	**Total**
2027	6,582	223	2,012	**8,817**
2028	6,687	225	2,065	**8,977**
2029	6,823	227	2,128	**9,178**
2035	7,718	241	2,555	**10,514**
2045	9,477	267	3,466	**13,210**
2050	10,502	280	4,036	**14,819**

8. **VOC Assumptions.** Unit VOC is estimated by the HDM-4 model after inputting various vehicle-related costs, including vehicle purchase, tire, fuel, service time and other maintenance costs for cars, buses and trucks. These costs will translate into two sets of unit VOC: under the IRI=6m/km, two-lane scenario with a 90 kph limit (without-project), and the IRI=2m/km, four-lane scenario with a 120 kph limit (with-project). Table A2.4 presents the results for the unit VOC. Multiplying the AADT, the total project length of 87 km, and unit VOC difference yields the total VOC benefits.

Table A2.4: Unit VOC Savings (USD/vehicle-km)

VOC USD/vkm	Existing 2-lane (IRI=6)			Project 4-lane (IRI=2)		
	Cars	Bus	Truck	Cars	Bus	Truck
	0.16	1.01	0.93	0.16	0.72	0.72

Source: AIIB estimates.

9. **VOT Assumptions.** The Project is assumed to increase the average vehicle speed. This leads to time savings per kilometer travelled along the project road section for both passengers and freight. For passenger volume estimation, the per-vehicle passenger count is 1.5 persons/vehicle for cars, 1 person/vehicle for trucks, and 15 persons/vehicle for buses. Other passenger VOT assumptions include hourly wages per passenger. For freight, the analysis uses the average per-ton value of agricultural goods in Kazakhstan and estimates the unit-time value of goods. Tables A2.5, A2.6 and A2.7 present details of these assumptions.

Table A2.5: VOT Speed Assumptions

	Without Project			With Project		
Vehicle Types	Cars	Buses	Trucks	Cars	Buses	Trucks
Speed (kph)	74.06	50.74	59.22	109.08	82.38	88.97
Travel time (hours)	1.16	1.70	1.45	0.79	1.04	0.97

Source: AIIB estimates based on HDM-4 results.

Table A2.6: VOT Passenger Income Assumptions

GDP Per Worker (USD Current)	14,005.3
Total working hours	2,008
Per hour wage, working (USD)	6.97
Per hour wage, non-working (USD)	2.09
Labor participation rate (%)	0.795
Weighted hour wage (USD)	5.97

Source: AIIB estimates based on WB's World Development Indicators (WDI) for Kazakhstan.

Table A2.7: VOT Freight Unit Value Assumptions

Total Agri Export (USD billion)	5.1
Total Agri. Volume (million ton)	16.1
Unit Value (USD/ton)	317
Mean truck weight (ton/truck)	10

Source: AIIB estimates based on Agricultural Newsletter of Central Asia March 2025 | Nieuwsbericht | Agroberichten Buitenland

10. **GHG.** It is estimated that the Project will generate 36,105 tCO_2 annually during the four-year construction and 1,479 tCO_2 annually for the 21-year operations, based on the climate assessment. GHG emissions from traffic are estimated by calculating additional emissions by comparing the with- and without-project scenarios. Traffic emissions are based on unit fuel consumption (Table A2.7), then a 2,234 g CO_2 per liter of fuel emission factor is applied to arrive at total annual traffic emissions. The total additional CO_2 emissions from traffic during the operations are about 54,166 tCO_2. The AIIB social carbon price is applied to arrive at monetized impacts for the CBA.

Table A2.8: Unit Fuel Assumptions

	Without Project			With Project		
Vehicle Types	Cars	Buses	Trucks	Cars	Buses	Trucks
Unit: l/vehicle-km	0.10	0.31	0.34	0.12	0.27	0.29

11. The baseline EIRR is 11.17%, with an ENPV of USD42.42 million. Both indicators suggest the Project is economically viable (EIRR>9%, ENPV>0). The EIRR is highly sensitive to traffic: a 10% lower projection would bring EIRR to 8.7% immediately, holding cost unchanged. A 10% cost overrun would also lower EIRR to 10.0%.

Table A2.9: Economic Benefits and Costs (USD million)

	VOC	VOT	GHG	Total Benefits	Capex	O&M	Residual	Total Costs	Net Benefits
2026	0.00	0.00	-2.49	-2.49	55.98	0.00	0.00	55.98	-58.47
2027	0.00	0.00	-2.53	-2.53	55.98	0.00	0.00	55.98	-58.51
2028	0.00	0.00	-2.60	-2.60	55.98	0.00	0.00	55.98	-58.58
2029	0.00	0.00	-2.64	-2.64	55.98	0.00	0.00	55.98	-58.62
2030	16.94	15.90	-0.33	32.51	0	0.85	0.00	0.85	31.66
2031	17.42	16.20	-0.34	33.29	0	0.85	0.00	0.85	32.43
2032	17.91	16.51	-0.34	34.08	0	0.85	0.00	0.85	33.23
2033	18.42	16.82	-0.35	34.90	0	0.85	0.00	0.85	34.04
2034	18.94	17.14	-0.36	35.73	0	0.85	0.00	0.85	34.88
2035	19.48	17.47	-0.36	36.59	0	0.85	0.00	0.85	35.74
2036	20.03	17.81	-0.37	37.47	0	11.32	0.00	11.32	26.16
2037	20.60	18.15	-0.37	38.38	0	33.54	0.00	33.54	4.84
2038	21.19	18.50	-0.38	39.31	0	0.85	0.00	0.85	38.46
2039	21.80	18.86	-0.38	40.27	0	0.85	0.00	0.85	39.41
2040	22.42	19.22	-0.39	41.25	0	0.85	0.00	0.85	40.40
2041	23.06	19.59	-0.39	42.26	0	0.85	0.00	0.85	41.41
2042	23.72	19.97	-0.40	43.30	0	0.85	0.00	0.85	42.45

	VOC	VOT	GHG	Total Benefits	Capex	O&M	Residual	Total Costs	Net Benefits
2043	24.40	20.36	-0.40	44.37	0	11.32	0.00	11.32	33.05
2044	25.11	20.76	-0.40	45.47	0	33.54	0.00	33.54	11.93
2045	25.83	21.17	-0.40	46.59	0	0.85	0.00	0.85	45.74
2046	26.57	21.58	-0.40	47.75	0	0.85	0.00	0.85	46.90
2047	27.34	22.01	-0.40	48.95	0	0.85	0.00	0.85	48.09
2048	28.13	22.44	-0.41	50.17	0	0.85	0.00	0.85	49.32
2049	28.95	22.89	-0.40	51.43	0	0.85	0.00	0.85	50.58
2050	29.79	23.34	-0.40	52.72	0	0.85	-57.12	-56.27	108.99
Total	**478.07**	**406.70**	**-18.24**	**866.54**	**223.92**	**104.22**	**-57.12**	**271.03**	**595.51**

Table A2.10: Sensitivity Analysis

EIRR		Traffic Change				
Baseline	11.17%	-20%	-10%	0%	10%	20%
Cost Change	-20%	8.52%	11.26%	13.94%	16.58%	19.19%
	-10%	7.27%	9.89%	12.45%	14.97%	17.46%
	0%	6.20%	8.71%	11.17%	13.59%	15.97%
	10%	5.26%	7.68%	10.05%	12.38%	14.67%
	20%	4.44%	6.78%	9.07%	11.32%	13.53%

EIRR		Traffic Change				
Basline	42.42	-20%	-10%	0%	10%	20%
Cost Change	-20%	-7.05	35.58	83.34	136.22	194.23
	-10%	-27.51	15.12	62.88	115.76	173.77
	0%	-47.97	-5.34	42.42	95.30	153.31
	10%	-68.43	-25.80	21.96	74.84	132.85
	20%	-88.90	-46.26	1.50	54.38	112.39

B. Financial Analysis

1. **Revenue and Cost Estimate for the Project.** The Project's operation period is assumed to be 21 years, from 2030 to 2050. Toll revenue and operation and maintenance (O&M) cost projections have been prepared for the Project road.

2. The toll revenue estimates are derived from the AADT and PCU forecasts under economic analysis. The toll tariff structure is benchmarked against the existing tolled section of the highway operated by KazAvtoZhol National Company JSC (QAJ). Toll tariffs are established by the Order of the Ministry of Investment and Development and the Ministry of Industry and Infrastructure Development of the Republic of Kazakhstan, and the tariff rates are linked to the Monthly Calculation Index (MCI). The MCI serves as a standardized calculation base for various legal and financial obligations in Kazakhstan, such as taxes, administrative fines and social payments. It is revised annually, considering factors such as the minimum wage and other macroeconomic indicators, and its updated value is published in the Law on the Republican Budget for each fiscal year. For the revenue estimate, the tariff is assumed to increase annually in line with inflation.

3. The O&M cost projections are developed in accordance with the Standards for Financing for the Repair and Maintenance of Public Roads of International and Republican Importance and the Management of Road Activities, approved by the Order No. 705 of the Acting Minister for Investments and Development of the Republic of Kazakhstan (dated June 17, 2015). These Standards establish ceiling cost norms for routine repair, road maintenance and road management activities. For interim repair works—defined as activities aimed at restoring pavement and road elements to ensure normal operating conditions without altering the existing roadbed or structural layers—the cost estimates have been derived from comparable contract values observed on a similar road section (Highway of R-10 "Astana Bypass" 36-46km). A summary of the projected toll revenue and O&M costs is presented in Table A2.11.

Table A2.11: Projected Toll Revenue and O&M Costs, 2030-2050*

Year	Toll Revenue			
	Cars	Buses	Trucks	Total
2030	595	1,042	1,701	3,338
2031	638	1,126	1,841	3,605
2032	686	1,219	1,998	3,903
2033	733	1,313	2,157	4,203
2034	786	1,418	2,335	4,539
2035	842	1,532	2,528	4,902
2036	905	1,660	2,744	5,308
2037	967	1,788	2,962	5,717
2038	1,037	1,931	3,207	6,175
2039	1,111	2,087	3,471	6,669
2040	1,194	2,261	3,768	7,223
2041	1,276	2,436	4,068	7,780
2042	1,368	2,632	4,403	8,403
2043	1,466	2,844	4,767	9,077

2044	1,576	3,081	5,174	9,831
2045	1,684	3,320	5,586	10,590
2046	1,805	3,588	6,047	11,44
2047	1,935	3,878	6,546	12,358
2048	2,079	4,202	7,105	13,386
2049	2,117	4,313	7,305	13,735
2050	2,160	4,439	7,531	14,131

Year	O&M Cost				
	Routine Repair	Road Maintenance	Management	Interim Repair	Total
2030	120	394	36	-	550
2031	126	414	37	-	577
2032	133	434	39	-	606
2033	139	456	41	-	636
2034	146	479	43	-	668
2035	154	503	45	-	702
2036	161	528	48	6,736	7,473
2037	169	554	50	21,045	21,819
2038	178	582	52	-	812
2039	187	611	55	-	853
2040	196	642	58	-	896
2041	206	674	61	-	940
2042	216	707	64	-	987
2043	227	743	67	9,504	10,541
2044	238	780	70	29,640	30,728
2045	250	819	74	-	1,143
2046	263	860	78	-	1,200
2047	276	903	81	-	1,260
2048	290	948	85	-	1,323
2049	304	995	90	-	1,389
2050	319	1,045	94	13,373	14,832

Year	Toll Revenue	O&M Cost	Gross Profit
2030	3,338	550	2,788
2031	3,605	577	3,027
2032	3,903	606	3,297
2033	4,203	636	3,567
2034	4,539	668	3,871
2035	4,902	702	4,200
2036	5,308	7,473	-2,164
2037	5,717	21,819	-16,101
2038	6,175	812	5,363
2039	6,669	853	5,816
2040	7,223	896	6,327

2041	7,780	940	6,840
2042	8,403	987	7,416
2043	9,077	10,541	-1,464
2044	9,831	30,728	-20,897
2045	10,590	1,143	9,447
2046	11,440	1,200	10,240
2047	12,358	1,260	11,098
2048	13,386	1,323	12,063
2049	13,735	1,389	12,345
2050	14,131	14,832	-701
Cumulative	166,313	99,935	66,378

* The amounts are presented in KZT million.

4. Based on projections, while O&M costs are expected to exceed toll revenues in certain years, particularly during interim repairs, the overall toll revenue from this road section is projected to be sufficient to cover long-term maintenance costs, thereby ensuring the road's financial sustainability.

5. **Overview of QAJ.** QAJ was formed in March 2023 pursuant to a Resolution of the Government of Kazakhstan dated Feb. 1, 2023. The government is QAJ's sole shareholder, represented by the State Property and Privatization Committee (SPPC) under the Ministry of Finance (MoF). The state body exercising ownership and use rights over 100% of QAJ's state-owned shares—based on the relevant acceptance certificate—is the Committee of Roads under the Ministry of Transport (MoT).

6. In accordance with QAJ's Charter, the principal activities of QAJ are:
   (a) Implementation of budget-funded investment projects for the development of public motorways of international and republican significance, based on the state assignment.
   (b) Organization of the design, construction, reconstruction, repair and maintenance of public roads of international and republican significance under the state assignment.
   (c) Oversight of the progress and quality of construction, reconstruction, repair and maintenance of public roads of international and republican significance under the state assignment.
   (d) Trust management of toll roads.
   (e) Elimination of faults that hinder the uninterrupted and safe passage of vehicles on toll roads.
   (f) Collection of tolls for the use of toll roads.

7. QAJ derives revenue from the provision of services on:
   (a) Organizing the construction, reconstruction, repair and maintenance of public roads of international and republican significance either under the state assignment or through attracted investments.
   (b) Collection of tolls and operation of toll road operations (including maintenance and repair).
   (c) Maintenance services for roads.

8. In general, all republican roads are owned by the SPPC MoF, on behalf of the government. When reconstruction or rehabilitation is required, QAJ enters into a Trust Management Agreement (TMA) with the SPPC MoF and the Road Committee that governs: (a) the transfer of assets from SPPC MoF to QAJ, to the Contractor and back, as needed and (b) the reimbursement of expenses related to the provision of the above services. Under the TMA, QAJ acts as the Agent, while the Road Committee serves as the Principal.

9. Following internal procedures to proceed with the development of the road project under the state guarantee, QAJ submits a budget request to the MoF via the MoT. Once approved, the TMA is signed between the three parties. Under the TMA, QAJ signs a monthly compensation act with the Road Committee, which allows for the reimbursement of all expenses. Following this, QAJ uses the reimbursed funds to pay counterparties and to service and repay the principal on the bank loans.

10. To service non-state loans under the state guarantee, Budget Program 233 “Fulfillment of Obligations under a trust management contract,” has been created. To implement the loan repayment mechanism under the TMA, amendments were made to several legal instruments, including:

(a) The Budget Code of the Republic of Kazakhstan.
(b) The Rules for Transferring State Property to Trust Management, approved by Order No. 17 of the Minister of National Economy.
(c) The Rules for Execution of the Budget and its Cash Services, approved by Order No. 540 of the MoF.

11. **Historical Performance of QAJ.** Revenue has grown consistently over the past four years, with a CAGR of approximately 126%. Year-on-year growth was particularly strong in 2023, at 197%, driven primarily by an eight-fold increase in revenue from construction and repair. Revenue from toll road maintenance has also shown sustained growth with a CAGR of approximately 81%, reflecting the steady expansion of Kazakhstan's toll road network and increasing fee collection. Detailed figures are presented in Table A2.B.2.

12. As of Dec. 31, 2024, approximately 80% of QAJ's total assets of USD3.6 billion are non-current assets, of which approximately 90% are accounts receivable. The majority of these accounts receivable are due from the Principal, and represent receivables for construction, reconstruction, repair and maintenance services performed by QAJ.

13. QAJ primarily serves as a financial intermediary between the SPPC MoF and engineering, procurement and construction (EPC) contractor(s), with limited direct ownership of republican roads. This is evidenced by the minimal value of property, plant and equipment, recorded as USD23 million. This small amount of tangible assets underscores QAJ's role as Agent rather than owner of road assets.

14. QAJ is entitled to reimbursement from the Principal for both principal and interest payments on its non-state loans. Interest expenses are fully reimbursed annually, and QAJ recognizes these reimbursements as financial income. However, principal repayments are not currently being reimbursed. Consequently, QAJ recognizes only interest payments on

deferred expenses. QAJ's long-term accounts receivable have grown from USD303 million in 2021 to USD375 million in 2022, USD462 million in 2023, and USD523 million in 2024.

15. As of Dec. 31, 2024, total liabilities increased by 42% to USD3.6 billion from the previous year, driven by additional borrowing. Long-term financial debt forms a substantial portion of QAJ's liabilities, amounting to approximately USD2.7 billion, with most debts maturing in 2038-2039. About 63% of QAJ's financial debt is owed to the Export-Import Bank of China, making it the Company's largest creditor. The remaining debt is sourced from EBRD, ADB, EDB and the Development Bank of Kazakhstan. It is important to note that previous WB-financed projects are directly funded by the MoF and do not appear on QAJ's financials. This exclusion underscores the evolution of financing mechanisms for different road projects.

16. As of Dec. 31, 2024, shareholders' equity improved from negative USD63 million to positive USD24 million, thanks to the net income recorded in the same year.

Table A2.12: Consolidated Financial Statements of QAJ (2021-2024)

QAJ Consolidated Financials	2021 (audited) *(1USD=426.03KZT)*		2022 (audited) *(1USD=460.85KZT)*		2023 (audited) *(1USD=456.24KZT)*		2024 (audited) *(1USD=469.11KZT)*	
Currency (in millions)	USD	KZT	USD	KZT	USD	KZT	USD	KZT
Income Statement								
Revenue	**15**	**6,559**	**29**	**13,272**	**86**	**39,362**	**162**	**75,816**
Revenue from construction and repair	6	2,467	7	3,081	58	26,580	107	50,252
Revenue from toll road maintenance	10	4,092	22	10,191	28	12,677	51	24,150
Other	-	-	-	-	0	104	3	1,414
COGS	(12)	(5,298)	(23)	(10,612)	(81)	(36,791)	(156)	(73,268)
Gross Profit	**3**	**1,262**	**6**	**2,660**	**6**	**2,570**	**5**	**2,547**
G&A expenses	(4)	(1,813)	(5)	(2,281)	(5)	(2,248)	(9)	(4,278)
Other income	3	1,357	2	977	2	813	3	1,516
Other expenses	(4)	(1,771)	(10)	(4,469)	(9)	(4,320)	(6)	(2,866)
Financial income	37	15,752	57	26,254	98	44,743	109	51,097
Financial cost	(40)	(16,993)	(59)	(27,379)	(95)	(43,314)	(109)	(50,951)
FX gain / (loss)	5	2,206	(23)	(10,444)	45	20,519	103	48,212
EBT	**(0)**	(0)	**(32)**	**(14,683)**	**41**	**18,762**	**97**	**45,276**
Income tax	0	127	(7)	(3,197)	2	1,106	(9)	(4,340)
Net profit	**0**	127	**(39)**	**(17,880)**	**44**	**19,868**	**87**	**40,937**
Cashflow Statement								
Cashflow from Operating activities	(44)	(18,905)	88	40,541	74	33,888	(173)	(81,022)
Cashflow from Investment activities	2	692	2	890	(2)	(1,032)	(2)	(1,023)
Cashflow from Financing activities	48	20,546	(21)	(9,736)	(69)	(31,439)	325	152,574
Effect of FX change on cash	(0)	(41)	(0)	(32)	(0)	(69)	14	6,434
Net increase (decrease) in cash	5	2,292	69	31,662	3	1,348	164	76,963
Cash and cash eq. on Dec 31	**24**	10,507	**91**	42,169	**96**	43,517	**230**	120,479

QAJ Consolidated Financials	2021 (audited) *(1USD=431.67KZT)*		2022 (audited) *(1USD=462.65KZT)*		2023 (audited) *(1USD=454.56KZT)*		2024 (audited) *(1USD=523.54KZT)*	
Currency (in millions)	USD	KZT	USD	KZT	USD	KZT	USD	KZT
Balance Sheet								
Current assets	361	155,668	435	201,285	480	218,175	766	400,932
Non-current assets	1,906	822,811	2,039	943,158	2,363	1,074,036	2,843	1,488,428
Total Asset	**2,267**	978,479	**2,474**	1,144,443	**2,843**	1,292,211	**3,609**	1,889,359
Current liabilities	267	115,291	404	186,935	497	225,997	625	326,953
Non-current liabilities	2,108	910,056	2,210	1,022,256	2,408	1,094,788	2,961	1,550,044
Total liabilities	**2,375**	1,025,348	**2,614**	1,209,191	**2,906**	1,320,786	**3,585**	1,876,998
Total Equity	**(109)**	(46,868)	**(140)**	(64,748)	**(63)**	(28,575)	**24**	12,362

Annex 3: Paris Agreement Alignment and Climate Finance

AIIB has committed to align all its new financing operations with the Paris Agreement (PA)'s goals by July 1, 2023. To achieve that target, in July 2023, the Bank launched its Methodology for Assessing the Alignment of AIIB Investment Operations with the PA. The document elaborates on the application of the joint multilateral development bank (MDB) methodological framework to align AIIB investment operations with the PA (specifically, the mitigation dimension (BB1) and the adaptation aspects (BB2). The Methodology for Direct Lending will be followed in assessing the Project's alignment with the PA.

The Use of Proceeds of the Project comprises two components, the main one being the reconstruction and upgrading of an 87 km road section between Atyrau city and Dossor town in the Atyrau region of Kazakhstan from two to four lanes, as well as associated supervision, implementation support and institutional capacity-building activities. The second component can be classified as aligned both for adaptation and mitigation, given its neutral impact on climate mitigation and its immateriality from a climate resilience perspective.

The Project is AIIB's third investment in the road sector in Kazakhstan since 2024. The previous two projects, Reconstruction of M-32 Highway Aktobe-Karabutak-Ulgaisyn Section, and Transport Resilience and Connectivity Enhancement of the Jezkazgan-Karagandy section of the Trans-Caspian International Transport Route (Middle Corridor), were co-financed by the WB and the EBRD and were assessed as Paris-aligned, which will inform the analysis.

Financing for the capacity increase of a two-lane to a four-lane road cannot be considered Universally Aligned and will be subject to detailed assessment against the five Specific Criteria (SC1-SC5) to determine its alignment with the mitigation goals of the Paris Agreement (BB1).

Based on a physical climate risk assessment, the project is exposed to high physical climate risk and is likely to be materially affected by climate hazards. Thus, measures to improve the project's climate resilience will be further assessed to determine their alignment with the adaptation goals of the Paris Agreement (BB2).

Detailed assessments of the Project's compliance with SC1-SC5, as well as its climate risk exposure, vulnerability and resilience, are presented further in this section.

Paris Alignment Assessment

BB1: Alignment with the Mitigation Goals of the Paris Agreement

SC1 and SC2: Nationally Determined Contributions (NDC) and (Long-term Low-GHG Emissions Development Strategy) LTS Alignment: The project is consistent with Kazakhstan's NDC. The Republic of Kazakhstan is committed to an unconditional target of a 15% reduction and a conditional target of a 25% reduction in its net greenhouse gas emissions by 2030, as compared to 1990 levels, as stated in its updated NDC submitted in 2023. A review of the NDC indicates that the primary lever for road-based transportation CO_2 reductions is through the development of sustainable transport, infrastructure for electric and

gas vehicles and smart traffic management systems. No specific information was identified in the NDC related to the development of inter-urban road infrastructure.

Therefore, the project adheres to the SC1 and SC2 criteria.

SC3: Low-Carbon Pathways Test:

The Project is not inconsistent with LCPs. There is no official long-term strategy for transportation decarbonization in Kazakhstan, even though it has committed to carbon neutrality by 2060 and enshrined its net-zero target into law in 2023. In the absence of a national or regional Low-Carbon pathway for passenger and freight connectivity, the Bank assessed the project against benchmarks from the International Energy Agency Net Zero 2050 scenario. This scenario signals that vehicle fleet electrification is a key benchmark for transport decarbonization. Electric vehicles (EVs) are expected to be cost-competitive with combustion-engine vehicles within the decade and—aided by government policy to level the playing field—could dominate the car market from the 2030s. Motorization is expected to continue to rise into the 2040s due to increasing population and incomes, making electrification an important strategy for decarbonization. The Kazakhstan Country Climate and Development Report envisages that road transport decarbonizes in 2055, as passengers fully shift to EVs, following a gradual switch starting in 2030.

Within the boundaries of this project, project consistency with the LCP thus entails compatibility with EVs and other alternative-fuel vehicles, as well as the ability to accommodate the infrastructure required for charging future Low-Carbon vehicle fleets. The project is an 87 km road section, and there are no apparent national regulations in Kazakhstan regarding the provision of charging infrastructure on national corridors. Using the EU Alternative Fuels Infrastructure Regulation as a proxy, a charging station should be made available at least every 60 km on main highways. Two rest areas are foreseen, with the requirement to accommodate charging infrastructure. Moreover, to build experience in deploying EV charging infrastructure along major highway corridors, the Company committed to implementing a pilot EV charging infrastructure corridor in Kazakhstan by 2030. The pilot EV charging infrastructure corridor was one of the recommendations proposed in the National EV Charging Infrastructure Strategy, which the EBRD supported as part of the Kyzylorda-Zhezkazgan Road signed in 2021. This commitment is the result of AIIB's continuous policy engagement with road sector stakeholders in Kazakhstan. In addition, the Company has committed to deploying green tolling as a pilot over 500 km of the road network. This measure will apply differential toll rates that favor low-emission vehicles to incentivize EV adoption. Finally, a TC has been agreed with the Company for piloting high-performance, low-carbon pavements (also more climate-resilient) as a pioneering measure to start addressing road construction emissions. The TC will include updating the national technical standards to enable the use of innovative pavements in future projects.

Therefore, the project adheres to the SC3 criterion.

SC4a Alternatives Test. An existing more efficient transport infrastructure cannot serve current and forecasted passenger and/or freight demand, with a similar level of service (LOS). This part of the assessment considers whether the project demand can or cannot be served by an existing less carbon-intensive transport infrastructure with a similar LOS. If there

is no comparable alternative to the proposed investment, then the SC4a test is passed. The following steps should be followed:

Step 1: Identify what potential lower-carbon transport alternatives exist that provide access to the main origins and destinations (ODs) within the proposed road's influence area (RIA). The Atyrau–Dossor road is part of a strategic transport corridor connecting western and central Kazakhstan that provides access to oil service facilities. It will also enhance trade and connectivity through the Caspian seaport. Dossor is a station on the Atyrau–Kandyagash railway branch.

Step 2: Assess whether the alternatives identified in the previous step are comparable to the proposed project by comparing them to the project in terms of LOS. Road transport provides high flexibility through door-to-door delivery and less reliance on the schedule and limited working hours, while rail transport only services stations. The road will be used for passenger transport, as well as transporting construction material for further parts of the transport corridor. Up to six trains per day operate on the Atyrau-Dossor route. Travel time ranges from approximately 1 hour 20 minutes to about 2 hours 45 minutes, depending on stops and train type. Freight trains may use the same route as passenger trains, but often with different priorities (night runs, transfers through terminals, or dedicated sidings to industrial sites). Delivery time by road stretches is between one to two hours, which is shorter than by rail, especially for freight transport due to terminal handling.

Freight trains on this branch use the Atyrau–Kandyagash/Dossor line for industrial purposes, especially to transport oil, raw materials and industrial cargo, particularly related to oil production as Atyrau is a hub for the oil industry. Bulk or oversized cargo will be transported primarily by road, including material for road construction further West, due to a lack of construction material found near the Caspian Sea. The road will also promote the creation of small and medium-sized enterprises (SMEs) along the route, servicing villages along the way. It will be the first Category I road in the region, where there is a lack of high-category road network despite being a relatively developed region of Kazakhstan.

Step 3: Analyze and document whether the project demand can or cannot be served by the lower-carbon alternative(s) identified with a similar LOS.

The assessment concludes that the project demand cannot be served by the lower-carbon alternative identified with a similar LOS given its constraints in terms of variety of goods transported, and lower transport flexibility.

Therefore, the Project adheres to the SC4a criterion.

SC4b: Lock-in test. As a common carrier agnostic to types of motorized vehicles, roads are typically not subject to technological lock-in of a particular type of fleet. The Project can be considered future-proof, as it will accommodate the infrastructure required to enable the deployment of future lower-carbon fleets, once they become available.

Therefore, the Project adheres to the SC4b criterion.

SC5 Economic Evaluation.

The project is economically feasible when considering the carbon emissions at the construction and operational stages. It is estimated that the Project will generate 36,105 tCO_2 annually during the four-year construction phase and 1,479 tCO_2 annually during the 21-year operations phase. GHG emissions from traffic are estimated by calculating additional emissions by comparing the with- and without-project scenarios. Traffic emissions are estimated based on unit fuel consumption, and a 2,234 g CO_2 per liter of fuel emission factor is applied to arrive at annual total traffic emissions. The total additional CO_2 emission from traffic during the operations is about 54,166 tCO_2. AIIB's social carbon price is applied to monetize the impacts for the CBA. The baseline EIRR is 11.17%, with an ENPV of USD42.42 million. Both indicators suggest that the Project is economically viable (EIRR>9%, ENPV>0). Further details are in Annex 2: Economic and Financial Analysis.

Therefore, the project adheres to the SC5 criterion.

BB1 conclusion: aligned

BB2: Alignment with the Adaptation Goals of the Paris Agreement

The Atyrau–Dossor road is part of a strategic transport corridor connecting western and central Kazakhstan and providing access to oil service facilities. The section is exposed to significant climate stress—frequent floods, extreme temperatures and soil salinization. The region is characterized by low elevation, proximity to the Ural River, and a high risk of seasonal flooding. Climate change intensifies precipitation and flood events, leading to erosion and road surface damage.

Climate Risk and Vulnerability Assessment (CRVA)

A Climate Risk and Vulnerability Assessment was undertaken for the 87 km road section between the city of Atyrau and the town of Dossor in the Atyrau region of Kazakhstan. The assessment was conducted using AIIB's internal PhyCST tool, with the infrastructure type of Transport- Roads and geographical coordinates of Atyrau and Dossor as inputs, and building on analysis from Swiss Re CAT Net, WRI Aqueduct and WB's Climate Change Knowledge Portal. Out of 11 physical hazards, the Project was found to be exposed to high risks in five areas: extreme temperatures (heat waves), river floods, storm surges and coastal flooding, and landslides (Table A3).

Table A3: Climate Risk Level Assessment

	Climate Physical Hazard	Risk Level
1	Increased mean temperature	Medium
2	**Extreme temperature (Heat wave)**	**High**
3	Wildfire	Medium
4	Strong wind/Windstorms	Low
5	Water stress	Low
6	Sea level rise	High
7	Drought	Low
8	**River flood**	**High**

	Climate Physical Hazard	Risk Level
9	Pluvial flood	Medium
10	**Storm surge / Coastal flood**	**High**
11	**Landslide**	**High**

Subsequently, Swiss Re conducted a bespoke **Physical Climate Risk Screening Report** for the Project, with recommended measures to improve climate resilience by risk type. The report was presented and made available to the Client. A CRVA was also conducted by the Environmental Consultant to verify results and provide additional recommendations.

Fluvial flooding. Based on the location and infrastructure type, the Project is highly exposed to fluvial flooding, with continued high exposure until 2080. Road infrastructure is highly vulnerable to fluvial flooding, posing significant risks. The Ural River flows near the proposed project area (Atyrau) and is prone to flooding during spring snowmelt and heavy rainfall. Rising temperatures accelerate glacier melt in upstream regions and increase precipitation variability, leading to higher river discharge and overflow risks. In addition, the low-lying areas around Atyrau are naturally vulnerable to inundation. Road infrastructure is highly sensitive to fluvial flooding.

The cities of Atyrau and Dossor, along with nearby settlements, lack well-developed stormwater drainage systems. Intense rainfall events can overwhelm existing infrastructure, resulting in waterlogging. Furthermore, the prevalence of impervious surfaces, such as paved roads, reduces infiltration and accelerates the accumulation of surface runoff.

Recommended adaptive measures:

- Assess variations in local topography and potential water flows. Define high-risk areas. Elevate road sections in flood-prone areas.
- Construct culverts and bridges with adequate hydraulic capacity, and ensure their designs are sufficient for the predicted peak discharge at present and under climate change (at least a 100-year return period flood).
- Apply drainage, reinforcement and embankment protection in the project design.
- Develop and implement early warning systems and a flood emergency response plan (FERP), including flood evacuation routes.
- Periodically remove sand and debris accumulation from culverts and gutters.
- Prepare contingency traffic management plans for flood events in urban areas.

Heatwaves. The location is also highly exposed to heatwaves, with risk about to increase over time due to climate change, leading to high and very high exposure in 2050-2080 under SSP 2-4.5. Western Kazakhstan regularly experiences summer heatwaves, which are projected to become more frequent and intense under future climate change scenarios. This trend poses risks to infrastructure, human health and ecosystem resilience. The project site experiences extreme temperature fluctuations, with winter temperatures reaching below -20˚C and summer temperatures exceeding 40˚C. Road infrastructure has varying sensitivity to heatwaves; therefore, the future risk has been assessed as medium to high.

Recommended adaptive measures:

- Confirm that the material used to make the road can withstand exposure to extremely high and extremely low ambient temperatures and maintain integrity.
- Consider Thermal Expansion Joints and Reflective Geometry options.
- Create Reforestation and Vegetation Zones and plant trees along the road for natural cooling.
- An outline of the Emergency Preparedness and Response Plan will be prepared and implemented.
- Adjust construction schedules (work during cooler hours) during construction and O&M phases.
- Install shaded rest stops and cooling shelters for construction workers during construction and road users during the O&M phase.

Wildfires. The surrounding steppe and semi-desert vegetation is highly flammable during dry summer periods, causing wildfires. Rising temperatures and prolonged drought further increase the likelihood of grassland and shrubland fires, posing risks to both communities and infrastructure. Road infrastructure is moderately sensitive to wildfires; therefore, the future risk has been assessed as significant.

Recommended adaptive measures:

- Consider Thermal Expansion Joints and Reflective Geometry options.
- Implement fire-resistant landscaping, ensuring spacing in regular intervals (1-2 km) to slow down the spread of fire.
- Install water points and an early detection system for construction workers during construction and road users during the O&M phase.

Furthermore, although the risk from windstorms is low, dust storms may cover the road with sand, posing additional challenges for traffic safety and road maintenance.

The physical climate risks have been presented to the Client and were recognized. The recommended adaptive measures are integrated into the feasibility study, as indicated in the ESAP. Detailed climate resilience measures will be further considered at the appropriate stage given the Design-Build-Maintenance (DBM) contract model of the Project. The share of climate adaptation finance has been claimed accordingly.

Non-incompatibility with the NDC and other Adaptation Strategies.

The project is not incompatible with the NDC or any other national climate adaptation strategy.

BB2 Conclusion: aligned

Climate Finance Assessment

Climate Adaptation Finance (CAF): The Project's climate vulnerability has been assessed and measures to increase climate resilience in the Project design were discussed with the Client and included in the feasibility study. Following the 2025 *Guideline on Estimating Climate Adaptation Finance in AIIB Investments* and in line with the *joint MDB methodology for tracking climate adaptation finance,* 15% of AIIB's financing for the road infrastructure and 100% of the cost of culverts and bridges can be claimed as climate adaptation finance.

Climate Mitigation Finance (CMF): No mitigation finance has been claimed for this project based on the infrastructure type, following the joint MDB methodology for tracking mitigation finance.

Total Climate Finance (TCF): The total climate finance claimed for this project is equivalent to the adaptation finance amount.

Annex 4: Country Credit Fact Sheet

1. **Background**. Kazakhstan is an upper-middle-income economy with a population of 20 million and a per capita income of approximately USD14,800 (or USD44,500 in purchasing power parity). The economy remains reliant on hydrocarbons, which account for around 20% of GDP, half of exports, and one-third of government revenues. It ranks among the top 15 economies globally in proven oil reserves. State footprint in the economy remains significant, with state-owned enterprises playing a dominant role. Kazakhstan benefits from a strategic geographic location, positioning it as a potential key logistics hub along the increasingly vital Middle Corridor trade route connecting Asia and Europe.

2. During periods of high oil prices, Kazakhstan experienced strong economic growth and large fiscal surpluses, enabling it to build substantial asset buffers. Following the 2014 oil price crash, Kazakhstan has implemented a series of reforms aimed at strengthening macroeconomic frameworks and reducing dependence on oil, including the adoption of fiscal rules to support long-term sustainability and enable development investments. Monetary policy has also shifted toward inflation targeting, with improvements in policy transparency, operations and banking supervision.

Key Economic Indicators	2022	2023	2024*	2025*	2026*	2027*	2028*	2029*
Real GDP growth 1/	3.2	5.1	4.8	4.9	4.3	3.8	2.6	3.1
Inflation (CPI, end-of-period) 1/	20.4	9.7	8.6	10.1	10.0	8.5	6.5	5.0
Fiscal balance	0.1	-1.5	-1.6	-3.1	-3.4	-3.2	-2.7	-2.1
Public debt	23.5	23.0	24.8	25.4	27.9	29.9	31.8	33.5
Gross public financing needs	1.5	1.8	3.4	3.1	3.1	3.6	..	..
Current account balance	2.9	-3.6	-1.3	-3.6	-3.7	-3.5	-3.4	-3.2
External debt	71.2	61.3	58.4	57.6	56.4	..	..	..
FX reserves (USD billion) 2/	35.1	35.9	40.2	50.1	..	..	..	..
Exchange rate (KZT/USD) 2/	462.7	454.6	485.0	509.3	..	..	..	..

Source: WEO. April 2025. IMF Country Report. Jan 2025. In percent of GDP unless indicated otherwise; '*' = projections.
1/ percent change, year-on-year 2/ end-of-period, most recent data from central bank; as of May 26, 2025

3. **Recent Development**. Kazakhstan has demonstrated economic resilience amid a range of shocks in recent years. In 2024, the economy grew by 4.8%, while the oil sector declined slightly amid maintenance at key fields and production limits. The non-oil sector expanded by 5.5%, supported by government stimulus and diversification efforts. Strong gains were recorded in agriculture, construction, trade and transport/logistics, with the latter two sectors aided by activity along the Middle Corridor.

4. Inflation averaged 8.7% in 2024, down from 14.5% in 2023, largely due to a decline in food prices. However, renewed pressure from currency depreciation, rising food costs, higher utility tariffs, strong demand and fiscal expansion pushed inflation back to over 10% recently. In response, the central bank raised the policy rate by 125 basis points to 16.8% in March. It is expected to maintain a tight monetary policy to anchor inflation expectations and affirm its commitment to a 5% inflation target.

5. The banking sector remains strong, with stable capital and liquidity, record profitability, and a low non-performing loan ratio of around 3.2%. Despite tighter financing conditions, household loans nearly doubled during 2020-2024, while real incomes rose by 15%, raising concerns about financial vulnerability for low-income households.

6. To promote economic diversification, Kazakhstan launched the National Infrastructure Plan, committing KZT40 trillion (approximately USD80 billion, or 27% of GDP) through 2029 to key sectors including utilities, transport, water, and digital infrastructure. Kazakhstan is also undertaking major tax reforms; a new tax code is pending presidential approval. Key measures include raising the VAT rate to 16% and lowering the VAT registration threshold to broaden the tax base. These measures are expected to reduce reliance on oil revenues and help narrow the non-oil deficit. Sustaining long-term growth will require deeper progress on more complex and sensitive reforms, such as privatization and enhancing market competition.

7. **Outlook and Risks**. Looking ahead, GDP growth is projected to remain stable, at around 4.9% in 2025, supported by non-oil sector expansion and higher oil output from the Tengiz field. Over the medium term, GDP growth is expected to slow toward its long-term trend (which, absent accelerated structural reforms, is estimated at around 3.5%), as domestic demand and investment soften along with a reduction in government spending.

8. Risks to the outlook include delayed reform implementation, declines in oil prices, potential setbacks in the Tengiz field expansion, and lower growth in trading partners. Furthermore, rising global trade tensions and policy shifts add to the outlook's uncertainty. Mitigating these risks are low and sustainable debt, large fiscal buffers (sufficient to cover all public debt with a large margin), an adequately capitalized and profitable banking sector and a degree of political stability. Upside potential also includes higher oil prices and higher-than-expected foreign investment in new sectors.

9. While the deficit is likely to increase somewhat in the near term, it is projected to gradually decline from 2027 as tax reforms take effect, supporting the government's goal of reducing the non-oil deficit to 5% of GDP by 2030 and maintaining fiscal space. Foreign exchange reserves have exceeded USD50 billion this year, covering about eight months of imports. This excludes the National Fund's foreign exchange assets (about USD59 billion), which are part of the consolidated government budget.

10. Kazakhstan maintains its investment-grade status, with Fitch (BBB stable) and S&P (BBB- stable) affirming their ratings despite recent shocks. Moody's upgraded Kazakhstan from Baa2 to Baa1 in 2024, citing steady progress in economic diversification away from hydrocarbons and continued reforms.