



New Tashkent International Airport - Uzbekistan

Operational Noise Management Framework

Vision Invest

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Basis of Report

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Acronyms and Abbreviations

AEDT	Aviation Environmental Design Tool
AIP	Aeronautical Information Publication
ATC	Air Traffic Control
ATM	Air Traffic Movement
CAA	Civil Aviation Authority
CDA	Continuous Descent Approach
DFC	Development Finance Corporation
EBRD	European Bank for Reconstruction and Development
ECAC	European Civil Aviation Conference
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMS	Environmental and Social Management System
ICAO	International Civil Aviation Organisation
IESM	International Environmental and Social Monitor
IFC	International Finance Corporation
ISO	International Organisation for Standardisation
JBIC	Japanese Bank for International Co-operation
KEXIM	Korean Export Import Bank of Korea
NAO	Noise Abatement Objective
NEXI	Nippon Export and Investment Insurance
NMF	Noise Management Framework
NMP	Noise Management Plan
NPR	Noise Preferential Route
PPPA	Public & Private Partner Agreement
SPV	Special Purpose Vehicle
SPZ	Sanitary Protection Zone
TAA	Tashkent Airport Alliance
VI	Vision Invest
WHO	World Health Organisation

1.0 Introduction

1.1 Project Background

The proposed new Tashkent International Airport ('the Project') will be developed jointly by Vision Invest (also referred to as 'the Client'), Sojitz Corporation, Incheon International Airport Corporation, and Korea Overseas Infrastructure & Urban Development Corporation (together "the Sponsors"), appointed by the Ministry of Transport (MoT). The Public Partner is Uzbekistan Airports(UA) of the Republic of Uzbekistan. .

The Public Partner has entered into a 'Development Agreement' with Vision International Investment Company, the parent company of the Client, to develop the Project. The Concession Agreement for the Project has been finalised and construction is scheduled to start in 2026, with a projected completion time of 48 months from Notice to Proceed. Commercial operations are anticipated to commence in 2030.

This new greenfield airport is part of the strategic infrastructure developments that contribute to the rapid transition Uzbekistan is undergoing as it is opening to the world as a regional connection and leading destination in Central Asia. The new Tashkent International Airport will be developed, operated, and managed by a Special Purpose Vehicle (SPV), the Tashkent Airport Alliance (TAA).

This Operational Noise Management Framework (NMF) has been prepared in accordance with the commitments made in the Project's Environmental and Social Impact Assessment (ESIA) prepared by 5 Capitals, part of SLR and reflects the requirements of applicable national legislation, international lender standards, including the IFC Performance Standards, EBRD Environmental and Social Requirements, relevant World Bank Group Environmental, Health and Safety (EHS) Guidelines, and the principles of the International Civil Aviation Organization (ICAO) Balanced Approach to Aircraft Noise Management.

The NMF will provide the guiding principles for noise management and is intended to support continual improvement in noise management over the life of the airport through adaptive management and regular noise monitoring and performance reviews.

The NMF will be maintained by the SPV Chief Operating Officer and formally adopted by all three operating entities: Uzbekistan Airports (Public Partner), UzAeroNav, and the SPV. It is a living document, reviewed annually, and underpins the Airport's Environmental and Social Action Plan (ESAP) obligations to the Project financial lenders including International Finance Corporation (IFC), European Bank for Reconstruction and Development (EBRD) and U.S. International Development Finance Corporation (DFC), together with Japanese Banks JBIC and NEXI and the Korean KEXIM Bank.

The inclusion of an action, commitment, measure or requirement within this NMF does not, in itself, assign legal, contractual, financial or operational responsibility for its implementation to any particular party. The actions identified in the NMF are to be considered a framework of measures to be implemented jointly by the Public and Private Partners, subject to the respective roles, obligations and rights of the parties under the Public-Private Partnership Agreement (PPPA) relating to the operation of the new Tashkent International Airport. The detailed allocation of responsibilities, implementation arrangements, resources, and associated costs for individual measures will be agreed by the relevant parties during the preparation and approval of the applicable Noise Management Plan(s) and associated implementation arrangements.

All actions and measures under the NMF shall be implemented in accordance with, and remain subject to, the provisions of the PPPA and applicable law. Nothing in the NMF is intended to amend, supersede, or create additional contractual obligations beyond those established

under the PPPA. In the event of any inconsistency between the NMF and the PPPA, the provisions of the PPPA shall prevail.

A Noise Management Plan will be drafted by end of 2027 and updated to final 12 months prior to the opening date. Detailed mitigation, management and monitoring measures to be undertaken by the document controller, including plans and progress on insulation of residential properties. The final plan will be issued after noise modelling has been refined with specific flight tracks for take-off and landing and further feedback from stakeholders including consultation with lenders.

1.2 Purpose and Objectives

Lead Entity: Joint — SPV (Document Control) | All three entities are bound by this Framework which will either be through a Lenders' Direct Agreement (LDA) or the Public & Private Partner Agreement (PPPA).

This NMF sets out the commitments, standards, governance arrangements and operational responsibilities for managing aircraft noise associated with the new Tashkent International Airport. Developed in accordance with the Project ESIA and Environmental and Social Action Plan (ESAP), it provides the framework for implementing, monitoring and continually improving the operational noise mitigation strategy throughout the airport lifecycle through adaptive management.

Although the MNF formally applies from the commencement of airport operations in 2030, it becomes effective from 2026 to support implementation of ESIA and ESAP commitments during the design and pre-operational phases, including refinement of flight paths routes, operational noise modelling, development of operational noise controls, land-use planning, and preparation of the Building Acoustic Insulation Programme where required.

This document is intended for public disclosure by the SPV and DFI's as part of the "ESIA package" and to document the commitment by the SPV (document controller) and Uzbekistan Airports and UzAeroNav in minimising noise impacts in line with national standards and lender guidelines whilst adopting the ICAO balanced approach. It will formally apply from the start of commercial operations through to steady-state and covers all runways, flight paths, terminal, and landside areas within the Airport boundary. It will be expanded upon in the Noise Management Plan which will be developed later by the SPV or its appointed environmental consultant.

1.2.1 Objectives

The key objectives of this framework document are as follows:

- To provide a link between the noise mitigation, management and monitoring measures in the publicly disclosed ESIA and ESAP that are clear commitments by the public and private partners to limit noise disturbance in line with national standards and lender guidelines;
- To apply the applicable standards relating to noise including the latest regulatory Sanitary Protection Zone (SPZ) requirements and seek future alignment with Tashkent Regional Planning Policy and Masterplan for residential and commercial development outside the airport boundary;
- To provide a basis for co-operation and co-ordinated actions between the three responsible parties and external parties including Tashkent Regional Khokiyimat and the Sanitary Protection Authority and other government stakeholders at national, regional and district level;
- To identify and evaluate potential noise management measures that will be detailed in a subsequent Noise Management Plan, including airport management and operating procedures, aircraft fleet mix and operations day and night to limit noise disturbance;
- To implement a programme of targeted noise insulation of residential properties in line with WHO guidelines following the next phase of noise modelling which will incorporate Project -specific flight paths, airport operating procedures and controls to reduce noise disturbance from the opening year;
- To outline a strategy for a noise monitoring programme to benchmark compliance with standards and evaluate effectiveness of control measures;

- To integrate the process for monitoring, management and reporting of noise levels, complaints or incidents within the SPV Environmental & Social Management System (ESMS);
- To develop a process to evaluate the effectiveness of operational noise management controls and monitoring procedures, to facilitate continual improvement in noise reduction across airport operations.

2.0 Three-Party Operating Structure¹

The Airport operates under a three-party structure. Noise management responsibilities are divided according to each entity's operational domain. All three entities are jointly signatories to this NMF and individually accountable for the obligations assigned to them as outlined in the following table. The legal status pertaining to the roles, responsibilities and accountability set out in Table 2-1 will be aligned with the PPPA.

Table 2-1 Institutional Roles and Responsibilities

Entity	Head	Operational Domain and NMF Role
Uzbekistan Airports (Public Partner)	Airport Director	Owns and operates airside infrastructure: runways, taxiways, aprons, and airside ground operations. Responsible for airline commercial agreements and fleet movement data.
UzAeroNav	Director General	Provides air navigation services including all ATC. Responsible for issuing CDA clearances, enforcing NPR instructions, night curfew ATC compliance, RNAV procedure design and AIP publication, and providing radar track data to the noise monitoring system.
SPV	Chief Operations Officer	Owns and operates the terminal and all landside areas. Document Control of this NMF. Responsible for airline commercial agreements, fleet incentive scheme, ESAP co-ordination, lender reporting, community engagement, SPZ land-use notifications, and overall noise governance.

Where responsibilities overlap, for example at the interface between airside ground operations and terminal operations, or between Air Traffic Control (ATC) procedures and runway allocation, the SPV Chief Executive Officer (CEO) and Uzbekistan Airports Airport Director are jointly responsible for resolving conflicts and escalating to lenders where required.

2.1 Technical Co-ordination

The respective organisations will each designate a technical lead, at director level, with support from acoustics specialists, responsible for operational noise matters and technical advisory within the group. The standing group or sub-committee (i.e. Noise and Track Monitoring Advisory Group) will manage and mitigate community noise impacts.

The three-party group will also liaise with external organisations such as the Tashkent Regional Kokimiyat and SPZ Authority on an agreed frequency.

¹ All three entities are bound by this Framework which will either be through a Lenders' Direct Agreement (LDA) or the Public & Private Partner Agreement (PPPA).

3.0 Noise Policy Statement

Lead Entity: SPV — Chief Operating Officer | Document control; ESAP lead; lender interface

The Airport is committed to managing aircraft noise in a way that protects the health and amenity of communities in the vicinity, meets all applicable national and international standards, and supports the sustainable long-term growth of the Airport.

All three entities — Uzbekistan Airports, UzAeroNav, and the SPV — adopt this policy and commit to implementing their respective obligations under it. The SPV COO holds overall accountability to lenders for policy compliance through the following:

- Application of the ICAO Balanced Approach (Doc 9829)² — prioritising noise reduction at source, operational procedures, and land-use planning before imposing operating restrictions.³
- Noise level of 55 dB Lnight for residential properties to be the trigger for entry to the noise insulation programme.
- Implementation of lender ESAP requirements in association with airport operational and safety procedures.
- Engagement with local communities transparently through a standing Community Noise Forum.

The process through which details of the noise management measures will be determined prior to opening of the airport, and beyond, will follow the ICAO Balanced Approach guidance. The Balanced Approach prescribes a process of developing noise abatement measures that has been used successfully on airports all around the world. The commitment to use the Balanced Approach for the new airport will ensure international good practice is followed and all available noise abatement measures are properly assessed and prioritised. A long list of possible noise abatement measures will be developed, considering all options across the four pillars of the Balanced Approach. The long list of possible noise abatement measures will then be appraised in terms of the cost/effectiveness of each to establish the optimal combination of measures to minimise noise impacts consistent with international good practice adopted at similar airports.

² The **ICAO Balanced Approach (Doc 9829)** is a globally recognized framework designed to manage and mitigate aircraft noise at individual airports. Adopted by the International Civil Aviation Organization (ICAO), it requires airports to address noise issues in an environmentally responsive and cost-effective manner, utilizing a specific four-pillar methodology:

- **Reduction of Noise at Source:** Implementing technology standards during aircraft manufacturing to lower noise generation.
- **Land-use Planning and Management:** Directing incompatible land use away from airports and encouraging compatible usage in surrounding zones.
- **Noise Abatement Operational Procedures:** Designing flight paths and procedures that minimize the noise perceived on the ground.
- **Operating Restrictions:** Enacting curfews or limiting airport access, strictly applied as a **last resort** only after assessing the other three measures.

³ Measures restricting aircraft access or airport capacity should not be predetermined and will only be considered if practical non-operational mitigation has been demonstrated to be insufficient.

4.0 Regulatory and Standards Context

Lead Entity: Joint — SPV leads compliance reporting | All entities responsible for obligations within their domain

The Noise Management Framework has been developed in accordance with applicable international aviation standards, national regulatory requirements and international lender obligations governing aircraft noise management and long-term environmental performance.

National standards are referenced in the ESIA because:

- They form the basis of regulatory compliance in Uzbekistan
- The Uzbekistan CAA has indicated preference for national metrics (LAeq day and LAeq 9 hour night) over the 24 hour metric Lden (see Table 4-1)
- Establish the legally applicable operational noise limits and Sanitary Protection Zone (SPZ).
- Lenders' requirements also met through parallel assessment against international thresholds.

Where Lenders' and International standards are specific to aircraft noise, the ESIA reported:

- mitigation measures consistent with IFC and ICAO guidance

These frameworks establish the technical basis for aircraft noise assessment, operational noise management, land-use planning and environmental performance monitoring, while also defining the responsibilities of the stakeholder in implementing the various elements of the NMF. Table 4-1 summarises the principal standards and regulatory requirements applicable to operational noise management and identifies the lead entity responsible for their implementation or oversight.

Table 4-1 Applicable Standards

Standard	Lead Entity	Relevance
ICAO Annex 16 Vol I — Noise Certification	SPV	Fleet data tracking
ICAO Doc 9829 — Balanced Approach	Joint	Four-pillar framework applied across all entities
ECAC Doc 29 / AEDT noise modelling	SPV	Contour production commissioned by SPV; flight data from Uzbekistan Airports / UzAeroNav
Uzbekistan SanPiN 0039-11	SPV	Residential noise standards
EBRD ESR1, ESR3	SPV	Lender performance requirements; ESAP control by SPV
Sanitary Protection Zone (SPZ)	SPV	SPZ boundary notification to kokimiyats; landside planning control
EC 2002/49 European Directive on Environmental Noise	SPV	Contour production and reporting commissioned by SPV
2002/30/EC European Directive on the establishment of rules and procedures with regard to the introduction of noise-related operating restrictions at Community airports	SPV	Implementation of ICAO Balanced Approach.

5.0 Noise Targets

Lead Entity: SPV — Chief Operating Officer | ESAP threshold compliance and lender reporting

Operational noise targets have been established to provide a clear basis for compliance monitoring, environmental performance evaluation and adaptive management throughout the airport's operational life. The targets reflect applicable Uzbekistan regulatory requirements, international good practice and lender commitments, and define the trigger levels requiring mitigation, notification or management intervention. The following table summarises the operational noise targets and identifies the responsible entity for implementation and reporting.

Table 5-1 Noise Targets, Trigger and Responsible Entity

Metric	Target	Trigger	Responsible Entity
Leq, 9 hour night	55dB	Primary ESAP threshold — verification and proportionate receptor-side mitigation to confirm situation before lender notification, if breached	SPV (reporting); Uzbekistan Airports + UzAeroNav
Leq day	60dB (SPZ legal boundary for health protection)	Primary ESAP threshold — verification and proportionate receptor-side mitigation to confirm situation before lender notification, if breached	SPV (reporting); Uzbekistan Airports + UzAeroNav
SPZ boundary	>60dB Leq (SPZ controlled impact zone)	Noise mitigation measures and/or Planning control zone — Kokimiyat notification required	SPV in co-operation with SPZ Expert Committee
L eq day	>60dB (daytime 0700-2200)	Acoustic insulation threshold for existing education, health care and places of worship Noise mitigation measures through insulation - Kokimiyat notification required	Public and Private Partners in co-operation with SPZ Expert Committee
L eq day	>65dB (daytime 0700-2200)	Acoustic insulation threshold for existing residential properties Noise mitigation measures through insulation - Kokimiyat notification required	Public and Private Partners in co-operation with SPZ Expert Committee

6.0 Noise Modelling

Lead Entity: SPV (commission and report) | Uzbekistan Airports (flight data) | UzAeroNav (procedure data) | Entran UK — independent noise consultant

Noise contours are produced using AEDT v3g / IMMI in accordance with ECAC Doc 29. Modelling was completed based on current design information by Entran UK (workshop: 11 June 2026). Future modelling will be further calibrated to actual fleet and flight path data when available (refined indicative modelling in 2027, pending final airspace design). Uzbekistan Airports and UzAeroNav are obligated to provide accurate operational data within 20 working days of any request.

6.1 Key Modelling Parameters

- Base year 2025: 78,593 ATMs; 109 aircraft types condensed to 26 AEDT types — data supplied by Uzbekistan Airports
- Aircraft activity based on Opening year 2030 and future 2045
- Runway split: North runway preferred for larger (ICAO Code D and above) noisiest aircraft, for example B767, B787, A330, B777 — Uzbekistan Airports allocation policy
- Partial southern runway night restriction 23:30–05:00 — enforced by UzAeroNav ATC (plan is to review if required following refined modelling).
- Fleet transition forecast by 2045: 75–79% Next Generation (subject to discussion with airlines) Chapter 14 / NEO-equivalent aircraft by 2045 — SPV commercial incentive programme
- Flight paths to be designed to allow noise modelling to be refined in 2027/2028.

6.2 Mitigation Scenarios

A number of operational noise mitigation measures were identified through discussions with the Public Partner/Uzbekistan Airports, the UzNavigation Department and other relevant stakeholders. These measures were incorporated into the updated aircraft noise modelling to evaluate their effectiveness in reducing noise exposure at nearby communities. Two operational mitigation scenarios were assessed:

Mitigation Scenario 1 – incorporates preferential runway use through runway differentiation, whereby larger (ICAO Code D and above) aircraft are allocated to the northern runway, together with a conservative future fleet transition to quieter next-generation aircraft and the inclusion of a 10 m southern noise barrier to reduce ground noise.

Mitigation 2 (Mitigation 1 + partial southern runway night curfew between 2330 and 0500 hours (unless during maintenance or in emergencies etc)⁴

With Mitigation 2: ~40 properties above 55 dB Lnight — preferred scenario (The preferred scenario will be confirmed after the alternatives have been assessed in accordance with the Balanced Approach appraisal process and for safety, capacity, cost, community impact and PPPA consequences, and then formally approved by the relevant parties. Contours will be updated prior to airport opening in 2030 and then every five years or following a material

⁴ Programme of property specific insulation will be undertaken prior to opening in 2030 with the intent to amend or remove any planned restrictions

operational change or significant fleet change. SPV to commission; Uzbekistan Airports and UzAeroNav to provide updated operational data.

Mitigation Scenario 2 represents the operational planning baseline for implementation of this Framework. Should future operational monitoring demonstrate materially different noise performance, the Airport Operator may review operational measures through the adaptive management process.

6.2.1 Ground Level Noise Attenuation

Noise barrier attenuation has been calculated in accordance with ISO 9613-2 methodology, accounting for:

- Source and receiver heights
- Barrier height and position
- Ground absorption characteristics
- Meteorological conditions

The 10m barrier is predicted to provide approximately 6 to 8 dB attenuation for ground-based noise sources (taxiing aircraft, ground support equipment, engine testing) at the nearest receptors, depending on source-receiver geometry.

The noise barrier will be constructed before airport operations begin, and as early as practicable in the construction programme. The implementation and maintenance responsibility will be detailed in the NMP.

7.0 Operational Noise Mitigation Measures

The Airport will implement a hierarchical operational noise mitigation strategy consistent with the ICAO Balanced Approach to Aircraft Noise Management. The strategy prioritises reduction of noise at source through operational procedures, aircraft fleet modernisation and airspace management, ongoing land-use planning and, followed by where necessary, receptor-based mitigation such as building acoustic insulation. The ICAO Balanced Approach prescribes the process that will be adopted to develop the optimal set of noise abatement measures. A long list of possible noise abatement measures will be developed. The long list will then be appraised in terms of the cost/effectiveness of each measure to establish the optimal combination of measures to minimise noise impacts consistent with international good practice adopted at similar airports. The measures described in this section will be implemented through the Airport Noise Management -Plan and reviewed periodically using operational monitoring data as discussed in the following chapter.

7.1 Runway and Flight Path Management

Lead Entity: Uzbekistan Airports — Airport Director (runway allocation) | UzAeroNav (ATC procedures) | Airside operations and air navigation services

Runway allocation and flight procedure design represent effective operational noise mitigation measures in this case. These measures have been incorporated into the operational noise modelling and will be progressively refined as detailed airspace design, flight procedures and operational schedules are finalised prior to airport commissioning.

- Preferential runway use: Largest (ICAO Code D and above), noisiest aircraft directed to north runway by preference. — Uzbekistan Airports standing instruction to Operations, subject to safety, ATC instructions, runway condition/availability, meteorology, capacity, aircraft limitations and emergency requirements;
- Partial southern runway night curfew 23:30–05:00 if required following refined modelling— UzAeroNav refuses clearance to non-compliant requests unless specific dispensations are agreed (eg humanitarian flights);
- Continuous Descent Approaches (CDA)⁵ UzAeroNav to issue CDA clearances for arrivals where traffic separation permits; target full optimisation of CDA compliance on night operations; and
- Noise-preferential departure routes (NPR): UzAeroNav to design, publish in AIP, and brief all carriers; departure clearances to reference NPR track explicitly.

7.2 Noise Preferential Routes

The exact routing of the Noise Preferential Routes (NPRs) will affect the levels of noise at properties some distance from the airport, so these routes will be developed to minimise impacts, taking account of relevant guidance at that time.

Options for sets of NPRs to serve the 2 runways will be compared using a set of criteria including; minimising the total health impact including daytime annoyance and night-time sleep disturbance across the total population, and also minimising these effects at the population most significantly affected.

⁵ Continuous Descent Operations must remain subject to separation, sequencing, weather, runway safety and traffic demand.

7.3 Fleet Incentives

Lead Entity: SPV — Chief Operating Officer | Commercial and airline relations

The operational noise assessment assumes a progressive transition towards quieter next-generation aircraft, with approximately 79% of the forecast fleet expected to comprise newer generation aircraft by 2045. The SPV will explore supporting this transition through commercial incentives such as differential landing charges, and airline engagement programmes. Through annual airline engagement programmes SPV will conduct bilateral meetings targeting fleet modernisation commitments from all carriers operating more than 500 ATMs per year.

7.4 Ground Operations

Lead Entity: Uzbekistan Airports — Airport Director | Co-ordinating Airside ground operations

Ground operational noise sources under the respective responsibility of UA and SPV include aircraft taxiing, auxiliary power unit operation, engine ground running and aircraft maintenance activities. Dedicated operational procedures will be implemented to minimise community exposure, including designated engine run-up locations, restrictions on engine testing during sensitive periods where practicable and incorporation of engine testing within the operational noise monitoring programme.

- Engine ground-running will be in accordance with the approved facility locations, and will prioritise least sensitive areas where practical — Uzbekistan Airports Operations.
- No major noisy engine testing during nighttime hours 11.30pm to 5.00am.⁶
- The requirement for jet-blast protection, acoustic screening and/or a fully enclosed ground run-up facility will be assessed as part of the detailed design and will consider noise impact and supported by operational-demand analysis, acoustic modelling, safety assessment and whole-life CAPEX/OPEX evaluation.
- Noise and air emissions will be managed on the stands pre/post departure through APU apron procedures and monitored through normal airport operations.
- Taxi operations will be governed primarily by safety, ATC instructions, airfield capacity, traffic demand, aircraft limitations and airline-approved procedures. Reduced-engine taxi may only be encouraged where approved by the aircraft operator and operationally practicable, without compromising safety or runway throughput. Any proposed taxi-noise reduction measure would first be supported by source-specific L_{Amax} and L_{Aeq} modelling and an operational-capacity assessment. — Uzbekistan Airports Operations / Airside Safety.
- Ground noise modelling should use the current ISO 9613-2 methodology or other authority-approved ground-source method, with receptor-specific L_{Aeq}/L_{Amax} and tonal or impulsive characteristics where relevant. Refined modelling will require a noise source inventory, operating locations, duty cycles and day/night activity profiles for taxiing, APU/GPU, and engine run-ups and key fixed noise sources.

⁶ Essential line-maintenance checks, AOG recovery, fault isolation, troubleshooting and safety-critical aircraft-release activities may occasionally require engine operation during night-time hours. Such activities will be controlled through approved maintenance and operational procedures, including use of the designated location, this would have defined power and duration limits, prior coordination, event logging and appropriate monitoring.

7.5 Ground Noise Barrier

A 10 m high noise barrier will be considered off-airport as a “receptor-edge barrier” outside the southern airport boundary to reduce ground-based operational noise affecting nearby residential communities. The barrier has been incorporated into the operational noise model and is predicted to provide approximately 6 to 8 dBA attenuation at the nearest residential receptor location in Yangitosh village for ground-based noise sources including aircraft taxiing, ground support equipment and engine testing, depending on source-receptor geometry. The land/access, planning approval, construction, community interface, security, maintenance and third-party liability will be detailed in the NMP.

Alternative walls, barriers, acoustic screens and an engine run-up enclosure will be considered in determining the most cost-effective solution.

The design of the barrier including its material, dimension, location etc. will be optimised based on updated noise modelling and refined based on confirmed noise sources. In addition, the effectiveness of the barrier will be verified through the operational monitoring programme, with additional mitigation considered if monitoring indicates predicted performance is not achieved.

7.6 Land-Use Planning and Encroachment Prevention

Lead Entity: SPV — Chief Operating Officer | Terminal and landside; ESAP; community interface

The 60 dB LAeq Sanitary Protection Zone (SPZ) boundary has been submitted to all relevant kokimiyats (local administrations) by the SPV. The development of residential or sensitive land use (schools, hospitals, care facilities etc.) in the surrounding areas of the airport shall follow the national noise guidelines given in SanPiN No. 0339-16 “Sanitary rules and norms of planning and development of settlements of Uzbekistan” and adhere to international best practices around existing airports in developed countries. This will ensure new noise-sensitive development is avoided above the given thresholds and mitigated as necessary below it. The SPV will maintain a register of all kokimiyat notifications and responses in order to protect the airports long-term 24-hour operating capability without creating additional operational restrictions for the airport or ANSP.

The proposed Aero City development adjacent to the northern boundary is currently undeveloped. As planning for this area progresses, the SPV will ensure any future development proposals are assessed against the noise targets specified in section 5 of this NMF, and that no residential or sensitive land use is approved within those contours without appropriate acoustic mitigation in place.

SPZ mapping will be reviewed and resubmitted to kokimiyats by the SPV prior to opening and in 2030 and following any update to noise contours. Uzbekistan Airports is to notify the SPV within 10 working days of any proposed airside infrastructure change that could materially affect the SPZ boundary.

7.7 Building Acoustic Insulation Programme

Where operational noise modelling or subsequent monitoring demonstrate that pre-existing residential properties are exposed to operational aircraft noise exceeding the adopted intervention criteria, the Project will implement a targeted Building Acoustic Insulation Programme. Implementation of the programme will take account of vulnerable occupants, including children, older persons and persons with disabilities, with property prioritisation considering both predicted noise exposure and household vulnerability, where practicable.

The noise standard adopted for noise insulation is Leq 9 hr night 55dB as measured or forecast at occupied permanent residential buildings. This level is taken from the WHO Night Noise Guidelines 2009 that gives guidance on the health effect of night noise including sleep disturbance. A level of $L_{eq, 8 \text{ hour night}}$ 55 dB is described in those guidelines as the level above which ‘Adverse health effects occur frequently, a sizeable proportion of the population is highly annoyed and sleep-disturbed’ and has been adopted at other airports to avoid significant sleep disturbance.

The ESIA reports that noise impacts at residential properties are expected to be greater at night than during the day because of the high forecast levels of air traffic at night. However, a daytime qualifying noise level for noise insulation of $L_{eq, 15 \text{ hr}}$ 65dB covering the period 0700-2200 hours will also be adopted. The modelling shows no residential properties at or above this noise level, but the daytime noise thresholds for noise insulation has been added in case daytime noise levels are higher than expected.

The SPV will establish an Airport Community Noise and Property Improvement Service Centre as the principal delivery mechanism. The Centre should manage eligibility, household communication, surveys, design, procurement, installation quality, warranties, complaints and post-work verification, commencing with properties with the highest noise levels above the eligibility thresholds level. Noise modelling in the ESIA noise addendum indicates that with mitigation no properties would be above the eligibility threshold when the airport opens and

this could rise to approximately 40 properties identified in close proximity to the southern boundary of the airfield by the year 2045.

Building condition surveys undertaken during the ESIA confirmed that representative dwellings within the predicted highest exposure area are structurally suitable for installation of typical residential acoustic insulation measures, including:

- a proportionate treatment package based on each dwelling's condition, for noise sensitive rooms, ie bedrooms, living rooms, studies, and dining rooms;
- acoustically rated glazing;
- improved external doors and seals;
- roof and ceiling insulation;
- acoustic ventilation systems to enable windows to remain closed where appropriate.

Acoustic insulation aimed at achieving acceptable internal noise levels within buildings represents a practical early mitigation measure that can be implemented prior to the noise impact arising. For those buildings which are eligible for noise insulation, however not feasible to implement due to reasons such as lack of structural integrity, further actions including potential resettlement will be considered guided by the Project's Resettlement Policy Framework (RPF), aligned with the conditions of the PPPA.

A similar acoustic insulation programme will be developed for any educational buildings and places of worship identified as significantly affected by future noise modelling with noise levels above $L_{eq\ day}$ 60dB.

8.0 Noise Monitoring

Monitoring data will be used not only to demonstrate compliance with operational noise targets but also to validate and periodically refine the airport noise model, and to assess the effectiveness of mitigation measures and identify opportunities for continual improvement in accordance with the ICAO Balanced Approach.

8.1 Monitoring Network

Lead Entity: Uzbekistan Airports — Airport Director (infrastructure) | SPV (data management and reporting)

The Project will be responsible for the installation, physical maintenance, and calibration of all permanent noise monitoring stations, which will be subject to recognised international standards and guidance, including:

- **ISO 20906:2009 (Amended 2013)** – *Unattended monitoring of aircraft sound in the vicinity of airports*; and
- **SAE ARP 4721:2006** – *Monitoring Aircraft Noise and Operations in the Vicinity of Airports*.

These standards and guidance will be applied to the extent that is practicable.

The SPV is responsible for collecting the monitoring data from Uzbekistan Airports, and external reporting to relevant stakeholders including the lenders for compliance verification. As a minimum the following monitoring stations will be deployed:

- Two stations under each primary departure flight path (north and south runways)
- Two stations at the nearest residential receptor clusters — sited in consultation with community representatives
- Mobile Sound Level Meters (SLM) for complaints investigation — held by Uzbekistan Airports; may be deployed by SPV on request
- SPZ authority will also have its own area noise monitoring campaign that will monitor noise in relation to the SPZ 60dBA standard.

8.2 System Specifications

Lead Entity: Uzbekistan Airports (monitors) | SPV (data system / dashboard) | Shared infrastructure and data ownership

- Continuous measurement of LAeq, LA90, LAmax with automatic event detection and ADS-B aircraft correlation — Uzbekistan Airports to provide ADS-B feed; SPV to integrate with noise system
- Aircraft radar tracks stored for compliance with Noise Preferential Routes.
- Real-time data dashboard accessible to Airport Operations (Uzbekistan Airports), SPV Management, IESM, and lenders (read-only) — SPV to procure and operate
- Calibration: monthly automated check (Uzbekistan Airports); full manual calibration annually to IEC 61672 Class 1 (Uzbekistan Airports); calibration certificates provided to SPV for lender reporting
- Data storage and management by SPV and Uzbekistan Airports in accordance with their respective certified E&S & Quality Management Systems

8.3 Noise Complaint Management

Lead Entity: SPV — Chief Operating Officer | Community interface and ESAP reporting

- Online portal operated by SPV 12 months prior to start of operations (December 2030)
- All complaints logged with automated acknowledgement, and then investigated using correlated monitoring data, and responded to within 10 working days — SPV Community Liaison
- Complaint data (volume, type, resolution) published in Community Noise Forum quarterly summary
- Complaints along with airport E&S KPI's to be reviewed by independent auditor for the lenders on a 6-monthly basis for the first 3 years and annually thereafter for the period of the loan

8.4 Noise Monitoring Co-ordination

A comprehensive ambient noise monitoring network will be installed and maintained inside the airport and up to the boundary at ground level. The SPZ Authority will also establish ground level monitoring for noise and vibration in communities over a wider area up to several kilometres from the airport.

The noise monitoring will be aimed at establishing compliance with specified noise standards and providing feedback to the stakeholders including communities on day and nighttime noise levels. Monitoring data can also be used for validation and refinement of the future noise modelling scenarios and for managing and reducing noise. This will also focus on sensitive receptors to assess the level of noise disturbance in communities and the potential need for insulation of certain residential properties.

The Technical Co-ordination Group will establish the scope for noise and vibration monitoring including:

- Equipment specification and durability for continuous survey;
- Equipment software for ease of data handling and compatibility;
- Monitoring locations and timing of surveys;
- MOU protocols for reporting and sharing data;
- Quantification of noise impacts on communities;
- Feedback to Senior Management (SPV, Public Partner, UzAeroNav);
- Updating operational model scenarios with new ground data;
- Technical and economic benefits review of options to reduce noise impacts based on existing and enhanced noise control measures at the airport and the consideration of noise insulation for affected properties;
- Feedback from government and community stakeholders on proposed actions including necessary planning approvals; and
- Implementation of approved actions followed by further monitoring of the effectiveness of noise abatement measures.

9.0 Reporting Cadence

Lead Entity: SPV — Chief Operating Officer | All external reporting and lender interface

All formal external reporting is the responsibility of the SPV. Uzbekistan Airports and UzAeroNav are required to provide operational data to the SPV within the timescales specified in this NMF to enable accurate and timely reporting.

Table 9-1 Reporting Summary

Frequency	Report / Action	Lead Entity	Audience
Continuous	Real-time noise monitoring dashboard	SPV (system) / Uzbekistan Airports (data)	Operations; IESM; lenders (read-only)
Quarterly	Internal operational review — noise KPIs, complaints, incidents, NPR compliance	SPV co-chairs with Uzbekistan Airports, UzAeroNav attend	Airport Management Team
Quarterly	Community Noise Forum meeting and summary note	SPV	Communities, NGOs, local government
Semi-annual (Years 1–3)	Lender Environmental & Social Monitoring Report — noise chapter	SPV	IFC/EBRD/DFC / Lenders; Agency for Sanitary-Epidemiological Wellbeing
Annual (Year 4+)	Annual Noise Report: contour maps, exceedance analysis, fleet data, NPR compliance, action plan update	SPV	IFC/EBRD/DFC / Lenders; Regulatory authorities
Within 30 days	Ad hoc threshold exceedance notification to lenders — ESAP obligation	SPV COO	IFC/EBRD/DFC / Lenders
Every 5 years	Full forecast noise contour update (AEDT re-run)	SPV (commissions); Uzbekistan Airports + UzAeroNav (data)	Lenders; Regulators; Community

Data supply obligations: Uzbekistan Airports to provide monthly day and night ATM, runway split, route split, and fleet composition data to the SPV, provisionally by the 10th of the following month. UzAeroNav to provide NPR compliance track data and CDA compliance statistics within the same provisional timescale.

10.0 Grievance and Responsibilities

Lead Entity: Joint | All entities accountable within their respective domains

This section defines the governance structure, accountability and reporting responsibilities for implementation of the NMF, while also establishing the arrangements for coordination between the responsible entities and oversight of environmental performance.

Effective implementation of this Noise Management Framework requires clear allocation of responsibilities across the SPV, Uzbekistan Airports, UzAeroNav and other stakeholders, reflecting each organisation's operational role in managing aircraft noise. Accordingly, a Noise Management and Community Liaison Committee (NMCLC) shall be established as the principal multi-stakeholder governance body responsible for oversight of operational noise management, stakeholder engagement and community grievance resolution. The core members of the NMCLC will be as follows:

Public Sector: Uzbekistan Airports, Ministry of Transport, UzAeroNav, Relevant Khokimiyats, SPZ Authority,

Project/Private Sector: SPV, Representative airlines (where appropriate)

Community Representatives: Chair of the Community Noise Forum and Community organisations and NGOs (where appropriate).

Community grievances relating to operational aircraft noise will be managed through the NMCLC Grievance Mechanism, with complaints investigated in coordination with the relevant operational entity and incorporated into the Airport's continual improvement process.

The SPV and Public Partner will co-chair a quarterly NMF Governance Meeting attended by the Uzbekistan Airports Airport Director and a nominated UzAeroNav representative. This meeting reviews noise performance, resolves cross-entity issues, and agrees any proposed changes to this Framework.

Table 10-1 Grievance Roles and Responsibilities for Implementation of NMF

Entity	Role / Title	NMF Responsibilities
SPV	Chief Operating Officer	Overall NMF accountability to lenders; approves major operational changes; chairs quarterly NMF governance meeting; signs lender reports; escalates threshold exceedances
SPV	Environmental & Social Manager	Day-to-day NMF implementation; ESAP management; commissions noise modelling; prepares lender reports; manages IESM relationship; maintains NMF document register
SPV	Commercial Director	Airline agreements; fleet incentive scheme; slot policy for quieter aircraft
SPV	Community Liaison Officer	Secretariat to the NMCLC; administer grievance mechanism; coordinate community engagement; maintain complaints register; coordinate Building Acoustic Insulation Programme.
Uzbekistan Airports	Airport Director	Overall airside accountability; signs off runway allocation procedures; approves ground operation noise

Entity	Role / Title	NMF Responsibilities
		controls; ensures monitoring infrastructure is maintained; provides operational data to SPV
Uzbekistan Airports	Operations Manager	Day-to-day preferential runway allocation; ground-running controls; FEGP enforcement; NPR compliance data supply to SPV; noise event investigation on airside
UzAeroNav	Director General	Overall ATC commitment to NMF; approves CDA and NPR procedures; ensures AIP publication of noise procedures; signs UzAeroNav data sharing obligations
UzAeroNav	ATC Operations Manager	Day-to-day CDA clearance issuance; NPR instruction compliance; night curfew enforcement; provision of radar track data to SPV noise monitoring system
Independent	IESM	Independent verification of ESAP compliance across all three entities; semi-annual reports to lenders; access to all monitoring data and operational records

11.0 Noise Management Plan (NMP) Review and Continuous Improvement

Lead Entity: SPV — Chief Operating Officer | Document owner; revision sign-off and lender notification

This NMP will be formally reviewed annually and additionally triggered by a significant change to fleet mix or runway configuration, or a request from lenders or the regulatory authority.

Revisions require sign-off by the SPV COO, written concurrence from the Uzbekistan Airports Airport Director and UzAeroNav Director General, and notification to lenders within 30 days of adoption. Version history is maintained in the SPV document control register.

11.1 Adaptive Management

As outlined earlier, the Project recognises that operational noise performance will evolve as aircraft fleets, airspace design and traffic volumes develop. Accordingly, operational noise management will adopt an adaptive management approach whereby:

- Operational monitoring validates model predictions;
- Mitigation measures are periodically reviewed;
- Runway use and operational procedures may be refined;
- Night-time operating restrictions may be considered where a material residual impact is demonstrated and where safety, ATCO human performance, capacity and connectivity and consequences have been fully assessed;
- Night-time operating restrictions may be reviewed in the light of refined noise modelling and additional mitigation measures; and
- Updated modelling undertaken following significant operational change.

12.0 Priority Actions — 2026 to 2031

The Priority Action Plan identifies the principal activities required to implement this NMF between 2026 and commencement of steady-state airport operations. The actions support delivery of ESIA and ESAP commitments, progressive refinement of the operational noise management system, establishment of monitoring and reporting arrangements, and implementation of key mitigation measures prior to and during the early operational phase. Progress against these actions will be reviewed through the NMF Governance Meeting and updated as necessary to reflect project development, regulatory requirements and operational experience.

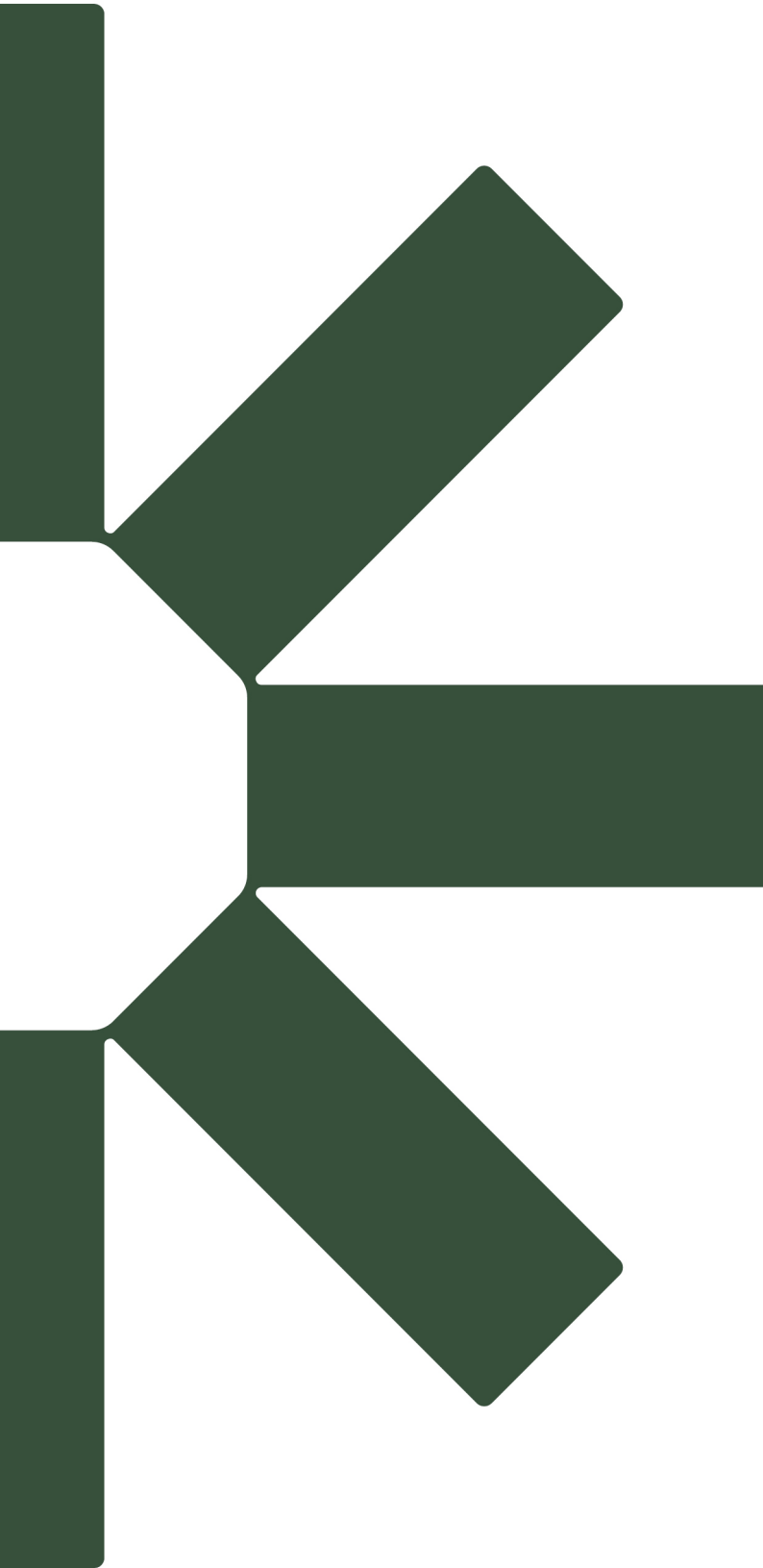
A Noise Abatement Objective (NAO), will be established enabling noise management to be implemented in accordance with the ICAO Balanced Approach, including the following:

- Establish a Noise Abatement Objective (NAO) consistent with ICAO guidance and Good International Practice.
- Benchmark noise abatement measures implemented at comparable airports and develop a comprehensive list of potential mitigation options for evaluation.
- Define a methodology for assessing the effectiveness and cost-effectiveness of potential noise mitigation measures in accordance with the ICAO Balanced Approach.

Table 12-1 NMF Implementation Roadmap (2026 to 2030)

Action	Lead Entity	Supporting	Target
Entran to support SLR to refine 45 dB Leq 9 hr night property/population counts from AEDT GIS output	SPV E&S Manager	SLR (Entran UK)	Q3 2026
Confirm VI-to-PP ESAP obligation chain and data sharing agreements with legal counsel	SPV COO	All entities / Legal	Q3 2026
Establish NAO, benchmark noise abatement measures and define suitable methodology to assess cost effectiveness of mitigation in accordance with ICAO Balanced Approach	SPV COO	Uzbekistan Airports / UzAeroNav	Q3 2027
Submit SPZ boundary maps to all hokimiyats — before any land sales in airport vicinity	SPV COO	Uzbekistan Airports	Q3 2027
Develop Noise Preferential Routes optimised to minimise noise impacts	UzAeroNav	SLR (Entran UK)	Q4 2027
Update noise modelling based on airspace planning and specific flight paths	SPV COO	Uzbekistan Airports / UzAeroNav / SLR (Entran UK)	Q4 2027
Draft Noise Management Plan	SPV COO	All entities	Q4 2027
Prepare Noise Insulation Plan including cost benefit analysis for	To be detailed in the NMP	Uzbekistan Airports /	Q2 2028

Action	Lead Entity	Supporting	Target
Yangitosh and any other affected communities (residential)		UzAeroNav / SLR (Entran UK)	
The Project to procure and install noise monitoring network (minimum 6 monitors)	Uzbekistan Airports — Airport Director	SPV (data system)	Q2 2029
Define priority noise insulation programme, if and when required, for identified residential properties subject to planning approvals	To be detailed in the NMP	All entities in co-operation with Kokimiyat	Q2 2028 to Q2 2030
Implement priority noise barriers as may be applicable to protect residential properties subject to planning approvals	To be detailed in the NMP	All entities in co-operation with Kokimiyat	Q2 2029 to Q2 2030
Establish real-time noise dashboard and IESM / lender read access	SPV E&S Manager	IT / Uzbekistan Airports	Q4 2030
Publish NPR and RNAV procedures in AIP; brief all carriers on noise abatement procedures	UzAeroNav	SPV Commercial	Q4 2029
Launch Community Noise Forum — SPV Service Centre, first meeting with stakeholders 12 months prior to opening	SPV Community Liaison	All entities	Q4 2029



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