



Almaty International Airport

Environmental and Social Impact Assessment
Report - Chapters 1 to 4

September 2025

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Mott MacDonald
10 Fleet Place
London EC4M 7RB
United Kingdom

T +44 (0)20 7651 0300
mottmac.com

Almaty International Airport

Environmental and Social Impact Assessment Report - Chapters 1 to 4

September 2025

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Acronyms and abbreviations

Abbreviation / Acronym	Definition
ALA	Almaty International Airport
AoI	Area of Influence
ATM	Air Traffic Movements
BHS	Baggage Handling System
CAPEX	Capital Expenditure
CAT	Convention against Torture
CAT-OP	Optional Protocol of the Convention against Torture
CCRP	Covenant on Civil and Political Rights
CED	Convention for the Protection of All Persons from Enforced Disappearance
CEDAW	Convention on the Elimination of All Forms of Discrimination against Women
CERD	Convention on the Elimination of All Forms of Racial Discrimination
CESCR	Covenant on Economic, Social and Cultural Rights
CRC-OP-AC	Optional Protocol to the Convention on the Rights of the Child on the Sale of children child prostitution and child pornography
CUP	Central Utility Plant
DEG	Deutsche Investitions – und Entwicklungsgesellschaft
EBRD	European Bank for Reconstruction and Development
EDB	Eurasian Development Bank
EDGE	Excellence in Design for Greater Efficiencies
EHS	Environmental, Health and Safety
EIA	Environmental Impact Assessment
EPC	Engineering, Procurement, and Construction
ESAP	Environmental and Social Action Plan
ESG	Environment, Social and Governance
ESIA	Environmental and Social Impact Assessment
ESMP	Environmental and Social Management Plan
ESMS	Environmental and Social Management System
HVAC	Heating, Ventilation, and air Conditioning
ICAO	International Civil Aviation Organization
IFC	International Finance Corporation
IFSA	International Flight Services Association
ILO	International Labour Organisation
ILS	Instrument Landing System
JIG	Joint Inspection Group
LAR	Land Acquisition and Resettlement
NGO	Non-governmental Organisation
NIP	Noise Insulation Programme
NTS	Non-technical Summary
PAA	Project Affected Area
PR	Performance Requirements

Abbreviation / Acronym	Definition
PS	Performance Standards
PSZ	Public Safety Zone
SEP	Stakeholder Engagement Plan
SPZ	Sanitary Protection Zone

1 Introduction

1.1 Background

- 1.1.1 Mott MacDonald Ltd, supported by EcoSocio Analysts LLC, has been appointed by Almaty International Airport (also referred to by its airport code, ALA), located in Almaty, Kazakhstan, to deliver the Environmental and Social Impact Assessment (ESIA) for Project Horizon (hereafter referred to as "the Project"), which includes upgrades to existing airport facilities and the construction of new facilities predominantly within land owned by the airport. This report presents the findings of that ESIA. This chapter provides an introduction to the ESIA and the organisations involved, as well as an outline of the structure of the ESIA documentation.
- 1.1.2 Almaty International Airport is located approximately 12km to the north-east of central Almaty; further details on the Project location are provided in Section 2.4. ALA is the busiest international airport in Kazakhstan in terms of both passenger numbers and aircraft movements. The airport currently consists of two runways and associated taxiways, the domestic terminal building (T1), the international terminal building (T2), a VIP building, a fuel farm, hangars and workshops, and auxiliary facilities.
- 1.1.3 The International Finance Corporation (IFC), the European Bank for Reconstruction and Development (EBRD), Deutsche Investitions - und Entwicklungsgesellschaft (DEG), and the Eurasian Development Bank (EDB) (collectively referred to as "the Lenders") are considering providing financing for the Project. Accordingly, all deliverables will be prepared in alignment with the sustainability performance standards and requirements set forth by the Lenders. ALA is looking to secure funding for its capital expenditure (CAPEX) for the period 2025-2029. The main elements of expenditure involve the following developments:
- Full depth reconstruction of main runway
 - New taxiway
 - New cargo apron
 - Full depth reconstruction of existing VIP apron
 - New de-icing pad
 - Rehabilitation of parking stands
 - New in-flight catering facility
 - Fuel farm storage expansion and improvements to existing fuel farm
 - Domestic terminal (T1) renovation
 - Drainage and wastewater treatment
 - New head office and training centre
 - Aerodrome and ground handling village
 - New landside and airside warehouses
 - Other improvements
- 1.1.4 Further detail on the Project components is provided in Chapter 2.
- 1.1.5 ALA recently completed the construction of a new international terminal (T2), which officially opened in June 2024. A previous ESIA¹ undertaken in 2022 (referred to as the '2022 ESIA') assessed this development which included the new international terminal, upgrading of the existing terminal to convert it into a domestic terminal and associated infrastructure such as

¹ Mott MacDonald (2022). Almaty Airport Expansion ESIA

highways alterations. The Lenders provided finance for the previous works at ALA and additional financing is being sought for this Project. There is potential that relevant ongoing Environmental and Social (E&S) commitments associated with the previous development may overlap with those required as a result of this ESIA which is assessing Project Horizon only.

1.2 Project parties

1.2.1 Several organisations and entities are involved in the planning and development of the Project, each with specific roles and responsibilities. Table 1.1 summarises the key roles in the Project development.

Table 1.1: Summary of key Project parties

Organisation / party	Role	Role details
TAV	Project Sponsor	TAV is an airport operations organisation based in Turkey, with the French group Groupe ADP being the largest shareholder (46%). TAV owns 85% of ALA. TAV has been supported by consultants working on the airport masterplan (NACO).
IFC	Prospective Project Lender	Provides funding for the Project
EBRD	Prospective Project Lender	Provides funding for the Project
DEG	Prospective Project Lender	Provides funding for the Project
EDB	Prospective Project Lender	Provides funding for the Project
SE Solutions	Lender's E&S Advisor	Assessed compliance towards the Lenders' E&S requirements with regards to the previous development at ALA (construction of the new international terminal).
WSP	Lender's Technical Advisor	Advises the Lenders on risks, feasibility, and alignment of the Project with international standards.
Mott MacDonald	ESIA Consultant	Prepares the ESIA for the Project and other associated documentation.
EcoSocio Analysts	Local Sub-consultant	Appointed by the ESIA Consultant to carry out the socio-economic surveys in-country.
Frekans	Noise Consultant	Prepares the noise modelling and reporting and operates noise monitoring stations with quarterly noise reports.
YDA and others not yet appointed	Engineering, procurement, and construction (EPC) Contractors	YDA has been appointed as the EPC contractor for the Project components 1 to 6 in Table 2.2. EPC Contractors have not been yet appointed for the other Project components.

1.3 Purpose of ESIA

1.3.1 ESIA is a process to identify, predict, and evaluate the potential environmental and social effects of a proposed project. It enables the development of mitigation measures and helps determine the level and nature of potential effects. An understanding of the environmental and social baseline is required, and this is assessed against the project design, construction works proposed and operation conditions. Using professional judgement and the methodology presented in Chapter 4, a conclusion can therefore be made regarding the level of likely impacts and effects that the project will have on the existing environmental and social baseline.

1.3.2 An ESIA is required for this Project due to its potential to generate adverse environmental and social impacts, and to ensure alignment with the Lenders' environmental and social standards.

1.4 ESIA report structure

1.4.1 This document forms the main ESIA report (Volume II). It presents the assessment findings in a structured format. Table 1.2 outlines the structure of the ESIA report.

Table 1.2: ESIA report structure

Volume	Chapter	Description
Volume I – Non-technical summary (NTS)	-	Provides a high-level overview for readers outlining the scope and nature of the Project. Includes a short but comprehensive summary of this ESIA report, with an emphasis on expected impacts and management measures. Used as a tool to aid consultation and information disclosure.
Volume II – Main ESIA report (this report)	1 Introduction (this chapter)	Presents a brief overview of the project, description of key stakeholders, and outline of contents of the report.
	2 Project description	Explains the relevant details of the Project, including its location, main elements, and activities for construction and operation.
	3 Policy, legal and institutional framework	Defines key national policy, legislation and international Lender guidelines applicable to the Project, as well as key national institutions.
	4 ESIA scope and methodology	Sets out the stages of the ESIA, key assumptions and methodologies for undertaking the ESIA.
	5 Air quality	Presentation of technical assessments undertaken. These include a summary of baseline conditions developed from quantitative and qualitative primary and secondary data sources and fieldwork and also environmental impacts and suggested mitigation measures. Direct and indirect impacts, temporary and permanent impacts of reversible or irreversible natures are identified, along with mitigation measures to be implemented in order to reduce a conclusion on the level of the resulting effects on the environment, both positive and negative. The significance of the residual (post-mitigation) effects is presented. Cumulative impacts are addressed in this ESIA, including those arising from different components of the Project and, where relevant, in combination with other developments.
	6 Biodiversity	
	7 Climate resilience	
	8 Community	
	9 Geology and soils	
	10 Greenhouse gases	
	11 Noise	
	12 Traffic and transport	
	13 Waste and resources	
	14 Water resources	
	15 Workers	
	16 Cumulative assessment	
	17 Environmental and social management framework	Outlines the overarching framework through which the project will manage environmental and social risks and impacts throughout its lifecycle. It serves as a bridge between the impact assessment and the implementation of mitigation and monitoring measures, and builds on the Project's existing ESMS and organisational capacity to manage environmental and social performance
	18 Information disclosure and consultation	This chapter outlines the information disclosure, consultation and participation activities that have been undertaken as part of the ESIA process in accordance with the Stakeholder Engagement Plan (SEP).
	19 Conclusion	The overall conclusions of the ESIA are presented.

1.4.2 In addition to this ESIA report, a number of related standalone documents have been prepared to support the assessment. These are listed in Table 1.3.

Table 1.3: Standalone documents supporting the Project ESIA

Related standalone documents	Description
Stakeholder Engagement Plan (SEP)	Guides stakeholder engagement (information disclosure and meaningful consultation) on the Project in line with national and international standards. Includes a grievance mechanism for stakeholders to use.
Environmental and Social Management Plan (ESMP)	The ESMP and its associated sub-plans (including Noise Management Plan) are live documents and will require regular review by ALA, as set out within them; hence they are subject to future modification if required. Further detailed management plans will be developed for the construction and operational phases by the respective contractor (led by the EPCs) in accordance with the policies, guidelines and legislation.
Compliance Assessment Report	Assesses the Project's alignment with the Lender's sustainability standards and clearly references where each requirement is addressed within the ESIA document.
Environmental and Social Action Plan (ESAP)	Defines the corrective and enhancement measures required to align the Project with the Lender's environmental and social standards (i.e. IFC Performance Standards (PSs), EBRD Environment and Social Requirements (ESRs)), including timelines, responsibilities, and monitoring requirements.

1.5 Contact details

1.5.1 Contact details for enquiries on this ESIA are detailed in Table 1.4.

Table 1.4: Contact details

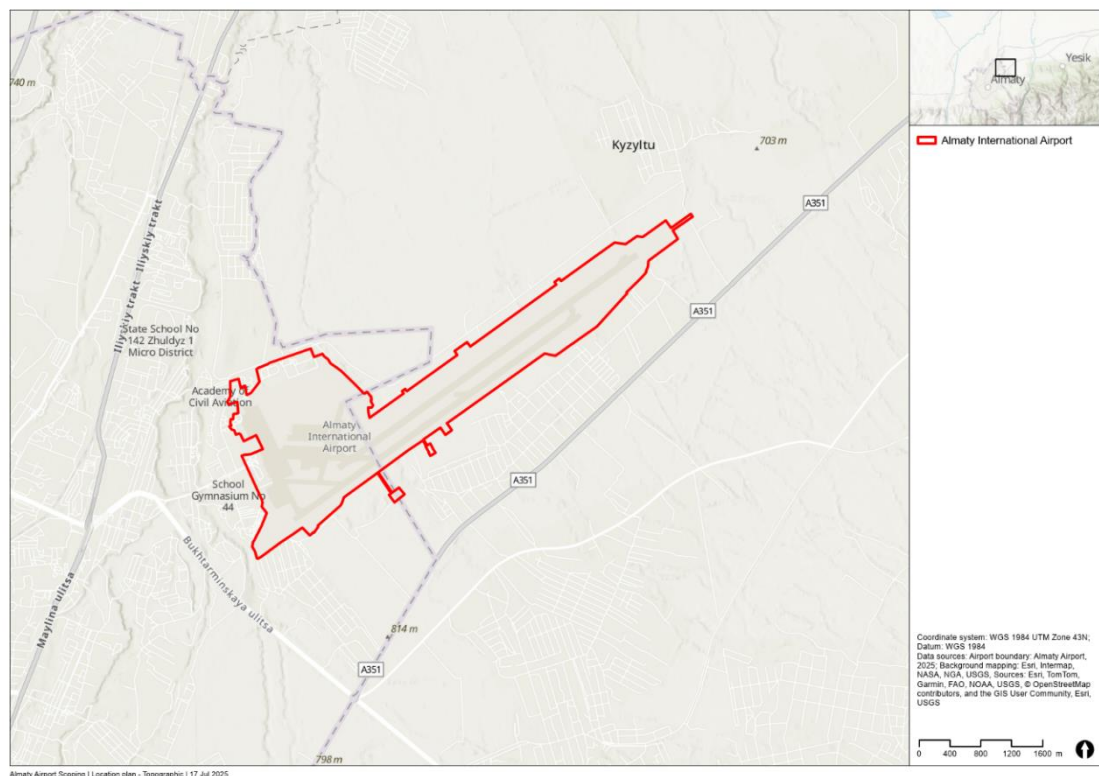
Project Sponsor	Information
Name of company	TAV Airports Holding
Address	Vadistanbul Bulvar, Ayazaga Mahallesi Cendere Caddesi No: 109L 2C Blok 34485 Sariyer/Istanbul, Turkey
Telephone	+90 212 463 30 00
Email	info@tav.aero
Website	http://www.tavhavalimanlari.com.tr/
Project Community Liaison Officer	Information
Name	Mariya Pozdnyakova
Address	1b Akhmetov Str., 2 Floor, Office 245
Telephone	+7 708 115 05 14
Email	Mariya.Pozdnyakova@tav.aero
Website	https://alairport.com/en-EN/

2 Project description

2.1 Overview

- 2.1.1 As described in Section 1.1, ALA is proposing several airport developments at Almaty International Airport. These developments comprise “the Project” and represent a sub-set of the broader Master Plan referenced in Section 2.3. While detailed design development for these developments is still underway, the current level of information is deemed sufficient to identify the key environmental and social aspects, support the impact assessment, and inform the development of appropriate mitigation measures for the construction and operational phases.
- 2.1.2 Figure 2.1 shows the location of the airport. The Project is located within the existing operational airport boundary, with limited exceptions, including the new head office and training centre and a small parcel as part of the new taxiway (see Table 2.2 for a summary of the Project components). The land for the new head office and training centre has been recently acquired by ALA. The small parcel that forms part of the new taxiway has not yet been acquired by ALA, however this plot of land will not be developed immediately, and is reserved in the local municipality plan for aircraft stand purposes in line with ALA’s future needs. No additional land acquisition is proposed.

Figure 2.1: Location plan



2.2 Need for the Project

- 2.2.1 As the largest international airport in Kazakhstan, ALA currently serves more than 35 airlines, including hub operations for national Kazakhstan carrier Air Astana. The airport’s total traffic has

experienced strong growth since 2005. Strategically positioned between Asia and Europe, ALA has also established itself as a cargo hub, facilitating efficient logistics across continents.

- 2.2.2 The need for the Project is driven by a steady and substantial increase in air traffic numbers in recent years, which have already exceeded the projections made in the 2022 ESIA. For instance, the passenger numbers forecast for 2032 (10 million passengers) have already been reached, indicating a higher rate of growth than originally anticipated. In 2024, ALA handled 11,426,650 passengers. This trend is placing growing pressure on existing infrastructure and services. Without the Project, future growth will be constrained due to limitations in key infrastructure, such as the aprons, runway, taxiway, fuel farm, and domestic terminal. The Project is therefore essential to ensure that capacity aligns with current and future demand, to maintain service quality, and support continued development in a sustainable and efficient manner.
- 2.2.3 Current aspirations from ALA are to expand the airport capacity, safety and operational efficiency in line with potential forecast increase in passenger numbers and cargo traffic. In 2025, ALA is projected to handle approximately 12.3 million passengers (5.5 million from international traffic and 6.8 million from domestic traffic) and 10,400 cargo Air Traffic Movements (ATMs).

2.3 History, timeline and future project

- 2.3.1 ALA recently completed the construction of a new international terminal (T2), which officially opened in June 2024. The 2022 ESIA assessed this development which included the new international terminal, upgrading of the existing terminal to convert it into a domestic terminal and associated infrastructure such as highways alterations. Subsequently, an ESAP was developed and progress against it monitored throughout 2022 to 2025, with findings recorded in a series of monitoring reports.
- 2.3.2 Since the official opening of the T2 in June 2024, renovation works have been initiated at the domestic terminal (T1), which is currently in poor condition despite handling approximately six million passengers annually.
- 2.3.3 A broader Master Plan has since been developed for ALA, which is designed to accommodate projected growth in demand between 2025 and 2050. The Project corresponds to Phase 1 of the five planned phases. The components covered by this assignment (see Table 2.2 for further details) are scheduled for completion by 2028 and represent the initial implementation stage of the long-term strategy. This first phase is intended to address immediate capacity needs while establishing the foundation for subsequent development. The phased approach allows for infrastructure expansion to be aligned with evolving demand forecasts and ensures flexibility in long-term planning.
- 2.3.4 An air traffic forecast was undertaken by the Traffic Advisor². The draft outputs show that ALA will see a steady and continuous growth in passenger numbers and air traffic movements (ATMs) (see Table 2.1)

Table 2.1: Air traffic forecast outputs (passenger numbers and ATMs) for the years 2025, 2030, 2040 and 2050

		2025	2030	2040	2050
Commercial passengers	Domestic	6,801,909	8,627,604	12,012,621	14,711,885
	International	5,536,386	7,421,150	10,285,738	13,154,834

² Mott MacDonald (2025). Project Horizon Traffic Advisor in relation to the new Investment plan of Almaty International Airport in Kazakhstan, Traffic Forecasts Outputs (Base, Low, Climate) - DRAFT (NON-RELIANCE BASIS), Version 6.0, 29 July 2025.

		2025	2030	2040	2050
	Total	12,338,295	16,048,754	22,298,359	27,866,719
Commercial ATMs	Domestic	43,478	55,708	77,121	93,912
	International	39,637	54,002	71,902	88,418
	Total	83,115	109,710	149,023	182,330
Cargo ATMs	Domestic	29	37	52	64
	International	6,083	7,848	10,957	13,460
	Total	6,112	7,885	11,009	13,524
General aviation and other ATMs	Domestic	3,130	4,010	5,551	6,760
	International	2,418	3,294	4,386	5,394
	Total	5,548	7,304	9,938	12,154

2.4 Project location

- 2.4.1 The Project is located within land owned by the airport and amongst already existing airport infrastructure.
- 2.4.2 The airport is located approximately 12km to the north-east of central Almaty, adjacent to the outskirts of the city. It is bordered by a mix of open land and built settlements. The airport is located north of the settlement of Guldala, and north-east of a number of surrounding districts, namely Tbilisskaya and Kolhozshy, which lie within the region of Almaty. The neighbourhoods of Almerék and Panfilovo are situated to the northeast of the airport. To the north of the airport, the landscape is primarily agricultural and to the northwest the land use is predominantly industrial and commercial. The Trans-Ili Alatau mountain range is located to the south of Almaty, a significant geographical feature that influences flight paths and operational planning due to its elevation and proximity.
- 2.4.3 The airport consists of two parallel runways (05L-23R and 05R-23L), apron area, and parking stands, along with various auxiliary facilities such as car parks, a wastewater treatment facility (with a capacity of 4,320m³/day), buildings, and storage areas. In addition, a fuel farm and associated railhead and above-ground pipework are located within the northern part of the airport. The location of existing infrastructure at the airport is shown in Figure 2.2.
- 2.4.4 The general topography of the land is flat, with a gradual slope towards the north. There are limited areas of soft landscaping located to the front of the terminal buildings. All other areas largely consist of hardstanding. There are no watercourses identified within the airport boundary; the Malaya Almatinka River is situated to the west of the site, approximately 50m from the operational boundary.

Figure 2.2: Existing infrastructure at the airport



2.5 Project components

2.5.1 A description of each Project component is provided in Table 2.2³. The location of the Project components can be found in Figure 2.3.

³ ALA, June 2025, Almaty International Airport New Investment Program (Project Horizon-Phase-1).

Figure 2.3: Project components

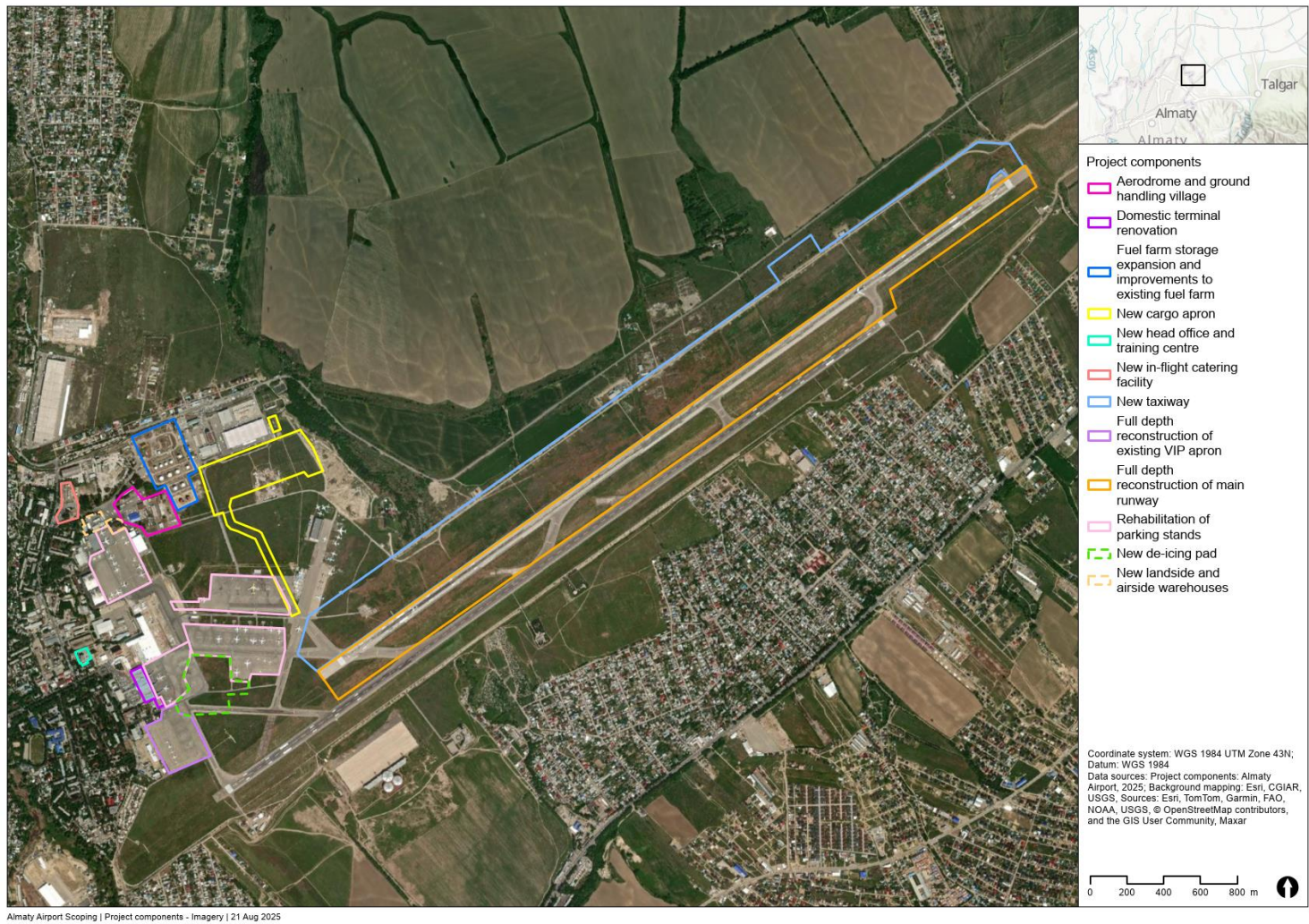


Table 2.2: Project components summary description

Nº	Project component	Indicative area (m ²)	Description
1	Full depth reconstruction of main runway	332,800m ²	The main runway of the airport (05L-23R) has deteriorated significantly over time, and it is currently used as a taxiway due to associated flight safety risks. As the base structure is compromised, complete demolition and re-construction of the runway is necessary, including associated visual aids, electrical infrastructure, and drainage infrastructure.
2	New taxiway	306,250m ²	Currently, the airport uses runway 05R-23L for departures and arrivals and runway 05L-23R is used as a parallel taxiway. Due to the heavy reconstruction required for runway 05L-23R, the runway must be closed during the reconstruction works and therefore a new parallel taxiway is required in advance of the runway reconstruction works. The new taxiway will also be necessary in the future for the effective operation of both runways. The new taxiway would connect existing taxiways and would include the installation of new visual aids, electrical systems, drainage, and service roads.
3	New cargo apron	160,780m ²	To accommodate the growing cargo volume and alleviate current operational bottlenecks, a new cargo apron is proposed to be constructed adjacent to the cargo warehouse. Currently, parking stand availability nearly meets demand, leaving little margin for emergencies or demand surges which may lead to flight diversions. Additionally, the aircraft parking areas are not located in proximity to the cargo facility, resulting in operational inefficiencies. By creating additional parking stands, the new cargo apron would streamline cargo operations as well as provide additional capacity during peak periods.
4	Full depth reconstruction of existing VIP apron	48,350m ²	The current condition of the VIP apron limits its usability due to its deformed pavement and low bearing capacity. A full reconstruction of the VIP apron is proposed to restore its structural integrity and ensure it meets the required standards for ongoing and future use.
5	New de-icing pad	78,250m ²	De-icing operations are currently conducted at regular stands without a designated area or appropriate wastewater collection and recycling measures. On average, de-icing is required at ALA for 120 days per year. The current de-icing operations have an impact on the pavement due to the chemicals used and may result in incidences of environmental pollution. To address these issues and provide a more operationally efficient location, a new centralised de-icing apron equipped with full support and environmental protection infrastructure is proposed to be constructed to the east of the domestic terminal building.
6	Rehabilitation of parking stands	102,020m ²	The airside standby areas, particularly the apron pavement, exhibit numerous deformations and defects and require maintenance regularly. To prevent future operational losses and enhance overall efficiency, the rehabilitation of the parking stands is proposed.
7	New in-flight catering facility	5,800m ²	The existing in-flight catering facility was constructed in 1998 as a 3,000m ² concrete structure and was later expanded by an additional 500m ² using container structures. It currently supports a production capacity that reaches 15,000 meals per day during the high season (summer months). However, its layout and outdated design have hindered operational flow and resulted in complicated efforts to meet international standards. To address these challenges and accommodate future growth, a new 5,800m ² facility is proposed to be constructed in the northwestern part of the airport boundary. This modern steel structure will be designed according to optimal operational flow while adhering to International Flight Services Association (IFSA) World Safety Guidelines and IFS Food Standards, ultimately increasing production capacity to 30,000 meals per day.
8	Fuel farm storage expansion and improvements to existing fuel farm	6,255m ²	Fuel operations currently encompass reception, storage, accounting, quality control, fuel dispensing, and aircraft refuelling. Fuel is delivered via a dual-sided railway unloading rack that processes eight tank cars using both top and bottom loading systems powered by pumps with a capacity of 275 m ³ /h. After an initial 40-micron filtration, the fuel is stored in vertical tanks with a combined capacity of 41,000m ³ (up to 30,500 tons): <ul style="list-style-type: none"> • 6 tanks of 5,000m³ • 1 tank of 3,000m³ • 4 tanks of 2,000m³

Nº	Project component	Indicative area (m²)	Description
			<p>The fuel is filtered before delivery through a three-stage FAUDI system (15, 5, and 1 micron). Quality control adheres to civil aviation standards, with an on-site laboratory issuing certificates for all fuels and special fluids.</p> <p>Currently, the fuel farm infrastructure is aging, with limited investment and upgrades over the years. In response to growing traffic and the construction of a new international terminal, an upgrade of the fuel infrastructure is planned to align with Joint Inspection Group (JIG) and local standards. Planned improvements include:</p> <ul style="list-style-type: none"> • Installation of two new JIG-compliant 5,000m³ tanks • Upgrade of two existing 5,000m³ tanks • Refurbishment of five additional tanks for intermediate storage • Replacement of the four oldest 2,000m³ tanks with two new 5,000m³ tanks • Expansion of the railway unloading rack so that at least 12 railcars can be unloaded simultaneously (12 points) • Modification and expansion of the pipeline network • Upgrade of pump stations for fuel reception and refueller loading • Construction of a centralised hydrant fuelling system for the new terminal, with future extension for the cargo aircraft parking area. • Modernisation of power, automation, fire protection, and staff facilities
9	Domestic terminal renovation	Mainly within existing domestic terminal, minor extension of 402m²	The domestic terminal (T1) is currently in poor condition for the operation of circa 6 million passengers and its renovation was initiated soon after the opening of the new international terminal (T2). Although part of the works are already completed, there are various additional architectural works proposed to improve passenger experience (such as the re-design of arrival hall, luggage claim area, check-in hall, departure hall, security area, commercial areas), as well as full replacement of baggage handling system (BHS) sorter and the heating, ventilation, and air conditioning (HVAC) systems. The renovation will be predominantly within the existing footprint of the domestic terminal building, with a small extension for the BHS (402m²) into the apron space.
10	Drainage and wastewater treatment	To be defined during ongoing design	The Project includes the design and construction of a comprehensive drainage and wastewater treatment system covering all landside areas. The system will ensure the efficient collection, conveyance, and treatment of stormwater and wastewater generated from airport facilities and operations. Key components will include stormwater drainage networks, collection basins, treatment units, and discharge structures.
11	New head office and training centre	Head office within existing building. 1,000m² for training centre.	The Project includes a new head office and training centre building. The new head office is an existing building on Mailin Street that was recently acquired. It is located approximately 150m northwest of the airport entrance. A training centre will be built as an extension of the new head office. The new building will provide a modern base for airport management and technical support and the consolidation of services in one building will improve the manageability of the airport, including emergency response, security measures, etc.
12	Aerodrome and ground handling village	9,300m²	Currently, all operations are managed from 60 to 70-year-old building facilities which are in poor condition and distributed across the airport perimeter. Furthermore, offices for airside personnel are not in good condition and lack resting areas and changing rooms. Parking areas are also limited and not in accordance with suitable standards. The lack of a ground handling and aerodrome operation area is increasing the risk of accidents and inefficiencies during airside operations. Equipment is currently spread out in several places across the apron, which increases flight safety risk and makes it difficult to track the location of equipment.

Nº	Project component	Indicative area (m²)	Description
			<p>The Project includes the design and construction of a ground handling and aerodrome operation area. This would be located in the area west of the fuel farm and would include the following:</p> <ul style="list-style-type: none"> • Carwash (approximately 400 m²) • Battery charging station (approximately 150 m²) • Administrative and utility building (approximately 3000 m²) • Hangar for ground handling equipment (approximately 3450 m²) • Workshop (approximately 1580 m²) • Canopy for ground handling equipment (approximately 720 m²)
13	New landside and airside warehouses	2,700m²	<p>Currently, the warehouses used for general maintenance and airport operations are scattered across various locations and in poor condition, lacking adequate space, efficiency and functionality. To address this, new centralised warehouse facilities will be constructed separately on the landside and airside. This will be located in the northwestern part of the airport. These buildings will be dedicated solely to internal airport operations and will not include cargo or commercial functions.</p>
14	Other improvements	N/A	<p>Other improvements are also planned to be undertaken as part of the Project and include:</p> <ul style="list-style-type: none"> • Centralising the systems for heating, power and water into the T2 Central Utility Plant (CUP) building. Currently there are two CUP buildings, one for T1 and one for T2. The T1 CUP will be retired and instead the T2 CUP will be upgraded to accommodate both terminals. • Repair works including airside pavement works at the cargo terminal and cargo service road, runway, aprons, taxiway, stand positions, maintenance areas, and landside pavement works at the T1 parking, T1 viaduct, staff parking, etc. • Enhancements in the security system, including renewal of existing cameras, replacement of outdated X-ray equipment, communication and positioning system, alcohol/drug examination tester, etc. • Improvements to passenger experience including refurbishment of pedestrian bridges, renewal of the Flight Information Display System, additional e-border units, toilet renovations, sitting areas improvements, new signage, T2 ceiling renovation • Utility diversions as necessary for the construction of the other Project components

2.6 Associated facilities

- 2.6.1 This ESIA confirms that no associated facilities, as defined by IFC⁴ and EBRD⁵, are planned in connection with the Project. The airport is currently operational, and the development of the Project components – intended to support projected traffic growth between 2025 and 2030 – does not require the construction or operation of any additional facilities that would be considered associated under IFC PSs.

2.7 Embedded mitigation

- 2.7.1 Embedded mitigation refers to environmental and social measures that are integrated into the design, planning, and operation of a project from the outset. These measures are proactively incorporated to avoid or minimise potential adverse impacts, rather than being added later as corrective actions. Examples include sustainable drainage systems, noise-reducing infrastructure, energy-efficient technologies, and biodiversity-friendly landscaping, all of which are considered part of a project's baseline design. These embedded controls are aligned with the World Bank Group's Environmental, Health and Safety (EHS) Guidelines for Airports and, where applicable, the EHS Guidelines for Fuel Storage Facilities, which outline performance levels and measures considered achievable through existing technology and good practice.
- 2.7.2 Table 2.3 outlines ALA's existing and planned embedded mitigation measures across key environmental aspects.

Table 2.3: Existing and planned embedded mitigation

Key topic	Embedded mitigation	World Bank Group EHS Guidelines
Air quality management	Existing: <ul style="list-style-type: none"> ● Air quality monitoring on a quarterly basis ● Following maximum permissible emissions (vehicle emissions management) ● Dust suppression during construction ● Industrial environmental control by specialized 3rd Party Planned: <ul style="list-style-type: none"> ● Dust control ● Vehicle emissions management ● Use of low-emission equipment 	Airports: Section 1.1 – Emissions from aircraft, GSE, and APUs. General: Section 1.1 – Air emissions and ambient air quality. Fuel Storage: Section 1.1 – VOC emissions from fuel handling and storage.
Noise and vibration control	Existing: <ul style="list-style-type: none"> ● Noise barriers ● Ambient noise monitoring ● Noise Insulation Programme for local residents Planned: <ul style="list-style-type: none"> ● Additional noise barriers (where applicable according to the noise impact assessment) ● Expansion of noise insulation scope ● Implementing aircraft noise abatement procedure 	Airports: Section 1.2 – Noise abatement procedures and land use planning. General: Section 1.7 – Noise management.

⁴ According to IFC Performance Standards on Environmental and Social Sustainability (2012), *associated facilities* are those that are not funded as part of the project but are essential for the project to function and would not have been constructed or expanded if the project did not exist.

⁵ According to EBRD Environmental and Social Policy (2024), *associated facilities* are those that that are not financed by the EBRD as part of the project but which, in the view of the EBRD, are significant in determining the success of the project or in producing agreed project outcomes. These are new facilities or activities: (i) without which the project would not be viable, and (ii) which would not be planned, constructed, expanded or carried out if the project did not exist.

Key topic	Embedded mitigation	World Bank Group EHS Guidelines
Water management	<p>Existing:</p> <ul style="list-style-type: none"> ● Excellence in Design for Greater Efficiencies⁶ (EDGE) certificate for the T2 building ● Water quality monitoring inside and outside of the airport grounds <p>Planned:</p> <ul style="list-style-type: none"> ● Upgraded drainage facilities and water treatment plant ● Upgrade of the CUP ● Constructing a new future-proof drainage network for the new parallel taxiway and new apron areas. ● Full depth reconstruction of the runway will include improved drainage to improve resilience. ● Renovation of water and heating pipelines will reduce water consumption by eliminating leakages 	<p>Airports: Section 1.3 – Stormwater and de-icing runoff management.</p> <p>General: Section 1.3 – Wastewater and water quality.</p> <p>Fuel Storage: Section 1.3 – Stormwater and spill containment.</p>
Waste management	<p>Existing:</p> <ul style="list-style-type: none"> ● Working with licensed third-party waste companies ● Annual waste inventories report issuance ● Certain waste types are reused and recycled ● Segregation of hazardous waste <p>Planned:</p> <ul style="list-style-type: none"> ● Hazardous waste storage locations assessment for international good practices ● In the maintenance and repair zone will be new construction, including oil discharge point 	<p>Airports: Section 1.5 – Solid and hazardous waste.</p> <p>General: Section 1.6 – Waste management hierarchy and best practices.</p>
Energy and climate	<p>Existing:</p> <ul style="list-style-type: none"> ● EDGE certificate for the T2 building (Focus Areas: Energy efficiency, water efficiency, and embodied energy in materials) ● Airport has joined the ACI Zero Carbon program and is working on planning of long term carbon reduction. GHG emission sources for Scope-1 identified, waiting for verification <p>Planned:</p> <ul style="list-style-type: none"> ● Upgrade of the CUP ● Integration of Environment, Social and Governance (ESG) criteria into project design, including implementation of energy-efficient technologies (e.g. LED lighting, high-efficiency HVAC, and low-emission ground support equipment) to reduce operational carbon footprint. ● Mitigation of fog-related disruptions through installation of ILS Category IIIB, allowing precision landings in low-visibility conditions. ● New fuel facilities will let the storage of Jet A-1, which will positively impact decarbonization. ● Operating protocols for dealing with heavy snowfall with increased usage of snow clearing fleet. ● Mandatory procedures for aircrafts to shut down their auxiliary power units (APUs) and use ground power units (GPUs) when parked at a terminal, to reduce carbon footprint of aircraft movements. 	<p>General: Section 1.1 – Energy conservation and GHG emissions.</p> <p>Airports: Encourages energy efficiency in terminal operations.</p>

⁶ The EDGE (Excellence in Design for Greater Efficiencies) certificate is a green building certification system developed by the International Finance Corporation (IFC), a member of the World Bank Group. It is designed to promote resource-efficient building design in emerging markets.

Key topic	Embedded mitigation	World Bank Group EHS Guidelines
Biodiversity and habitat protection	<p>Existing:</p> <ul style="list-style-type: none"> Analysis of the ornithological situation and aircraft collisions with birds/wild animals at the aerodrome Implementing the Program for the prevention of dangerous presence of birds and other animals at the airfield <p>Planned:</p> <ul style="list-style-type: none"> N/A 	<p>Airports: Section 1.6 – Wildlife hazard management and habitat conservation.</p> <p>General: Section 1.5 – Biodiversity conservation and sustainable management of living natural resources.</p>
Soil and groundwater protection	<p>Existing:</p> <ul style="list-style-type: none"> Soil and Groundwater quarterly monitoring New drainage network <p>Planned:</p> <ul style="list-style-type: none"> Spill prevention Continuation of quarterly monitoring Soil remediation as part of the Fuel Farm upgrade Finalise the implementation of the recommendations and mitigation measures arising from the fuel farm assessment Production of map of potential contamination associated with the airport. Action plan for soil and groundwater remediation 	<p>Fuel Storage: Sections 1.1 & 1.3 – Spill prevention, leak detection, and containment.</p> <p>Airports: Fuel handling and storage practices.</p> <p>General: Sections 1.5 & 1.8 – Hazardous materials and contaminated land.</p>
Environmental monitoring and reporting	<p>Existing:</p> <ul style="list-style-type: none"> Quarterly monitoring for soil, water and air with final report Ambient noise monitoring Annual Environmental and Social Report Air and noise monitoring as per local legislation <p>Planned:</p> <ul style="list-style-type: none"> Improve the quality and content of reports Environment and Social staff special training on ESG 	<p>General: Section 1.7 – Monitoring and reporting requirements.</p> <p>Airports: Recommends ongoing environmental performance tracking.</p>
Community engagement and awareness	<p>Existing:</p> <ul style="list-style-type: none"> ALA's Stakeholder Engagement Plan (SEP) is being implemented for the airport's operation. It includes regular and ongoing communication with the communities and local authorities. Channels for communication with ALA include website, hotline, ALA availability for offline meetings, regular meetings with akimats, meetings with NGOs, when necessary, etc. Main topics for discussions are Noise Insulation Program (NIP) community outreach, addressing grievances, discussions of Sanitary Protection Zone (SPZ), Land Acquisition and Resettlement (LAR), Public Safety Zone (PSZ) with the Government stakeholders. Stakeholder engagements' records are maintained. Engagement with authorities and the government on implementation of SPZ and PSZ Publicization of the NIP <p>Planned:</p> <ul style="list-style-type: none"> SEP for the previous construction period will be updated for the new project developments accordingly and include additional meetings and locations related to the NIP. Regular meetings with the communities and local authorities, using different channels for grievances and feedback, informing local communities about the project activities will be at place when require, in the form required. Stakeholder engagements' records are maintained. 	<p>General: Section 2.0 – Community engagement and disclosure.</p> <p>Airports: Emphasizes stakeholder involvement in noise and land use planning.</p>

2.8 Construction activities

- 2.8.1 The programme, activities and materials proposed as part of the construction phase of the Project are presented below. This information is liable to change slightly with the continuation of detailed design. However, such changes would be small in nature and are not considered to affect the Project materially.

Construction timeline

- 2.8.2 The programme of construction works is currently proposed as follows:

Table 2.4: Proposed construction programme

Activity	2025	2026	2027	2028
Rehabilitation of main runway				
New taxiway				
New cargo apron				
Rehabilitation of existing VIP apron				
New de-icing pad				
Rehabilitation of parking stands				
New in-flight catering facility				
Fuel farm storage expansion and improvement to existing infrastructure				
Domestic terminal renovation				
Drainage and wastewater treatment				
New head office and training centre				
Aerodrome and ground handling village				
New landside and airside warehouses				
Other improvements				

Construction methods

- 2.8.3 The EPC Contractors will adhere to industrial good practice as detailed within the appropriate method statements for the construction works. The outline method statements will be updated with any detailed design changes as the Project moves forward to construction.
- 2.8.4 Health and safety will be key, and measures will be outlined in the ESMP and safety plans that will be prepared for the works. The majority of the works will not take place in areas accessible to the public. Appropriate demarcation boundaries will be provided around the works to mitigate against public access to the site and protect their safety.

Construction hours

- 2.8.5 It is proposed that working hours will be from 08:00 to 17:00 Monday to Friday, with special consideration made to emergency or special activities whereby works would take place outside of those hours. These situations would be agreed with the relevant authorities in advance on a case-by-case basis. Night-time working may be utilised for transportation of the main structural items. This will be undertaken after 20:00 in order to minimise potential disruption to the local highway network.

Construction materials

- 2.8.6 The proposed materials for the Project are shown in Table 2.5, however may be subject to change as part of the detailed design. Materials are expected to be procured primarily from Kazakhstan.

Table 2.5: Construction materials

Category	Material description
Airport Pavement - Utility Diversion	Electrical Cables
Airport Pavement - Utility Diversion	HDPE and Steel Pipes
Airport Pavement - Stormwater Drainage	Precast concrete pipes
Airport Pavement - Stormwater Drainage	HDPE pipes and Gutters
Airport Pavement - Stormwater Drainage	Grated covers
Airport Pavement - Earthworks	Soil for filling
Airport Pavement - Subbase	Granular subbase
Airport Pavement - Subbase	Wet mix macadam
Airport Pavement - Subbase	Geotextile
Airport Pavement - Surface	Asphalt binder and wearing course
Airport Pavement - Surface	Pavement quality concrete
Airport Pavement - Marking	Thermoplastic paint
Airport Pavement - Safety	Runway lighting cables
Airport Pavement - Safety	Lighting armatures
Catering Facility - Structural	Ready-mix concrete
Catering Facility - Structural	Steel reinforcement
Catering Facility - Structural	Waterproofing sheets
Catering Facility - Architectural	Ceramic tiles
Catering Facility - Architectural	Aluminium windows and doors
Catering Facility - MEP	HVAC system
Catering Facility - MEP	Cold room panels
Fuel Farm - Civil	Reinforced concrete
Fuel Farm - Civil	Steel rebar
Fuel Farm - Civil	HDPE membrane
Fuel Farm - Mechanical	Carbon/stainless steel pipes
Fuel Farm - Mechanical	Fuel storage tanks
Fuel Farm - Mechanical	Valves and fittings
Fuel Farm - Mechanical	Fuel pumps and meters
Fuel Farm - Firefighting	Fire pumps & monitors
Fuel Farm - Firefighting	Fire detection system
Fuel Farm - Electrical	Transformers and cables
Fuel Farm - Electrical	SCADA/PLC system

Construction plant

- 2.8.7 Table 2.6 outlines the construction equipment that YDA anticipates will be required for the Project components 1 to 6 outlined in Table 2.2.
- 2.8.8 As the EPC Contractors for the other Project components have not yet been appointed, it is not known what construction plant may be required for those components. However, it is anticipated to be similar to the YDA plant requirements.

Table 2.6: YDA anticipated equipment

Equipment	Number
Mobile crane 25 tons	2
Loader	4

Equipment	Number
Greyder	3
Excavator	10
Dozer	3
Backhoe-loader	4
Water tanker	4
Truck	75
Compressor	2
Pick-up	12
Mobile lighting machine 22 KVA	3
Generator 50 KVA	3
Generator 400 KVA	1
Generator 1000 KVA	2
Asphalt plant 240 tn/hour	1
Concrete batching plant 160m ³ /hour	1
Concrete batching plant 180m ³ /hour	1
Mechanical ground mixing plant	1
Crushed stone plant	1
Concrete finisher	1
Asphalt finisher	4

Construction vehicles and routes

- 2.8.9 There are four entrances to the airport. The access to the Cargo Entrance is through Zakarpatskaya Street, and the access to the Northern and Southern Checkpoints are through Ahmetova Street. The construction vehicles are anticipated to utilise Ahmetova and Zakarpatskaya Streets as the primary access to the airport, avoiding residential streets where possible to minimise impacts on local communities. During construction there is no requirement for road closures and existing traffic is not anticipated to be affected. The transportation of large items such as steel beams will be undertaken in the evening in order to minimise potential disruption to highways.

Construction compounds

- 2.8.10 Construction compounds and material laydown areas are expected to be located within the airport boundary. 24-hour security will be in place during construction to ensure the construction fencing is maintained and access from the general public prohibited.
- 2.8.11 All construction works will be separated from airside activities with appropriate fencing, as per International Civil Aviation Organization (ICAO) Regulations.
- 2.8.12 To support the implementation of the Project, required construction compounds will be established across the site. These compounds will serve as centralised hubs for construction management, logistics, material storage, equipment maintenance, and worker welfare throughout the duration of the works. The construction compounds will be designed to accommodate the diverse scope of activities associated with the Project components.
- 2.8.13 A typical compound is expected to include modular site offices for project management and contractors, secure storage areas for construction materials and equipment, designated zones for machinery parking and maintenance, and welfare facilities for workers (including canteens, toilets, showers, and first aid stations). Dedicated areas will also be allocated for waste management, environmental monitoring, and emergency response.

- 2.8.14 As required, the compounds will host asphalt and concrete batching plants, which are essential for the rehabilitation of airside pavements and the construction of new infrastructure. These plants will be strategically located to minimise haul distances and will be operated in accordance with environmental and safety standards to control emissions, dust, and noise. Other specialised facilities may include crushing and screening units, rebar yards, and formwork storage areas.
- 2.8.15 At this stage, detailed design of the construction compounds is still under development. Final layouts, specifications, and operational procedures will be prepared by the appointed EPC Contractors. These will be documented in the Contractor's Environmental and Social Management Plan (C-ESMP) and will be subject to review and approval by the Project's Environment and Social team.
- 2.8.16 All construction compounds will be developed and operated in accordance with the EHS requirements stipulated under the EPC contract. This includes provisions for dust and noise control, spill prevention, stormwater management, and occupational health and safety, as mentioned in Table 2.3. The EPC Contractors will be responsible for ensuring that all compound activities comply with national regulations and international best practice.

Staff and welfare

- 2.8.17 YDA construction staff are anticipated to be accommodated within an accommodation camp approximately 10km from the airport. The camp will include offices, dormitories, kitchen, warehouse, mess hall and market. Construction workers will travel to site via shared minibuses or public transport. Welfare facilities will be provided on site. A site office will be provided for the duration of the construction works, along with a mess hall, toilets and changing rooms.
- 2.8.18 As the EPC Contractors for the other Project components have not yet been appointed, it is not known what staff and welfare arrangements they would have.

2.9 Operational activities

- 2.9.1 Following the completion of construction works, the airport will transition the newly developed and rehabilitated infrastructure into the operational phase, during which all Project components will be fully commissioned and brought into service. This phase will involve a broad range of airside and landside activities, with increased operational complexity and environmental and social considerations.

Airside operations

- 2.9.2 The rehabilitation of the main runway, construction of a new taxiway, and expansion of apron areas will support increased aircraft movements and accommodate a wider range of aircraft types. Airside operations will include:
- Aircraft marshalling, towing, and parking
 - Baggage and cargo loading/unloading
 - Passenger boarding and disembarkation
 - Aircraft cleaning and catering services
 - Aerodrome movement area inspection
 - Winter services (de/anti-icing of airside pavements)
 - Wildlife services
 - Fire-fighting protection
 - Emergency management

- Passenger and crew bus transportation
- Oxygen and nitrogen services

2.9.3 The new cargo apron and associated airside warehouses will facilitate expanded freight handling operations, requiring enhanced logistics coordination and security protocols.

Refuelling operations

2.9.4 The expanded fuel farm will support increased fuel storage and distribution capacity. Aircraft refuelling will be conducted in accordance with international aviation fuel handling standards, with strict adherence to:

- Spill prevention and containment measures
- Fire safety and emergency response protocols
- Vapour recovery and emissions control systems

2.9.5 All refuelling activities will be monitored under the airport's Environmental and Social Management System (ESMS).

De-icing operations

2.9.6 The newly constructed de-icing pad will enable safe and efficient aircraft de-icing during winter operations. Activities will involve the application of glycol-based fluids, with dedicated containment and drainage systems to prevent environmental contamination. De-icing operations will be governed by a seasonal operational plan, including:

- Fluid storage and handling procedures
- Waste fluid collection and treatment
- Weather monitoring and operational coordination

Terminal and passenger services

2.9.7 The renovated domestic terminal (T1) will accommodate increased passenger throughput and improved service delivery. Operational activities will include:

- Passenger check-in, security screening, and boarding
- Retail and concession operations
- Terminal cleaning, maintenance, and waste management

Support facilities and staffing

2.9.8 The new head office and training centre will centralise administrative functions and support ongoing staff development. The aerodrome and ground handling village will house operational teams, equipment storage, and maintenance workshops.

2.9.9 To support expanded operations, the airport will require:

- Additional operational and technical personnel, including ground handlers, maintenance staff, safety officers, and administrative support
- Enhanced maintenance regimes for pavements, lighting, signage, and mechanical systems
- Upgraded IT and communications infrastructure to support real-time coordination and monitoring

Environmental, health and safety management

- 2.9.10 All operational activities will be governed by the airport's ESMS, which will be updated to reflect the expanded scope of operations. Key areas of focus will include:
- Noise and air quality monitoring
 - Stormwater and wastewater management
 - Occupational health and safety compliance
 - Emergency preparedness and response planning
- 2.9.11 The operational phase will be subject to ongoing environmental and social monitoring, in line with national regulations and international best practice.

2.10 Decommissioning activities

- 2.10.1 Decommissioning and demolition activities are not included within the scope of this ESIA, as such actions are not reasonably foreseeable within the current planning horizon. Should these activities be proposed in the future, they would be subject to separate environmental and social assessments in accordance with applicable legislation and best practice. This should include the development of a decommissioning plan at least five years prior to closure.
- 2.10.2 The Project components are expected to have a lifespan of 20 to 40 years, depending on the component / equipment, assuming appropriate maintenance. As the expected time of decommissioning is far in the future, it is unknown what decommissioning procedures will be present then. However, it is assumed that decommissioning would take place using the good international industry practice at the time, with waste materials managed in line with the waste hierarchy to promote re-use and circular economy principles.
- 2.10.3 As part of the on-going maintenance of these buildings, components that comprise furnishings and mechanical engineering plant are likely to have shorter lifespans. The lifespans of such items will vary and also depend on the operational requirements of the airport which, if changed, may render some items obsolete. However, good maintenance will be employed to maximise the lifespan of all such items wherever possible. Where individual items need to be removed, the principles of the waste hierarchy should be followed so that items are re-used or recycled wherever possible.

3 Policy, legal and institutional framework

3.1 Overview

- 3.1.1 This chapter discusses the policy, legal and institutional framework within which the ESIA was conducted. National and international regulations, including prospective Lender requirements and standards, are discussed along with relevant international agreements and conventions to which Kazakhstan is a party.

3.2 International standards and guidelines

- 3.2.1 IFC, DEG, EBRD and EDB are considering financing the Project. The ESIA has been prepared in accordance with the standards of IFC and EBRD, which serve as the primary reference frameworks. These standards require a comparable level of environmental and social compliance, and are listed below alongside other relevant international requirements:

- IFC Performance Standards on Environmental and Social Sustainability (2012)
- IFC Environmental, Health, and Safety (EHS) Guidelines, including General (2007), Airports (2007), and Fuel Storage Facilities (2007)
- EBRD Environmental and Social Policy and Environment and Social Requirements (2024)
- EBRD Sub Sector Environmental and Social Guideline – Air Transportation (2014)
- EBRD Guidance Notes
- EU Council Directive 82/501/EEC on the major-accident hazards of certain industrial activities (1982)
- International Civil Aviation Organization (ICAO) occupational and public safety requirements for aerodromes
- ICAO Guidelines for States Concerning the Management of Communicable Disease Posing a Serious Public Health Risk
- International Labour Organization (ILO) Core Conventions on labour rights and occupational health and safety
- The Equator Principles (2020)
- European Commission Environmental Impact Assessment (EIA) Guidelines
- Good International Industry Practice, including ICAO and IATA standards

- 3.2.2 The IFC PSs and the EBRD ESRs are considered in more detail in the following sections.

Lenders environmental and social standards

- 3.2.3 The IFC PSs and EBRD ESRs are internationally recognised benchmarks for identifying and managing environmental and social risks. Both frameworks are widely adopted by financial institutions and project developers to guide responsible investment and sustainable project development. The IFC has established eight PS, while the EBRD applies ten ESR, each providing detailed guidance on assessing impacts and implementing measures to avoid, minimise, and manage socio-environmental risks throughout the project lifecycle.
- 3.2.4 Table 3.1 presents a brief description of IFC PSs and EBRD ESRs, and their relevance to the Project.

Table 3.1: Comparative overview of IFC PSs and EBRD ESRs, including scope and triggers for application

Topic	IFC PSs	EBRD ESRs	Scope	Trigger for Application	Potentially Applicable to the Project?
Environmental & Social Risk Management	PS1: Assessment and Management of Environmental and Social Risks and Impacts	ESR1: Assessment and management of environmental and social risks and impacts	Project-level ESMS, stakeholder engagement, impact assessment	All projects financed directly or through intermediaries	Yes
Labour and Working Conditions	PS2: Labor and Working Conditions	ESR2: Labor and Working Conditions	Worker rights, health and safety, grievance mechanisms	Employment of workers under project scope	Yes
Resource Efficiency & Pollution Prevention	PS3: Resource Efficiency and Pollution Prevention	ESR3: Resource Efficiency and Pollution Prevention and control	Emissions, energy use, waste, hazardous materials	Projects with potential pollution or resource use impacts	Yes
Community Health, Safety & Security	PS4: Community Health, Safety, and Security	ESR4: Health, safety and security	Risks to communities from project activities	Projects with physical or operational risks to nearby populations	Yes
Land Acquisition & Resettlement	PS5: Land Acquisition and Involuntary Resettlement	ESR5: Land acquisition, restrictions on land use and involuntary resettlement	Physical/economic displacement, compensation, livelihood restoration	Projects involving land acquisition or displacement	Not triggered for Project Horizon ¹
Biodiversity & Natural Resources	PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	ESR6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	Critical habitats, ecosystem services, invasive species	Projects in sensitive ecological areas or affecting biodiversity	Yes
Indigenous Peoples	PS7: Indigenous Peoples	ESR7: Indigenous Peoples	FPIC, cultural heritage, participation	Projects affecting Indigenous Peoples or their territories	No - No indigenous communities have been identified in the vicinity of the airport.
Cultural Heritage	PS8: Cultural Heritage	ESR8: Cultural Heritage	Archaeological, historical, spiritual sites	Projects in areas with known or potential cultural heritage	No - No construction or operational impacts on cultural heritage are likely. The implementation of a Chance Find procedure, in line with international standards, is deemed sufficient to address any

Topic	IFC PSs	EBRD ESRs	Scope	Trigger for Application	Potentially Applicable to the Project?
					remaining cultural heritage requirements.
Stakeholder Engagement & Information Disclosure	Embedded in PS1	ESR10: Stakeholder Engagement	Consultation, grievance mechanisms, transparency	All projects with potential E&S impacts	Yes

¹ Land acquisition and resettlement are not triggered under Project Horizon. The Project is located within the existing operational airport boundary, with limited exceptions, including the new head office and training centre and a small parcel as part of the new taxiway and no additional land acquisition is required for the development of Project Horizon. A Land Acquisition and Resettlement Framework (LARF) was prepared under the Original Deal, referring to current ALA operations, and remains applicable to the Project Horizon. Should any land acquisition be required in future, it will be addressed in accordance with the provisions of the LARF and aligned with IFC PS5 and EBRD PR5. The LARF will be re-disclosed as part of the ESIA documentation package.

3.3 Regional and international standards and guidelines

3.3.1 International legislation considered relevant for this ESIA is presented in Table 3.2.

Table 3.2: Relevant international legislation

Topic	Legislation
International Safeguards and Best Practices	International Labour Organisation (ILO) Convention No.81 On Labour Inspection in Industry and Commerce (1947)
	ILO Convention No.148, On the protection of workers from occupational risk of air pollution, noise and vibration in the workplace (1977)
	ILO Convention No.155, On Safety and Health at Work and the Environment (1981)
	ILO Convention No.162, On Safety in the Use of Asbestos (1986)
	ILO Convention No.167, Safety and Health in Construction (1988)
Kazakhstan ratified the following eight fundamental conventions of the International Labour Organization:	C029 - Forced Labour Convention, 1930 (No. 29) ratified on 18 May 2001
	C087 - Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87) ratified on 13 Dec 2000
	C098 - Right to Organise and Collective Bargaining Convention, 1949 (No. 98) ratified on 18 May 2001
	C100 - Equal Remuneration Convention, 1951 (No. 100) ratified on 18 May 2001
	C105 - Abolition of Forced Labour Convention, 1957 (No. 105) ratified on 18 May 2001
	C111 - Discrimination (Employment and Occupation) Convention, 1958 (No. 111) ratified on 06 Dec 1999
	C138 - Minimum Age Convention, 1973 (No. 138) ratified on 18 May 2001
	C182 - Worst Forms of Child Labour Convention, 1999 (No. 182) ratified on 26 Feb 2003
UN conventions ratified by Kazakhstan	CAT Convention against Torture and Other Cruel Inhuman or Degrading Treatment or Punishment ratified on 26 Aug 1998 (a)
	CAT-OP Optional Protocol of the Convention against Torture ratified on 22 Oct 2008
	CCPR International Covenant on Civil and Political Rights ratified on 24 Jan 2006
	CED Convention for the Protection of All Persons from Enforced Disappearance ratified on 27 Feb 2009 (a)
	CEDAW Convention on the Elimination of All Forms of Discrimination against Women ratified on 26 Aug 1998 (a)
	CERD International Convention on the Elimination of All Forms of Racial Discrimination ratified on 26 Aug 1998 (a)
	CESCR International Covenant on Economic, Social and Cultural Rights ratified on 24 Jan 2006
	CRC-OP-AC Optional Protocol to the Convention on the Rights of the Child on the involvement of children in armed conflict ratified on 10 Apr 2003

Topic	Legislation
	CRC-OP-SC Optional Protocol to the Convention on the Rights of the Child on the sale of children child prostitution and child pornography ratified on 24 Aug 2001
	CRPD Convention on the Rights of Persons with Disabilities ratified on 21 Apr 2015

3.4 National requirements

3.4.1 Relevant policies, laws and institutional arrangements have been reviewed as part of this ESIA to establish linkages to all phases of construction and operation. These policies, laws and institutional arrangements are described in Table 3.3.

Table 3.3: Relevant regulations and standards

Framework	Policy
Policy Framework	The Concept for Transition of the Republic of Kazakhstan towards Green Economy until 2050 (2013).
	Ratified European Council directives 85/337/EEC Environmental Impact; 92/43/EEC 1992 on the Conservation of Natural Habitats and of Wild Fauna and Flora; 79/409/EEC 1979 on the Conservation of Birds; 2004/35/EC 2004 on Environmental Liability. Ratified conventions on the Protection of Migrating Wildlife; on Biological Diversity; on Conservation of Migratory Species of Wild Animals and on Access to Environmental Information.
Legal Framework	The Constitution of the Republic of Kazakhstan (1995)
	Sanitary and epidemiological requirements for sanitary protection zones of production facilities (2015)
	Labour Code, 2015
	Civil Protection Code, 2014
	Fire Safety Rules, 2011
	General Fire Safety Requirements, 2009
	Industrial Safety of Hazardous Industrial Facilities Law, 2002
	Environmental Code, 2021 (includes the establishment and management of SPZ)
	Environmental Expertise conducting rules, 2017
	Standards of the State Services in Environmental Protection, 2015
	Public hearings conducting rules, 2017
	Instruction on conducting EIA, 2007
	Environmental information disclosure rules, 2007
	Sanitary epidemiological requirements to the non-residential buildings, 2015
	Law on sanitary epidemiological wellbeing of population, 2006
	Population health protection law, 2006
	Law on compulsory life insurance for personnel, 2005
	Rules for equipping buildings with automatic fire extinguishing system and alarms and evacuation management, 2016
	ICAO standards for safety, noise, fuel consumption and engine emissions
	Law on architectural, urban planning and construction activities (2001)
Institutional Framework	Ministry of Ecology, Geology and Natural Resources
	Civil Aviation Committee Inspectorate
	Flight Safety Inspectorate
	Sanitary Epidemiological Service
	Ministry of Energy (waste)
	Ministry of Transport and Communications
	Almaty City Council
	Consumer Rights Protection Committee

Framework	Policy
Public engagement	Rules on Public Hearing Conduction approved by Order of Minister of Environmental Protection of RK No.135-p of 07.05.2007 as amended on 08.09. 2017.
	Rules on Access to Environmental Information Relevant to Environmental Impact Assessment Procedure and Decision-Making Process on Proposed Economical and Other Activities, approved by Order of Minister of Environmental Protection of RK No.238-p of 25.07.2007 as amended on 21.06.2016.

4 ESIA scope and methodology

4.1 Overview

4.1.1 This chapter presents the ESIA scope and methodology that have been employed to form the basis of the assessments that are presented in this ESIA.

4.2 ESIA screening

4.2.1 ESIA screening has not taken place as it is considered that an ESIA is required for this Project due to its potential to generate adverse environmental and social impacts, and to ensure alignment with the Lenders' environmental and social standards. Therefore, the ESIA process commenced with the scoping stage.

4.3 ESIA scoping

Technical scope

4.3.1 The scope of the assessment required for the ESIA is well understood following the extensive environmental and social monitoring that has taken place since a previous ESIA was conducted for airport terminal expansion works and associated infrastructure development at the airport in 2022 (hereafter referred to as "the 2022 ESIA"). The Lender's E&S Advisor has also been in place since the 2022 ESIA, helping to increase understanding of E&S issues at the airport. Therefore, the Lenders have stated that a full Scoping Report is not required. Instead, a Scoping Review Summary Report was prepared, to review the proposed scope for the ESIA, provided by the Lenders within the Terms of Reference, and other relevant documents, and to consolidate the ESIA scope in the form of a brief report.

4.3.2 The confirmed scope of the ESIA is as follows:

Table 4.1: Agreed scope of the ESIA

Impact/Aspect	Construction	Operation	Justification for scoping out (if applicable)
Air quality	Scope in	Scope in	
Biodiversity	Scope in	Scope in	
Climate resilience	Scope out	Scope in	Scoped out of construction phase as climate impacts would occur over the longer-term scale.
Community	Scope in	Scope in	
Cultural heritage	Scope out	Scope out	The 2022 ESIA identified one historical asset, the VIP Terminal Building, which has been relocated as part of the previous development. The relocated VIP terminal building has lost its spatial axial alignment and relationship with Mailin Street, which was previously mitigated by a museum display within the international terminal. Cultural heritage is therefore scoped out of this ESIA on the basis that no construction or operational impacts on the relocated VIP terminal, the historic landscape, or buried archaeology are likely.
Geology and soils	Scope in	Scope out	Scoped out for the operational phase due to only minor risk of operational activities contamination which can be controlled through appropriate management plan implementation.
Greenhouse gases	Scope in	Scope in	

Impact/Aspect	Construction	Operation	Justification for scoping out (if applicable)
Landscape and visual	Scope out	Scope out	Scoped out on the basis that the proposed works are considered to be in-keeping within the context of an operational airport so as not to have the potential for significant effects.
Noise	Scope in	Scope in	
Traffic and transport	Scope in	Scope in	
Waste and resources	Scope in	Scope in	
Water resources	Scope in	Scope in	
Workers	Scope in	Scope in	

Assessment scope

4.3.3 In accordance with national and international requirements, the ESIA will consider the following:

- Environmental, social, labour, health, safety and security risks and impacts of the Project.
- Potential impacts and resulting effects that may arise for each key stage of the Project that can be reasonably assessed at this stage, including pre-construction, construction and operation.
- Potential third-party impacts including supply chain considerations.
- Identification of beneficial and adverse, direct and indirect as well as cumulative impacts and effects of the Project related to the bio-physical and the socio-economic environment.

4.3.4 Cumulative effects are considered, examining the combination of multiple impacts upon a receptor as a result of multiple effects resulting from the Project together with other nearby developments. As with the technical assessments, significant effects and appropriate mitigation are identified as part of the assessment of cumulative effects, building upon the effects identified in the technical chapters.

4.3.5 As discussed in Section 2.10, due to the length of the Project lifetime, the impacts of decommissioning at the end of Project life cannot be properly predicted at this stage because the baseline conditions are likely to have changed notably by this phase of the Project. This ESIA therefore does not assess the likely impacts that may arise from the decommissioning phase. A decommissioning plan must be developed five years prior to decommissioning, including a full impact assessment and mitigation plan.

4.3.6 Should any decommissioning or refurbishment occur, consultation will be undertaken prior to these activities to appropriately assess likely environmental and social impacts based on an adapted baseline, to understand if assessments, including ESIA, are required, and to ensure the works conform with necessary local requirements.

4.3.7 For individual items within the infrastructure that need to be replaced during the Project's lifetime (such as plant or furnishings), these should follow the Operational Waste Management Plan for the airport, prioritising re-use and recycling wherever possible.

4.3.8 This ESIA is based on the general assumption that baseline conditions are unlikely to change significantly between the commencement of construction and its completion.

4.4 Impact assessment process

4.4.1 The impact assessment methodology followed is in line with national and international requirements. The key steps are to: identify the study area and area(s) of influence; characterise the existing baseline; determine the impacts that may occur as a result of the construction and operation of the Project; identify how these impacts may affect the baseline conditions; evaluate the significance of likely effects; and identify mitigation and enhancement

measures to reduce any adverse effects and maximise any benefits resulting from the Project. The approach to these stages of the ESIA process is discussed below.

4.5 ESIA study area

- 4.5.1 The ESIA study area represents the geographic and contextual boundaries within which the Project's potential environmental and social impacts are assessed. This area is tailored to the nature, scale, and potential risks of the Project and it is used to collect baseline data, conduct field surveys, and understand the existing context.

Project Affected Area

- 4.5.2 The Project Affected Area (PAA) is defined as the area of land that will be used by the Project either permanently or temporarily. At this stage, no permanent land acquisition is anticipated, and no additional land take is currently proposed for temporary construction-related structures, subject to confirmation during detailed design.
- 4.5.3 One of the Project components, the new head office and training centre, is located outside the airport's operational boundary, but within an existing built plot already owned by Almaty International Airport. This land parcel currently hosts an office building, which will be refurbished, and a training centre will be constructed within the same plot. As the land is already under airport ownership and previously developed, no new land acquisition is required for this component.

Area of Influence

- 4.5.4 The Area of Influence (AoI) encompasses all land and water, that may be directly or indirectly impacted by the Project and therefore extends beyond the Airport boundary. This includes communities and areas adjacent to the PAA that may experience impacts during both the construction and operational phases of the Project such as noise, visual intrusion, traffic, or air quality impacts.
- 4.5.5 The AoI is defined on a topic-specific basis, with each environmental and social discipline determining its respective AoI according to the nature, extent, and significance of potential impacts. This approach ensures that all relevant receptors and impact pathways are appropriately considered in the assessment process.

4.6 Baseline conditions consideration

- 4.6.1 Baseline information has been collated from a range of sources including primary data collection, secondary data collection, publicly available information and through consultation.
- 4.6.2 Primary data was collected through two Mott MacDonald site visits (11 to 20 June 2025 and 7 to 11 July 2025) and socio-economic surveys undertaken by EcoSocio Analysts from 28 June 2025 to 25 July 2025.
- 4.6.3 In addition, baseline data was collected from desktop studies of available secondary data including websites, and articles and reports from local authorities, ministries, government organisations, civil society organisations, non-governmental organisations (NGOs), local media, and business groups. Relevant secondary sources used to support the assessment process are referenced in the relevant impact assessment sections

4.7 Assessment methodology

- 4.7.1 The ESIA will identify impacts and report on the likely significant environmental or social effects that result from these impacts. The criteria for determining significance are specific for each

environmental and social aspect and will be defined in the specialist chapters within the ESIA itself. For each impact the likely magnitude of the impact and the sensitivity of the receptor will be defined. Criteria for the definition of magnitude and sensitivity are summarised in the sections below.

4.7.2 The following types of effect are considered within this ESIA:

- **Direct effects** – effects which could arise from activities which form an integral part of the Project
- **Indirect effects** – effects which could arise from activities not explicitly forming part of the Project
- **Permanent effects** – effects which could result from an irreversible change to the baseline environment, or which persist for the near future, and occur during the construction or operational stages
- **Temporary effects** – effects which could persist for a limited period only and occur mainly during construction
- **Positive effects** – effects which could have a beneficial influence on receptors and resources
- **Negative effects** – effects which could have an adverse influence on receptors and resources

Magnitude criteria

4.7.3 The magnitude of a change or impact resulting from the Project is categorised as major, moderate, minor or negligible based on consideration of parameters such as:

- Scale of the impact – how intense or severe the extent of the impact is likely to be
- Duration of the impact – ranging from ‘beyond decommissioning’ to ‘temporary with no detectable impact’
- Spatial extent of the impact (for instance, within the site boundary, within district, regionally, nationally and internationally)
- Reversibility – ranging from ‘permanent requiring significant intervention to return to baseline’ to ‘no change’
- Likelihood – ranging from ‘occurring regularly under typical conditions’ to ‘unlikely to occur’

4.7.4 Table 4.2 presents criteria for determining the impact magnitude.

Table 4.2: Criteria for determining impact magnitude

Category	Description (adverse impacts)
Major	Fundamental change to the specific conditions assessed resulting in long term or permanent change, typically widespread in nature and requiring significant intervention to return to baseline; would violate national standards or Good International Industry Practice without mitigation for adverse impacts.
Moderate	Detectable change to the specific conditions assessed resulting in non-fundamental temporary or permanent change.
Minor	Detectable but minor change to the specific conditions assessed.
Negligible	No perceptible change to the specific conditions assessed.

Sensitivity criteria

4.7.5 Sensitivity is specific to each topic and the environmental resource or population affected, with criteria generally defined on the basis of baseline information. Criteria for determining sensitivity of receptors are outlined in Table 4.3.

Table 4.3: Criteria for determining the sensitivity of a receptor

Category	Description
High	Receptor (human, physical or biological) with little or no capacity to absorb proposed changes or minimal opportunities for mitigation.
Medium	Receptor with little capacity to absorb proposed changes or limited opportunities for mitigation.
Low	Receptor with some capacity to absorb proposed changes or moderate opportunities for mitigation.
Negligible	Receptor with good capacity to absorb proposed changes or and good opportunities for mitigation.

Attribution of significance of impacts

- 4.7.6 Potential impacts are attributed significance taking into account the interaction between the magnitude of an impact and the sensitivity of a receptor, as presented in the matrix shown in Table 4.4.

Table 4.4: Significance attribution matrix

		Magnitude						
		Adverse			Neutral	Beneficial		
		Major	Moderate	Minor	Negligible	Minor	Moderate	Major
Sensitivity	High	Major	Major	Moderate	Negligible	Moderate	Major	Major
	Medium	Major	Moderate	Minor	Negligible	Minor	Moderate	Major
	Low	Moderate	Minor	Negligible	Negligible	Negligible	Minor	Moderate
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

- 4.7.7 The objective of the ESIA is to identify the likely significant effects of the Project. Effects that have been evaluated as being 'Moderate' or 'Major' are considered to be significant effects. Consequently, effects that are 'Minor' or 'Negligible' are not significant.
- 4.7.8 Effects considered of moderate or major significance will receive the most focus and resources for managing. However, there will be prevention and control measures recommended for most environmental and social aspects.

Cumulative assessment

- 4.7.9 The assessment of cumulative effects considers the potential for the Project to contribute to combined effects on environmental and social receptors, either through interactions among its own components (intra-project cumulative effects) or in combination with other existing or planned developments in the area (inter-project cumulative effects). Given the limited availability of information on co-located or planned developments, the assessment will primarily focus on intra-project cumulative effects.
- 4.7.10 Each relevant ESIA topic will assess cumulative effects within its defined AoI, considering receptors that may be affected by multiple Project-related effects, e.g. noise, air quality, traffic, and community well-being. These components are particularly relevant within the framework of Kazakhstan's Sanitary Protection Zone (SPZ) regulations, which require the evaluation and management of such effects on surrounding land uses and sensitive receptors.
- 4.7.11 The assessment will follow the principles outlined in the IFC Good Practice Handbook on Cumulative Impact Assessment and Management, adapted to the scope and scale of this ESIA. Updated airport traffic forecasts through 2050 will be used to provide a forward-looking outlook for key impact areas, supporting the identification of long-term cumulative effects and informing appropriate mitigation planning.

4.8 Mitigation and enhancement measures

4.8.1 Where feasible the following hierarchy of mitigation measures will be applied:

- Avoid and reduce impacts and effects through design (embedded mitigation)
- Minimise impacts and effects at source or at receptor
- Repair, restore or reinstate to address temporary construction effects
- Compensate for loss or damage or residual impact

4.8.2 In addition to the above, community engagement and disclosure activities will play a key role in managing the extent of effects and consideration has also been given to the identification of enhancement measures. Enhancement measures are actions and processes that:

- Create new positive impacts and effects, or benefits
- Increase the reach or amount of positive impacts and effects, or benefits
- Distribute positive impacts and effects, or benefits, more equitably

4.8.3 Each topic chapter will identify relevant mitigation and enhancement measures. All the mitigation, management and monitoring measures to address likely effects will be reported in the ESMP

4.9 Residual effects

4.9.1 Residual effects are those that remain after the application of mitigation and enhancement measures. Impacts considered 'Major' or 'Moderate' after application of mitigation and enhancement measures, are presented as significant residual effects.

4.10 Uncertainty

4.10.1 Any uncertainties associated with impact prediction or the sensitivity of receptors due to the absence of data or other limitations will be explicitly stated. Where applicable, the ESIA will make recommendations concerning measures that should be put in place with monitoring or environmental or social management plans to deal with the uncertainty so that they may be addressed. Where a worst-case scenario is used, this will be clearly stated in the ESIA.

