MOTT MACDONALD

Almaty Airport Expansion

ESIA Non-Technical Summary

August 2021

Mott MacDonald
10 Fleet Place
London EC4M 7RB
United Kingdom

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

TAV Airports Holding
Vadi Istanbul Cendere
Street No: 109 2C Blok
34485 Sarıyer / Istanbul
Turkey

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Introduction

TAV Airports Holding Co. (TAV) is in the process of completing the purchase of Almaty International Airport, Kazakhstan. As part of the purchase, an expansion of the existing terminal facilities is proposed, comprising a new international terminal and upgrades to the existing terminal to convert it to a domestic facility. The new international terminal will be built where the VIP terminal currently is located and a visualisation of this can be seen on Figure 1. The VIP terminal building will be relocated within the airport, as discussed in the Heritage section below. The construction works will include associated infrastructure such as road alterations, vegetation removal and drainage upgrades.

Figure 1: Visualisation of landside view of new international terminal

Source: TAV, 2020

To understand the impacts of the proposed development on the environment and people in the area around the airport, an Environmental and Social Impact Assessment (ESIA) has been undertaken by Mott MacDonald, supported by EcoSocio Analysts LLC, on behalf of TAV. The ESIA assesses what the project environmental and social impacts are, and outlines mitigation measures that the scheme needs to include to reduce potentially negative effects. This summary document uses non-technical language to present the findings of the ESIA. The main ESIA report should be referred to for full information regarding the assessments.

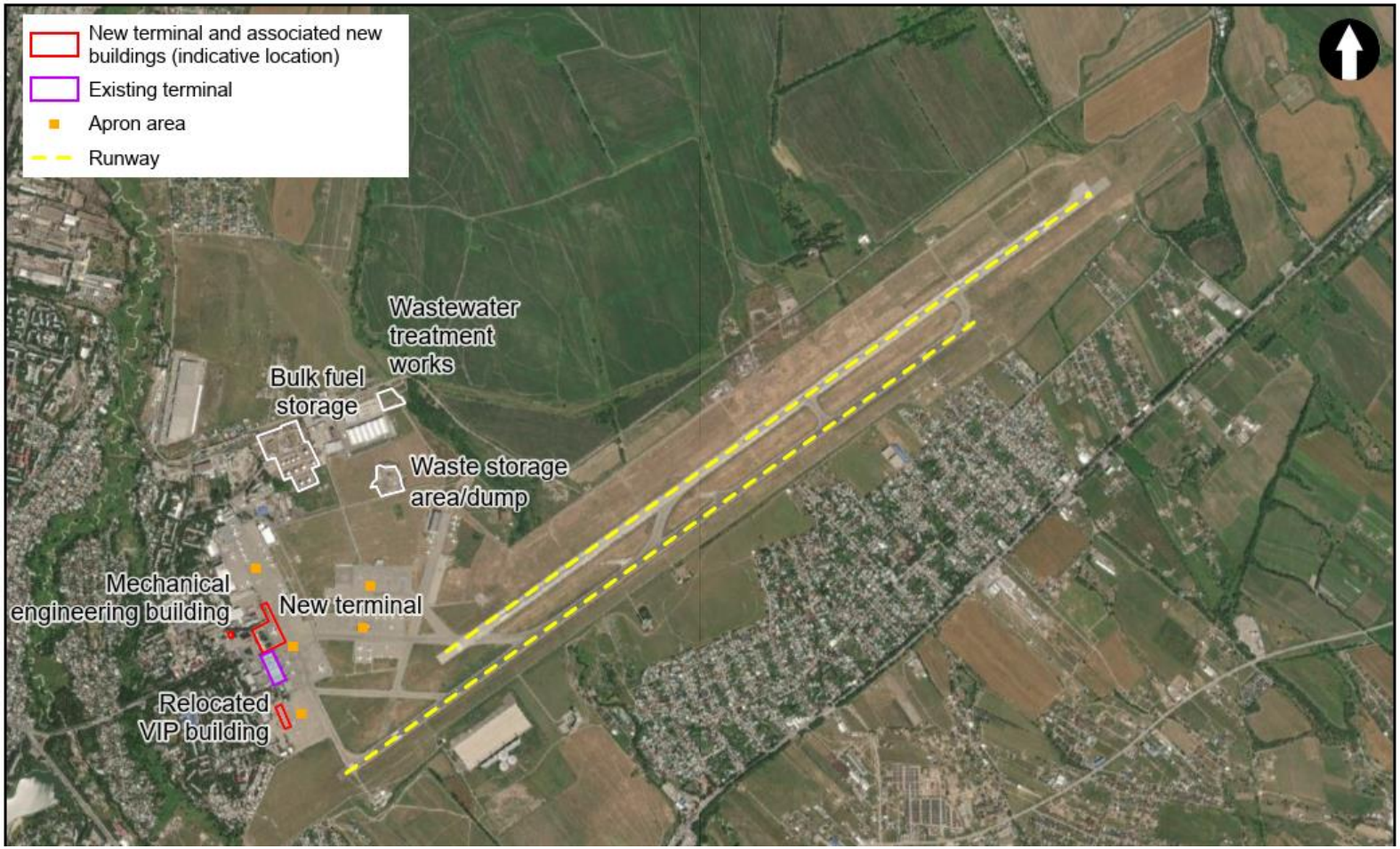
Finance for the scheme is being sought from the International Finance Corporation (IFC) and European Bank for Reconstruction and Development (EBRD); as such, their international standards and requirements have been followed for the assessments.

Location

The airport is located approximately 12km to the north-east of central Almaty, on the outskirts of the city. It is bordered by a mix of open land and residential settlements.

The airport is located north of the settlement of Guldala, and north-east of other city districts, including Tbilisskaya and Kolhozshy, all of which lie within the wider region of Almaty. Figure 2 provides an indication of the location and selected airport facilities.

Figure 2: Almaty Airport Site Plan



Source: Mott MacDonald, 2021

The airport currently consists of two parallel runways, apron areas (comprising taxiways and aircraft parking stands), helipads, and associated facilities and infrastructure. These include car parks, a wastewater treatment facility, further buildings (such as for storage, mechanical engineering, air traffic control, hangars, fire station and offices), and storage areas. The airport fuel depot, with associated rail sidings and above-ground pipework, is located within the northern area of the airport.

The Scheme

The busiest airport in Kazakhstan, Almaty Airport currently serves more than 34 airlines, including hub operations for national Kazakhstan airline, Air Astana. In 2019, the airport recorded 6.4 million passengers, 1.2 million tonnes of cargo, and 60,055 aircraft movements. Current aspirations from TAV are to expand the airport capacity due to a forecasted increase in passenger numbers.

The current terminal, with facilities for both international and domestic passengers, was reaching its operational capacity in 2019 prior to the COVID-19 pandemic. This meant additional facilities were required. Although passenger numbers are currently down due to the pandemic, it is expected that passenger numbers will rebound before 2024, when the new facilities will once again be required. The scheme will provide enhanced terminal facilities to enable the handling of the increased numbers of passengers.

The proposed new international terminal will accommodate up to eight million passengers per year, whilst the existing terminal will be able to serve up to eight million domestic passengers per year. This will give a total annual passenger capacity of up to 16 million passengers per year across both terminals.

The Assessment

The ESIA for the Scheme has been undertaken to comply with relevant Kazakhstan legislation and has followed international best practice guidance for the development of international ESIAs (in particular, IFC Performance Standards and EBRD Performance Requirements).

In addition, a national Kazakh Environmental Impact Assessment (EIA) has been undertaken in order to gain the permits to enable construction works to start. The national EIA has been submitted to the local Almaty government; at the time of writing approvals have been received for some works and are awaited for the rest. The rest of this document will focus on summarising the international ESIA.

The international ESIA has taken into consideration the existing environmental and social conditions and how this may change due to the Scheme. The assessment also identified measures that can be used to reduce the effects that these changes may have, known as “mitigation”.

Assessment Topics

The assessment has been broken down by topic to reflect the scope of the ESIA agreed with the project lenders. These topics are as follows:

• Water Resources	• Greenhouse Gases
• Geology and Soils	• Noise and Vibration
• Climate Change	• Social and Occupational Health & Safety
• Biodiversity	• Cultural Heritage
• Air Quality	• Cumulative Effects

Water Resources

The water resources assessment considered how water resources within the site would be affected during the construction and operation of the Scheme.

During the construction of the Scheme, it is expected that there will be an increase in the risk of contamination to the surface water through accidental spills.

Measures will be undertaken during the construction of the scheme to mitigate these potential effects as follows:

- Careful construction site planning (including for vehicles coming to/from the site) to minimise the risk of pollution entering a local stream or river, including emergency measures if a spill happens on site to stop it spreading.
- Managing dust on site to reduce the risk of soils or materials entering local rivers and streams which can block them, causing flooding.
- Water quality monitoring during the lifespan of the Scheme. This helps ensure that any potential contaminants created from the Scheme does not cause harm to the surrounding environment.

During operation, the projected growth in flights will increase the likelihood of accidental spills or leaks of oils or harmful liquids, potentially damaging the water quality of both surface water and groundwater. Furthermore, the increasing passenger numbers will increase the production of wastewater on site from the terminals and aircraft. To manage these effects during operation, the following measures will be implemented:

- Continue the use of specific zones for loading and unloading (if concerning toxic substances), including refuelling and maintenance of support vehicles, so that any accidental spills can be carefully managed to prevent them getting into rivers or streams.
- Grow suitable plants on exposed ground surfaces to limit loss of contaminated material onto nearby watercourses as plants help to bind the soil.
- Carefully manage liquid discharges from the site to local rivers and streams, ensuring that appropriate permits to do so within safe limits are in place.
- Implement a surface water, groundwater, and wastewater quality monitoring programme, including maintaining records.
- An emergency pollution prevention plan will be in place, including training of staff to ensure correct use of emergency equipment and protocols.

Flood risk due to an increase of developed area is low as the majority of the works are taking place on already-developed land. However, the flood risk from rivers will need to be investigated further.

Following the implementation of the above measures, there will be minimal impact from spillages, leaks and pollution on the local rivers, streams, and groundwater.

Geology and Soils

An assessment was undertaken to determine the impacts to geology and soils from the construction of the Scheme. The site has been used as an airport, including for former military use, for at least the last 60 years. Therefore, historical contamination is potentially present within the ground at the airport. As the construction works will result in disturbances to the ground, there is potential for harmful contamination to be present and be disturbed during the works.

In order to prevent harm from ground contamination to people and the environment, mitigation measures have been developed, including the following:

- The wheels of vehicles leaving the site will be washed to prevent the spread of soil and surface materials from the site beyond its boundaries.
- Waste will be appropriately handled and correctly stored to minimise impacts from hazardous waste contaminating the soil.
- A soil investigation will be undertaken to understand the quality of the soils and groundwater affected during construction to determine if contamination is present and therefore remediation measures are required.

Following the implementation of the above mitigation, the construction effects on geology and soils will be minimised.

Climate Change

An assessment was undertaken to determine the impacts of climate change on the operation of the Scheme. It is expected that changes in weather patterns will negatively affect the airport because flights are vulnerable to weather extremes (such as thunderstorms, strong winds, or heavy rain). Hotter temperatures in summer will make the airport potentially less comfortable for passengers and workers. However, winters will be less cold which will reduce operational disruption from snow and ice and be less uncomfortable for workers and passengers in winter.

The airport infrastructure is expected to be affected from extreme weather events, such as increased infrastructure stress due to higher temperatures. It is expected that there will be more heavy rainfall events; such events increase the risk of surface water flooding and reduce access for operations.

Mitigation measures to manage these impacts include:

- Ensure adequate drainage to manage the increased flood risk of hard surfaced areas from more heavy rainfall events.
- Additional monitoring through use of early warning systems and hazard action plans, to reduce delays due to extreme weather.
- Lightning protection will be in place for essential systems, as well as appropriate backup power sources in case of failure.
- Ensure that air conditioning is part of the new terminal building design, to prevent overheating and staff and passenger discomfort in buildings.
- Runways, buildings, road access and pedestrian walkways will be monitored by a watching brief. This allows for routine checks such as visual inspections and surveys to monitor for risks of failure and take appropriate action when necessary.

Following the implementation of the mitigation measures noted above, there will be minimal impact on the airport, workers and passengers from climate change.

Biodiversity

The biodiversity assessment considered effects upon habitats, plants and animals. The current airport habitats consist of hardstanding and areas of vegetation that are managed in order to reduce the risk to airport operations from wildlife movements. For the new terminal construction, only small areas of vegetation will be taken, with the majority of the area being existing buildings or hardstanding.

During construction, wildlife could be disturbed due to the movement of construction vehicles causing increased noise, light and vibration, and ground excavations. No ecologically protected sites or rare habitats are anticipated to be affected by the scheme.

To manage these impacts, mitigation measures include the following:

- Manage the site works to minimise the risk of spills or contamination, as per the mitigation identified for the water environment and soils and geology topics.
- Deep excavations will be covered or fenced off to prevent the access of wildlife and people (including at night). Checks of excavations for trapped wildlife will be undertaken twice weekly.
- Noise reduction measures and minimise artificial lighting will be implemented to reduce disturbances on birds and mammals.
- Conduct a check for nesting birds before vegetation removal during the bird breeding season.
- Minimise wildlife injury/deaths from collision with vehicles through education of staff.
- Prevent the spread of non-native alien invasive species through raising awareness and implementing good practice measures to minimise risk.

As part of airport operations, there will be an increase in air and traffic movement. This leads to an increased risk of wildlife collisions as well as disturbances to wildlife through increased pollution, noise, artificial light and vibration. To manage these impacts, mitigation measures include the following:

- Revise the existing grassland management and pesticides management procedures to enhance opportunities to biodiversity whilst carefully balancing the need to minimise the risk of wildlife collisions.
- Ensuring current airport measures for minimising bird strike risks are appropriate and effectively implemented (including grassland management and use of bird scaring methods).

Following the implementation of the above mitigation, there will be no significant effects on habitats, plants or animals.

Air Quality

An assessment has been undertaken to consider the potential air quality effects for both construction and operation phases of the Scheme.

It was identified that dust will be generated during construction activities. To manage these impacts, measures to manage dust will form part of the construction site management, including spraying water on dusty surfaces and covering stored materials which may generate dust.

Construction activities will result in construction vehicles accessing the site, as well as vehicles and plant being used across the construction works. The emissions generated from these vehicles and plant will be minimised through use of modern, well-maintained equipment. National emissions standards will be adhered to.

During the operation of the Scheme, the expected increase in flights, and associated increase in vehicle movements to and from the airport, as well as within it, will result in an increase in air emissions.

To manage this, an emissions control plan will be developed to set out how the airport will reduce emissions as air travel increases. This will include measures for how aircraft use Auxiliary Power Units (APUs) - an onboard generator that produces emissions - and use of operational

airport building equipment. Furthermore, a management plan for operational road traffic will be developed to minimise access of the airport by polluting private vehicles.

Following the implementation of the mitigation measures, the majority of effects are considered minimal. However, the increase in pollution will negatively impact residents adjacent to Mailin Street as a result of increased road traffic accessing the airport as part of the airport operations.

Greenhouse Gases

An assessment was undertaken on the potential Greenhouse Gas (GHG) emissions associated with the construction and operation of the Scheme. GHG are gases in the atmosphere that trap heat. These gases are naturally occurring, but human activities that burn fossil fuels (such as from petrol or diesel vehicles, and airplanes) produce GHGs which increases the amount of these gases in the atmosphere. This leads to changes in weather patterns, such as increased temperatures. The transport sector contributes around 7% of Kazakhstan's national GHG emissions, with emissions from aircraft expected to grow.

During the construction of the scheme, GHG emissions will come from the manufacturing and transportation of materials. To mitigate for this, materials which result in fewer GHG emissions will be prioritised, transportation requirements (for materials and people) will be minimised and sustainable construction practices (such as re-use of materials that would otherwise be wasted) will be promoted through education.

During the operation of the scheme, GHG emissions will come from energy use within the terminal and the use of aircraft. This includes emissions from the use of APUs; these are typically used when an aircraft is parked where electricity from the terminal cannot be connected. Other emissions sources are aircraft engines, vehicles within the airport, road vehicles going to/from the airport, and building equipment.

To reduce the Scheme's GHG emissions during operation, the following mitigation will be implemented:

- Aircraft that are connected to the passenger boarding bridges at the terminals will use air conditioning and electricity supplied from the terminal instead of needing to use the aircraft's APU.
- APU operation times will be carefully managed. APU operation times will aim to be reduced by 50% (from 40 minutes to 20 minutes before take-off, and from 20 minutes to 10 minutes after landing) where possible. This is predicted to reduce emissions from the airport by 0.3% per year.
- Energy efficiency measures will be implemented to reduce the heating, cooling and power demands of the terminals.
- Use renewable energy on-site where possible.
- An increase in sustainable and efficient methods of transport through the operational traffic management plan.
- Encourage the development and adoption of more fuel-efficient aircraft and sustainable sources of fuel.

Despite these measures, GHG emissions will continue from the airport during operation. As new technologies continue to develop, there may be future opportunities for the airport to further reduce operational GHG emissions.

Noise and Vibration

Noise and vibration effects have been assessed for neighbouring areas of the Scheme. It is expected that construction activities on site will lead to both temporary noise and vibration issues for sensitive receptors. To manage the noise and vibration that may arise from the construction of the scheme, mitigation measures have been incorporated to include the following:

- A management plan for noise will be developed which will require noisy works to be carefully planned and only take place as part of daytime works to minimise disturbance to local residents. Other measures will include turning off equipment when not in use, careful planning of deliveries, etc.
- Construction activities will be undertaken in accordance with best practicable means for the control of noise and vibration (i.e. avoid overlapping phases of activities).
- International guidelines on noise levels will be followed during both construction and operation.
- Preparation of procedures for handling noise and vibration complaints so works can respond to neighbour complaints.

During operation, fixed plant and increased road traffic will generate noise which could affect local residents. To manage this, mitigation measures have been incorporated to include:

- The layout of the Scheme site shall be designed using site terrain and structures, including fixed plants to minimise the potential impacts on the local public.
- Follow noise levels set by IFC through operational noise monitoring.

Following the implementation of the above mitigation, all effects on sensitive receptors are considered not significant.

Operational aircraft movements will also create noise, although that has been considered under a separate study. Mitigation for this is limited, especially given the airport is already operational. A noise barrier will be installed to help protect residents from aircraft noise on the ground.

Social

An assessment was done to find out how local communities, workers, airport passengers and businesses may be affected as a result of the Scheme.

Construction

During construction of the Scheme, 1,109 temporary jobs (both skilled and unskilled) will be created. This will boost the local economy from the use of local suppliers and with non-local workers coming in who will spend locally on goods and services which will have a temporary economic benefit. However, bringing in international workers have the potential to cause disruption for local services such as healthcare in the case of an increase on COVID-19 cases locally.

Some businesses located inside the airport terminal may need to temporarily close during the refurbishment works. Furthermore, as refurbishment occurs, temporary or permanent change to passenger flows may occur through the airport terminal that can cause disruption to businesses. To minimise these impacts, businesses will be consulted on the proposals and support given if they need to temporarily or permanently move to the new terminal. During refurbishment, signs will help passengers locate shops and services if there is disruption to passenger flows.

The local community may be temporarily disturbed during construction such as due to noise or increased road traffic. However, through careful

management of construction activities, the effects on the community will be minimised.

There is potential for negative impacts to construction worker wellbeing, security and labour rights. Through the implementation of good international practice, this will be carefully managed throughout the construction phase.

Following implementation of the above mitigation, social impacts during construction will be appropriately minimised.

Operation

During operation, TAV plans to optimise staffing and downsize the size of the existing operation. As unemployment rates are growing in Almaty, it is expected that some operational staff will be affected by the retrenchment process. Measures will be implemented to develop retrenchment policies that are in line with best practice. These will be prepared in consultation with affected employees, authorities and the government (when required).

However, as the new terminal opens, up to 800 permanent jobs will be generated from Almaty and neighbouring communities at the airport in various roles associated with the new terminal. In addition, the Scheme will enable more international and domestic tourism which will strengthen tourist business, hotel operators, as well as local cafes and restaurants. All these will provide benefits to the region's economy and help to reduce unemployment.

Increased air and road traffic could potentially isolate some communities. A Traffic Management Plan will be developed to consider how to best minimise impacts on local roads. This will include future traffic surveys and working with the local Akimats to understand what the impacts are as passenger numbers grow, and what can be done to manage negative impacts on local roads and communities.

Following implementation of the above mitigation, social impacts during operation will be minimised.

Occupational Health and Safety Risks

Occupational health and safety (OHS) risks relate to hazards for the workers and communities from the construction and operation of the Scheme.

Demolition and construction work may pose risks for construction staff and contracted workers, such as accidents with equipment and tools. The risk of demolition and construction works also has the potential to affect the health and safety of people who live or walk immediately around the site. TAV Construction's OHS management system will ensure that any risk to staff or the community is minimised.

There is an increased risk of COVID-19 transmission where people come into close contact with each other. As construction workers use shops and services, their risk of contracting COVID-19 increases. Measures to minimise transmission between staff and use larger or outdoor spaces as much as possible will be implemented.

It is known that gender-based violence and harassment occurs in the transport sector, both for working women and for passengers using transport. Under the leadership of TAV, the airport will develop policies, procedures, codes of conducts and protocols to address this. Incidents will be recorded to help the airport minimise any such risks. Reporting of incidents will be able to be done confidentially.

During the operational phase, there will be health and safety risks to staff and passengers who use the airport. This can include managing the risk of fire, natural disaster, how the building is used, equipment use, or building failures. Hazards will be identified will be mitigated within the TAV OHS and security management system and local requirements.

Following implementation of the above mitigation, OHS risks will be minimised.

Cultural Heritage

The existing VIP terminal building, understood to have probably been constructed in the 1950s, is a designated heritage asset. Whilst the fabric of the building has changed from its original form, and therefore of limited value, many of the features are historically important.

The Scheme proposes to move the VIP terminal to a new location approximately 475m south of its current location (refer to Figure 3). The rebuilt terminal will incorporate the heritage features of the existing building and will replicate the same architectural design.

Cultural heritage impacts include the deconstruction of the building itself and the rebuilding of key features at a separate location. The potential heritage effects relate to possible damage to the fabric of the building and its decorative elements. There is also the potential for previously undiscovered archaeological remains in the ground to be disturbed by the site works.

Figure 3: Change of location for VIP Building

Source: TAV, 2021

To minimise these impacts, a “method statement” will be developed which will clearly describe careful methods for moving the building features to the new site. The works will be done under the supervision of a heritage expert to ensure the protection of the heritage features. The heritage expert will also assess the use of traditional techniques to restore heritage assets and oversee the archiving, including digital preservation prior to any changes occurring to the building.

In addition to the VIP Terminal, there is a small risk that buried archaeology may be found where groundworks occur. Whilst this location is considered to have a low risk, a “Chance Finds Procedure” will be developed and implemented in case such finds are discovered. This will protect any finds from the works and enable their preservation and study.

Following implementation of the above mitigation, cultural heritage impacts will be appropriately minimised.

Land Zoning

It is proposed that areas around the airport are to be zoned to manage what can be built and operated. This is for the safety of the airport operations and to help manage aircraft noise impacts close to the airport. It is planned that these zones will be operational by 2023.

The zones proposed are:

- **Sanitary Protection Zone**: This is an area where there will be higher noise impacts due to airport operations, and which restricts future development to minimise residents who are exposed to elevated noise levels. This is currently considered to be 500m from the airport although the appropriate size for the SPZ is subject to further review.
- The **Aviation Safety Zone:** This is to control land use to ensure development doesn't impact the safety of aircraft operating at the airport. This will comprise an area within a 4km radius from the nearest point of the runway and 15km from the airport control point. This would be agreed and implemented by the Government of Kazakhstan.
- The recommended **Public Safety Areas** and **Public Safety Zones** are to limit any future development in the vicinity of the runways due to public safety risks of aircraft crashes. These would be up to 350m in width from the end of runways for a total length up to 3,000m.

It is not currently known if the Government of Kazakhstan would require any resettlement of existing land users as part of the implementation of these zones. If this is required, then livelihood restoration and resettlement plans would be developed and implemented in line with international standards, as necessitated by the Scheme's lenders. This would include a careful consultation and disclosure process.

Cumulative Effects

Cumulative effects are where the same location, environmental factor or group of people are affected by multiple environmental or social impacts at the same time.

The international ESIA included consideration of multiple impacts occurring at the same location, which could increase the environmental or social impacts felt. For example, a resident may experience an increase in both air and noise emissions at the same time. These effects are termed "intra-scheme cumulative effects".

Significant intra-scheme cumulative effects have been identified as resulting from increased noise and air emissions from operational road traffic and increased flights, which will cumulatively have an effect on residents on Mailin Street.

This will be managed through the implementation of mitigation already described for both air quality and noise.

The ESIA also included a review of other construction projects in the area surrounding Almaty Airport to determine the environmental and social impacts in combination. For example, multiple schemes may be producing noise emissions that could affect the same residents. These effects are termed "inter-scheme cumulative effects". The assessment assumed that all identified schemes would be constructed and operated at the same time.

The other schemes considered comprise the "Big Almaty Ring Road (BAKAD)" and the "Karyat Multistorey Housing Estate".

Significant inter-scheme cumulative effects were identified as effects on local communities in Guldala and along Mailin Street due to increased road vehicles and air emissions and noise during both the construction and operational phase.

In order to mitigate these impacts, it is recommended that the airport will work with other projects to consider combined mitigation, such as coordinated plans for traffic, emissions, and monitoring to minimise the identified impacts.

Environmental and Social Management Plan

A framework Environmental and Social Management Plan (ESMP) has been produced to establish measures that manage scheme activities in order to minimise environmental and social risks during both construction and operation phases. The ESMP outlines the measures and plans that both TAV and TAV Construction are responsible for actioning; this includes independent monitoring and reporting to lenders on the implementation of environmental and social management.

What Happens Next?

A disclosure plan in line with international standards will be implemented, and comments on the Scheme and the ESIA will be welcome. Information on the ESIA, its findings, and where to access it will be shared with stakeholders, which includes the local community.

Advertisements will be placed in the local newspapers, on local radio and on the airport website for one week identifying the date, time, access information and a link to the online public meeting, as well as links to the disclosed documents and information on how to submit comments. This will be done in a way to ensure vulnerable groups such as the elderly, disabled, women, families who have low income and minority groups are aware of the event and invited. Letters of invitation will be forwarded to local environmental authorities, non-governmental organisations (NGOs) and other Scheme stakeholders to participate in the ESIA disclosure event(s).

After 30 days of disclosure and consultation period, responses will be collated and the ESIA documentation will be finalised. A comment and response table will be released providing information about how the final ESIA has taken into consideration the feedback provided by stakeholders. The Final ESIA Report and documentation will be disclosed via the airport website.

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