MOTT MACDONALD

Almaty International Airport Expansion

Evaluation of Alternatives Report

September 2022

Mott MacDonald
10 Fleet Place
London EC4M 7RB
United Kingdom

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

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1 Introduction

1.1 Background

TAV Airports Holding Co. (hereafter referred to as 'TAV'), alongside partner VPE Capital Ltd, purchased Almaty International Airport ('ALA'), Kazakhstan in 2021. Under the purchase, a new terminal is proposed as part of the airport terminal expansion works, alongside associated infrastructure development at the airport; these works comprise "the Scheme".

Mott MacDonald Ltd has been appointed by JSC Almaty International Airport to undertake an Evaluation of Alternatives Report (this report) to review and evaluate the options available to locate the VIP terminal building within the context of the Scheme. Mott MacDonald has also worked closely with TAV on this work.

The Scheme proposes to increase terminal capacity by constructing a new international terminal; however, the current proposed location of the new international terminal conflicts with an existing building on site, known as the 'VIP terminal building'. This building is noted as a building of historic interest. This report reviews options that have been considered for the VIP terminal building with an aim to try to minimise heritage impacts whilst also enabling the development of the new airport terminal, with a view to economic considerations in both construction and operation phases.

1.2 Purpose of this Report

The purpose of this report is to identify and evaluate the spatial options available to locate a new international terminal at ALA and subsequent options relating to the VIP terminal building location. Chapter 2 presents a long list of potential scenarios in the context of the VIP terminal building that have been identified following a design workshop with Mott MacDonald environment, heritage and stakeholder specialists, Almaty Airport's Community Liaison Officer (CLO), TAV Construction engineering leads, TAV Construction architecture specialists, and TAV environmental specialists. These scenarios are high level concepts which have been evaluated in greater detail in Chapter 3.

In evaluating each of the options for the VIP terminal building, the following criteria categories have been considered for both adverse and beneficial impacts:

- Impacts to cultural significance - consideration of the direct physical impacts to the VIP terminal building and potential changes in its spatial context/ setting which impact its cultural significance (termed heritage value in the ESIA).
- Constructability - consideration of construction cost, programme, effects, and the overall ease of construction i.e., construction vehicle access, proximity to other structures/buildings.
- Operational suitability - consideration to the functionality of the VIP terminal building and the functionality of the airport as a whole. Consideration of the cost associated with operation, where applicable.
- Socio-economic benefits – consideration to the socio-economic benefits associated with the development.

A combination of qualitative analysis and professional judgement has been applied in determining which options are suitable to be taken forward following evaluation. Chapter 4 presents the short list of options to be taken forward to stakeholder consultation. Following this stakeholder consultation, a preferred option will be selected which will form the final design for the Scheme.

1.2.1 Need for the Scheme

Almaty airport is a major international airport in Kazakhstan, which currently serves more than 34 airlines, including hub operations for Air Astana. Current aspirations from TAV are to expand the airport capacity in line with forecast increase in passenger numbers. In 2019, the airport recorded 6.43 million passengers, 1.2 million tonnes of cargo and 60,055 aircraft movements.

The impact of the Covid-19 pandemic has led to a global downturn in air passenger traffic since the ADP Ingenierie study. Almaty airport's revised passenger data (TAV, 2020) suggest that, incorporating Covid-19 impacts, 10 million passengers will be reached by 2032, with 2019 passenger numbers reached again before 2024, when the expanded terminal facilities will be needed.

An Expansion Feasibility Study was completed by ADP Ingenierie in May 2019 on behalf of TAV to identify the general order of magnitude for the capital expenditure for the terminal expansion, as reported by Waterman in their Environmental and Social Due Diligence[1] of the airport and the Scheme (September 2020). Waterman reports that this study describes the current terminal capacity as limiting potential growth at Almaty airport.

The new passenger terminal size requirements are based on a peak hour international traffic forecast at 1,600 air traffic movements (ATMs) and 1,200 ATMs for domestic flights. TAV has indicated that the area required for the international building is approximately 48,000m^2 and approximately 30,000m^2 for the domestic building. The current terminal is currently utilised for both domestic and international flights. The terminal is 30,370m^2; therefore, remodelling of this available space for domestic use is possible. In 2019, before the Covid-19 pandemic, the existing terminal was reaching capacity and so expanded facilities were identified as being required.

The proposal for a new international terminal will accommodate up to eight million international passengers per year, allowing the existing terminal to also serve up to eight million domestic passengers per year, giving a total annual passenger capacity of up to 16 million passengers per year.

1.3 New international terminal locations

The location of the new international terminal has a direct bearing on the spatial options available in the context of the VIP terminal building. As such, consideration was given to proposed new international terminal locations, as outlined below.

Four locations were shortlisted, as shown in Figure 1.1. A summary of each location is provided along with any corresponding rational as to the feasibility of taking any of these options forward, to feed into the VIP terminal building location evaluation.

Other locations within the airport boundary beyond the four presented here were also considered; however, the existing space is currently occupied by ancillary structures such as the fuel farm or wastewater treatment plant, which preclude locating the terminal in these areas. Other areas close to the runways present the same operational challenges and would also require construction of new aprons and taxiways. The operational issues raised therefore remain for all alternative locations within the wider airport boundary, as such alternative locations were not considered further given none have any advantage over the four locations considered below.

[1] Waterman, 2020. "Project Apple: Almaty International Airport, Environmental and Social Due Diligence".

Figure 1.1: Proposed new international terminal locations

Source: TAV, 2020

1.3.1 Location 1.1: International terminal located in the helicopter hangar/factory

This location would see the new passenger terminal located in the existing helicopter hangar/factory. This area of land is currently used for helicopter manufacture and refurbishment, primarily for military use. A replacement location and factory infrastructure would be needed within the airport area to allow for continued access to the airfield, with the cost of moving this high and disruptive to ongoing airport operations. This would likely require land acquisition, require consent, and need to manage environmental and social impacts. This option has significant programme implications and would delay construction whilst an alternative location for the hangar/factory was found, and factory infrastructure consented and constructed.

Operationally, it is not desirable to have passengers moving externally across the airport, from the domestic terminal to a new international passenger terminal, as the existing VIP terminal building could act to block the connection route.

This location would retain the VIP terminal building in its current place and with no works proposed to modify the structure in any way. There would be no adverse physical impact to the VIP terminal building. This location would alter the setting of the VIP terminal building due to the construction of a new passenger terminal building where the existing helicopter hangar/factory is located (as defined in the heritage statement, report number 100107121-003). Although the VIP terminal building's setting would be altered it would not adversely impact its cultural significance. The VIP terminal building would continue to maintain a relationship with the culturally significant elements of its spatial context including the airport runway and Mailin Street. Therefore, overall there would be no impact to the cultural significance of the VIP terminal building.

However, due to the significant constructability challenges this option presents, in combination with the operational challenges, Location 1.1 has not been taken forward.

1.3.2 Location 1.2: International terminal located in the southern apron

This location proposes a new terminal in a remote apron area, to the south of the existing terminal building. On review of ICAO restrictions, this location is unsuitable as the runway approach conflicts with the height of the new terminal, rendering it too high for plane take-off and landing safety requirements.

If the terminal height was reduced to be in line with these requirements, this would then have implications for passenger circulation requirements and additional land would be needed to maintain the same building floorspace (through a larger ground floor area to compensate for the lower building height). The associated apron area would have to be extended to accommodate aircraft parking at the terminal and space for taxiways, which would have a consequential impact to the runway. Therefore, the adjacent runway would likely need to be moved further to the north-east, with associated land take requirements. This would have implications for the Scheme programme and cost, with consenting required, environmental and social impacts needing to be managed, and construction taking place to the runway, which would be disruptive to airport operations.

Operationally, it is unfavourable to have passengers moving externally across the airport, from the domestic terminal to a new international terminal. Similarly, this location presents difficulties in designing a suitable pick up/drop off point for the international terminal within the space available and proximity to the existing buildings.

This location would retain the VIP terminal building in its current location, with no works necessarily needed to modify the structure in any way. There would be no adverse physical impact to the VIP terminal building. There would be no change to the setting or spatial context of the VIP terminal building (as defined in the heritage statement, report number 100107121-003). Therefore, there would be no adverse impact to its cultural significance.

There would be no adverse impacts to the cultural significance of the VIP terminal building. As this location is not capable of meeting ICAO restrictions without significant land take to accommodate the increased floorspace, the resulting impacts to cost and programme render this option unsuitable. Therefore, Location 1.2 has not been taken forward.

1.3.3 Location 1.3: International terminal located in existing VIP terminal building location

This location would see the new passenger terminal adjacent to the existing terminal, in the current location of the VIP terminal building. This location would require potential removal, alteration, or incorporation of the VIP terminal building in order to construct the proposed new passenger terminal and extension to the existing vehicular access ramp for passenger drop-off/pick up.

This location is the most optimised for airport operations and constructability; it meets passenger comfort and safety standards and can be readily integrated into the existing terminal, existing apron, taxiways and kerbside drop off/pick up.

This location would have a direct adverse physical impact on the cultural significance of the VIP terminal building due to the presence of the new terminal building and construction activities. There are multiple concepts and options that can be developed which would likely have varying levels of impact on heritage.

For example, options to retain the existing building in-situ rather than remove it would reduce the adverse direct physical impact on the VIP terminal building but would alter its setting (as defined in the heritage statement, report number 100107121-003) introducing new adverse impacts to its cultural significance.

Whilst this location has adverse impacts on the cultural significance of the VIP terminal building, this should be weighed against the clear advantages from an operational suitability perspective. Location 1.3 has therefore been carried forward to further consideration in Chapter 2 and will be considered in the context of suitable options that can be developed for the VIP terminal building location in order to minimise potential impacts on the VIP terminal building and built heritage. Therefore, more detailed consideration of heritage impacts resulting from the concepts and options developed from this location are presented later in this report.

1.3.4 Location 1.4: International terminal located near the site of a previously partially completed terminal

This location considers locating the new passenger terminal in an area to the south of the runway. This location would require significant new infrastructure to support a new passenger terminal here, such as new apron and taxiway, which would have subsequent cost and programme implications. Land acquisition would be required with potential for further social impacts associated with livelihood restoration. Supporting infrastructure (such as highways) would need to be constructed, generating road traffic in areas which have not previously had airport road traffic passing through.

This location is not considered operationally suitable as aircraft moving between the international terminal and the domestic terminal would need to cross the active runway and this presents logistical challenges. This is challenging as when aircraft arrive on a domestic leg but are then required to operate an international leg, they would need to be towed a large distance across the airfield which reduces the operational flexibility of for the airlines, reducing the airport's attractiveness to be operated as a hub (or passengers bussed to/from the different terminals). Similarly, a bus shuttle service would also be required to transport passengers between the international terminal and the domestic terminal. This was the reason identified for Air Astana's objection to the previous terminal located in this area which remains in a half-built form on private land – it is likely a similar objection would be forthcoming for a new terminal located in this part of the airport.

However, this location would retain the VIP terminal building in its current location, with no works proposed to modify the structure in any way. There would be no physical impact to the VIP terminal building. There would be no change to the setting or the spatial context of the VIP terminal building (as defined in the heritage statement, report number 100107121-003). Therefore, there would be no impact to its cultural significance.

Overall, based on these considerations, Location 1.4 has not been taken forward.

1.3.5 Conclusion of new passenger terminal location optioneering

Due to the above analysis, it was identified that Location 1.3 above was the most suitable to be taken forwards for further consideration. Therefore, the remainder of this report considers more detailed variants within this location selection.

1.4 VIP Terminal Building

In selecting Location 1.3 above as the preferred way forward for the new passenger terminal, impacts to the existing VIP terminal building would arise.

The existing VIP terminal building is noted as a building of historic interest, constructed in circa 1950. A heritage assessment conducted by Environmental Resources Management (ERM)[2]

[2] Historic Building Assessment, Almaty International Airport VIP Terminal (2020), ERM

describes the VIP terminal building as a representative of historic architectural trends of the Soviet period, playing a historically important role in the development of Kazakhstan.

The VIP terminal building is a listed asset of local heritage value and described on the official list as:

No. 73. Airport (now a business terminal). Architects: G. Elkin, B. Zavarzin; Turksibsky district, st. Mailina, 1a, 1947.[3]

The VIP terminal building is located to the north of the main airport terminal with the landside elevation partially seen when approaching the airport from Mailin Street. The airside elevation is adjacent to the airport apron. The role the building plays as a focal point within the wider airport is particularly relevant to its cultural significance and its appreciation amongst stakeholders and the local community.

The proposed Scheme was presented to the Mayor of Almaty and President of Kazakhstan in January and May 2020 respectively, following which Akimat approval was granted in November 2020 to replace the VIP terminal building, and construct a similar building elsewhere. Although local permits and consents were granted for this proposal previously, this report considers all options discussed to date as a new review; it will therefore not take these existing permits or current works on site into account.

A suite of documents has been produced to assess the cultural significance of the VIP terminal building and its spatial context. This includes a Significant Fabric Assessment (report number 100107121-001), Heritage Interpretation Plan (report number 100107121-002), and Heritage Statement (report number 100107121-003) This has informed an optioneering process to understand the preferred options for how to minimise adverse impacts to the cultural significance of the VIP terminal building. These include direct adverse physical impacts and impacts resultant from a change in the setting of the VIP terminal building. Chapters 2 to 4 consider this further to conclude on preferred options for the VIP terminal building.

1.5 ESIA Proposed Scheme Layout

Within the project Environmental and Social Impact Assessment (ESIA)[4], a preferred option was presented as part of the Scheme design for assessment where the new international terminal is situated in the current location of the VIP terminal building (Option 1.3 above), with the VIP terminal building replaced and reconstructed in the remote apron area where it will become the “Presidential and General Aviation” terminal (see Figure 1.2). In replacing and reconstructing the building, the heritage value (an equivalent term to cultural significance) is sought to be retained through considered reconstruction of the building material and restoration at its new location.

Figure 1.2 and Figure 1.3 illustrate the proposed layout, as assessed in the ESIA, with the new passenger terminal (dark blue), existing terminal (pale blue) and replacement VIP terminal building (yellow) within the existing airport boundary. These figures were produced as part of the previous ESIA in consideration of the proposed scheme layout.

[3] Finnegan, E., and Myers, E. 2020 *Historic Building Assessment, Almaty International Airport VIP Terminal*. Environmental Resources Management, Inc. (ERM).

[4] Environmental and Social Impact Assessment (ESIA), Mott MacDonald, 2021. Document reference 100100464-001

Figure 1.2: Proposal for change in location for VIP Terminal Building, as assessed previously in the ESIA

Source: TAV, 2020

Figure 1.3: Proposal Masterplan

Source: TAV 2020

It is important to note that this option was the preferred way forward at the time of the ESIA, but the optioneering process presented in this Evaluation of Alternatives report has reviewed the information and makes its own conclusions irrespective of the option presented in the ESIA. Therefore, the preferred options from this report may not necessarily reflect the same design as that presented in the ESIA.

1.6 Optioneering Process

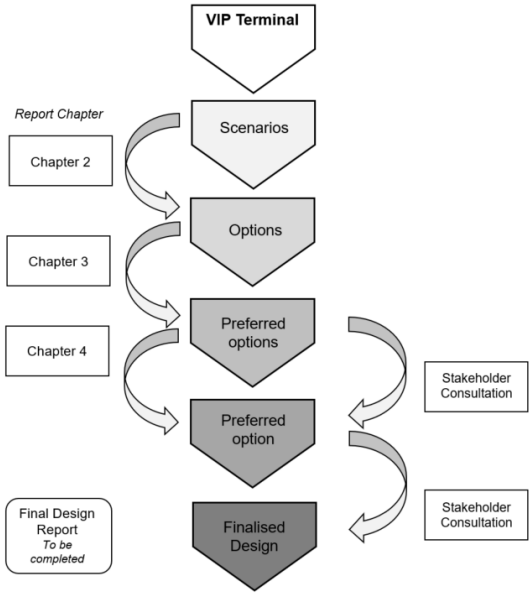
Of the potential locations for the new international terminal, as outlined in Section 1.3 above, only Location 1.3 ‘International terminal located in existing VIP terminal location’ was considered suitable for further development. As such, this option has been taken forward as part of the Scheme, therefore necessitating the consideration of suitable options for minimising risks or impacts to the VIP terminal building which currently occupies this location.

To do this, an optioneering process has been developed: firstly “concepts” are considered which are design solution principles. Preferred concepts are then taken forward for more detailed designs whereby more detailed “options” are developed, with preferred options taken forward for stakeholder consultation.

The scenarios are high level concepts which will be evaluated in greater detail in Chapter 2, in line with the evaluation criteria outlined in Section 1.2.

Chapter 3 presents a short list of options to be taken forward to stakeholder consultation. See Figure 1.4 below for a summary of this process.

Figure 1.4: VIP Terminal Building Evaluation Flow Chart



2 Scenarios

This chapter presents a long list of scenarios which have been identified for locating the VIP terminal building in the context of the Scheme. This includes options for managing impacts to the VIP terminal building for scenarios that would propose a new passenger terminal on that site. Scenarios are reported as being taken forward to the next stage or not, and only those taken forward for further optioneering are considered in Chapter 3.

2.1 Do-Nothing

Under a 'Do-Nothing' scenario, the airport would continue to operate, however no further maintenance of the existing facilities would be undertaken, allowing general degradation of the facilities and no further improvement or repairs. No works would be undertaken to address the identified capacity increase. This would lead to the viability of Almaty airport decreasing and would result in direct physical impacts to the cultural significance of the VIP terminal building as it would not be repaired and maintained. It is likely that the setting of the VIP terminal building would alter detrimentally due to lack of maintenance further impacting its cultural significance.

The 'Do-Nothing' scenario is not considered viable as it does not address the need for the scheme nor maintain the existing airport. In addition to the above, the 'Do-Nothing' scenario would result in several missed socio-economic benefits as a direct result of not expanding the airport terminal facilities and increasing the potential passenger capacity.

2.2 Do-Minimum

Under a 'Do-Minimum' scenario, maintenance of the existing facilities would be undertaken (unlike the "do-nothing"), but no significant works would be undertaken to address the identified capacity increase. The airport would continue to operate with existing terminal infrastructure, maintaining all relevant structures and buildings as it currently does.

As significant works would not be proposed, environmentally this would likely result in fewer overall impacts resulting from construction and operation of the Scheme. Impacts to the cultural significance of the VIP terminal building would not occur as the building and its setting (as defined in the heritage statement, report number 100107121-003) would be maintained. Therefore, from an environmental and heritage perspective, this would be preferred. However, this scenario does not allow for an increase in passenger numbers that the airport needs, to be able to accommodate the projected increase in passenger numbers. Similar to the 'Do-Nothing' scenario, this option would result in several missed socio-economic benefits associated with expanding the terminal facilities and increasing passenger provision.

As such, the 'Do-Minimum' scenario is not considered suitable to take forward for further evaluation as it does not address the need for the Scheme.

The Do-Minimum Scenario is therefore not considered further.

2.3 Do-Something

2.3.1 Scenario 1: Retention in situ of VIP terminal building, incorporation into the new international terminal

This scenario would see construction of a new international passenger terminal located immediately behind the existing VIP terminal building so that the two adjoin. The VIP terminal building would be the main landside feature of the new passenger terminal. The VIP terminal building may also be enveloped within the new structure.

Structural work to the VIP terminal building would be required for seismic compliance. This would result in a direct physical impact on the building.

Retention of the VIP terminal building in place would enable fewer direct physical heritage impacts than removing the building and replacing it elsewhere. It is likely that the setting of the VIP terminal building (as defined in the heritage statement, report number 100107121-003) would be altered. The degree to which this impacts its cultural significance would need to be considered. Therefore, this scenario has been taken forwards for further consideration, although it would present some challenging construction and operational issues regarding access and seismic compliance.

2.3.2 Scenario 2: Demolition and construction of a replacement VIP terminal building within the airport

In this scenario, the existing VIP terminal building would be demolished and a replacement building constructed in a style influenced by the existing building, with key heritage features moved across where possible.

This scenario would result in the permanent loss of some of the VIP terminal building's cultural significance. The cultural significance of the VIP terminal building is considered to be due to its architectural form, symmetry and key architectural features (including the pishtaq, belvedere, decorative elements and window and doorway arrangements). Later alteration has meant that its cultural significance of the VIP terminal building has been reduced (see the heritage statement, report number 100107121-003). This means that construction of the replacement VIP terminal building would retain some of the key fabric of the building and therefore some of its cultural significance. The character and appearance of the new building, including these architectural features, would be reconstructed. Some features from the original building would be retained and relocated into the new building where possible, such as the stained glass. Full details on construction technique would be determined in a more detailed design stage in due course if this concept is taken further.

Elements of the VIP terminal building's historic spatial context including the linear alignment of Mailin Street, surrounding suburb and airport would be retained. The VIP terminal building would be lost as a focal point of the historic landscape including the alignment with Mailin Street. However, Mailin Street would remain creating a different relationship with the new international passenger terminal. Although there would be an impact to the cultural significance of the VIP terminal building itself this should be weighed against the continued importance of the relationship between Mailin Street and the new international passenger terminal as part of an evolving landscape.

Multiple options for location of the replacement building would be possible, which would offer a range of impacts and opportunities to the cultural significance of the VIP terminal building and its spatial context. These options could also consider how the historic landscape of Almaty airport is retained or enhanced through sympathetic design. All of these options retain association with the airport and maintain this element of its cultural significance.

Therefore, this scenario has been taken forwards for further consideration, although it is noted that demolishing the original building would have heritage impacts which would be considered in further detail.

2.3.3 Scenario 3: Permanent demolition of the VIP terminal without replacement

This scenario would see permanent demolition and removal of the VIP terminal building, with no provision to replace the structure.

This scenario would result in the permanent loss of the majority of the VIP terminal building's cultural significance. This would involve all of the significant fabric of the VIP terminal building itself and the permanent loss of the building as a heritage resource. The VIP terminal building would be lost as a focal point of the historic landscape including the alignment with Mailin Street. Elements of the VIP terminal building's historic spatial context including the linear alignment of Mailin Street, surrounding suburb and airport would be retained as part of an evolving landscape.

Furthermore, the future need for a "Presidential and General Aviation terminal" provides the airport with an opportunity for a new VIP terminal building to be constructed to contain heritage features of the current building.

Therefore, this scenario has not been taken forwards for further consideration.

2.3.4 Scenario 4: Relocation away from the airport

This scenario would demolish the existing VIP terminal building and construct a replacement building of similar style at a location situated away from the airport, elsewhere (likely to be in Almaty city, outside of the existing airport footprint). Key heritage features from the current building would be moved to this replacement. This scenario would create building of interest elsewhere in the city which could be used for a variety of purposes.

This scenario would result in the permanent loss of most of the VIP terminal building's cultural significance. The VIP terminal building would be lost as a focal point of the historic landscape including the alignment with Mailin Street. Elements of the VIP terminal building's historic spatial context including the linear alignment of Mailin Street, surrounding suburb and airport would be retained as part of an evolving landscape.

The relocation of the VIP terminal building would retain some of the significant fabric of the building itself. However, the cultural significance of its historic context and association with the airport for which it was designed would be lost.

Furthermore, the future need for a "Presidential and General Aviation terminal" provides the airport with an opportunity for a new VIP terminal building to be constructed to contain the heritage features of the current building, and this would be located at the airport, providing those features with the context for which they were intended.

Therefore, given there are preferable alternatives, this scenario has not been taken forwards for further consideration.

2.3.5 Scenario 5: Relocation of the airport/building new airport

This scenario would seek to build a new Almaty airport in an alternative location, avoiding the need to affect the VIP terminal building, by selecting a site large enough to accommodate the projected future growth and address the need for the Scheme.

It is assumed that this scenario would result in the existing VIP terminal building being retained in-situ. This option would remove the potential direct physical impacts on the heritage significance of the VIP terminal building due to its alteration and/or demolition. However, it would be likely to result in the loss of an active airport from the setting of the VIP terminal building. The airport forms an important element of the cultural significance of the VIP terminal building for which it was designed.

The VIP terminal building is not regarded as being of sufficient cultural significance to warrant the relocation of the airport. It is regarded as being of local significance with some individual architectural elements of higher cultural significance.

This scenario presents considerable other challenges due to the significant costs and planning involved with developing a new airport. The impacts of developing a new airport are highly likely to be significant on the environment and communities and require extensive designing, permitting and consenting periods. The timeframes for this would be substantially lengthy to mean the existing airport would have passenger numbers exceeding capacity well before a new airport could open. There would also be numerous political and economic obstacles which would affect the viability of such a project.

Although there have been previous discussions regarding development of a new airport for Almaty, these are not currently actively being proposed. Therefore, this scenario has not been taken forward for further consideration as it would not enable an increase in passenger terminal facilities within the required timeframe.

3 Options for VIP Terminal

This chapter describes subsequent options that have been developed under the two Scenarios, which have been taken forward for further consideration – i.e. Scenario 1 and 2 as described in Chapter 2. For each option the key evaluation criteria will be considered before concluding whether the option is suitable to be taken forward to stakeholder engagement.

3.1 Scenario 1: Retention in situ (incorporation into the new international terminal)

Four options under this scenario have been considered, as outlined below.

3.1.1 Option 1.1: New international terminal located behind the VIP terminal building with a split-level entrance

Description

This option would see the construction of a new international terminal adjoining directly behind the existing VIP terminal building. A vehicular ramp would connect to the existing ramp as a continuation of this structure, allowing a split-level zone for passenger drop-off/pick up, segregating arrivals (lower level) and departures (upper level) at the terminal entrance, as per the existing terminal. This passenger drop-off/pick-up area and vehicle ramp would be located in front of the VIP terminal building and adjoin it via a pedestrian bridge. See Figure 3.1 for indicative illustration.

The VIP terminal building and new passenger terminal would be inter-linked, with the VIP terminal building acting as the landside entrance/exit part of the new terminal.

Impacts to cultural significance

Retaining the VIP terminal building in its present location would mean its demolition is not required thus reducing the direct physical impact to its cultural significance. This option requires constructing a new passenger terminal immediately to the rear (and east) of the VIP terminal building and locating the vehicle access ramp in front of the VIP terminal building (see Figure 3.1 for illustration) with associated walkway bridges cutting through the roof. This would require the alteration of the VIP terminal building and a change to its setting. This would impact its cultural significance and is not desirable.

In this option, both the interior layout of the VIP terminal building and the exterior architectural details is likely to be altered. In order to allow for passenger throughflow on the lower and upper ramp levels and sufficient emergency exits the window openings would be changed. This would include the removal of the stained-glass windows and alteration of the exterior western façade. The interior layout would be altered. These changes would result in a direct physical impact on the cultural significance of the VIP terminal building. It would alter how the original function, architectural form and composition of the VIP terminal building could be appreciated.

Furthermore, structural work would be needed for seismic compliance. This would result in a further, direct physical impact on the building. This would further diminish its cultural significance and the ability to appreciate its character and appearance.

The new passenger terminal would be located immediately east and to the rear of the VIP terminal building. This would visually dominate the VIP terminal building, introducing additional infrastructure into its setting. The construction of the new passenger terminal would also sever the relationship with the airport runway. Views from the airport towards the VIP terminal building entirely lost. It would prevent the VIP terminal building's eastern façade being a visual focal

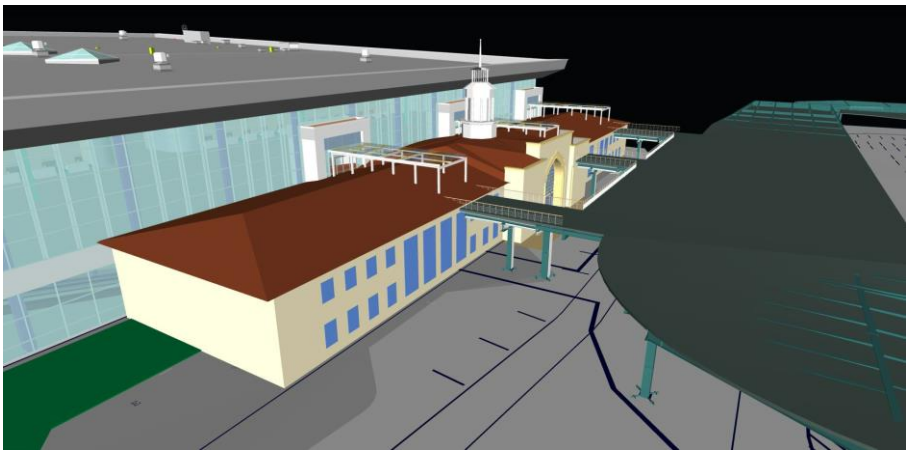
point to passengers arriving to the airport. The construction of an access ramp would obscure views of the western façade (see Figure 3.1). This would reduce the ability to appreciate the character and appearance of the building and important architectural features such as the pishtaq and fenestration.

The VIP terminal building's setting already has elements that are detrimental and unsympathetic to its cultural significance. But this option introduces new infrastructure and buildings which would reduce the ability to understand the simple architectural form and intended landmark character of the building. The ability to appreciate the relationship between the building, the airport runway and some of the surrounding historic context of Mailin Street would be lost. It would result in a setting that had been so substantially altered from its historic context in open land on the edge of the airport runway that it would contribute very little to its cultural significance.

Figure 3.1: Option 1.1 New international terminal located behind the VIP terminal building on a split level (Doesn't show modifications that would be needed for seismic compliance and passenger flow)

Source: TAV, 2020

Figure 3.2: Option 1.1 New international terminal located behind the VIP terminal building on a split level (Indicative modification locations required for passenger flow on the upper ramp level are shown, but the cuts through the roof for the walkways are not shown)



Source: TAV, 2022

Constructability

Due to the proximity of the VIP terminal building to the new international terminal, the structural foundations of the new terminal could adversely impact the stability and structure of the VIP terminal building. At present, the VIP terminal building does not meet current requirements

relating to seismic risk. As such, any works to the VIP terminal building would require additional structural reinforcement which is likely alter the aesthetic quality of the building.

Similarly, the VIP terminal building could pose a risk to the new terminal, should the structure fail under seismic activity and fall on the new terminal.

The construction of a vehicle ramp would require significant modifications to both levels of the VIP terminal building to provide appropriate space on both levels and would require removal of windows and creation of suitable space to enable passenger flow. Changes to the roof would be required to allow access to/from the upper vehicle ramp.

Operational suitability

Operationally, this split-level design is desirable to separate arrival and departure passenger throughflow, providing enough space for vehicle pick-up and drop-off, and meeting desired passenger comfort levels. Life and fire safety standards can't be fully met, as the VIP terminal building does not provide sufficient escape routes in the event of a fire, without significant modification to the number of entry/exit points from the VIP terminal building.

Socio-economic benefits

This option would provide significant socio-economic benefits as a direct result of a new international terminal and the increased passenger provision this would provide. The new international terminal would create employment opportunities and new sources of revenue for the local community.

Conclusion

From a heritage perspective, the VIP terminal building is retained in situ, albeit with additional construction modifications required to meet the necessary standards. Its setting would be substantially altered such that it would contribute very little to its cultural significance. Whilst this option has multiple constructability challenges, it is capable of providing the desired passenger comfort levels and space to accommodate vehicle pick-up and drop-off. For these reasons, this option will be carried forward to further consideration and stakeholder consultation.

3.1.2 Option 1.2: New international terminal located behind the VIP terminal building with ground level pick-up/drop off

Description

This option retains the VIP terminal building in its current location, with the new international terminal located behind, with no vehicle access ramp. In this scenario all passenger drop-off/pick-up would be on the ground level. The VIP terminal building and new passenger terminal would be inter-linked, with the VIP terminal building acting as the landside entrance/exit part of the new terminal. See Figure 3.3 for illustration.

Impacts to cultural significance

Retaining the VIP terminal building in its present location would mean its demolition is not required thus reducing the direct physical impact to its cultural significance. This option requires constructing a new passenger terminal immediately to the rear (and east) of the VIP terminal building. This would require the alteration of the VIP terminal building and a change to its setting. This would impact its cultural significance and is not desirable. See Figure 3.3 for illustration below.

In this option, both the interior layout of the VIP terminal building and the exterior architectural detail is likely to be altered. In order to allow for passenger throughflow on the lower level and sufficient emergency exits the window openings would be changed. This would include the removal of the stained-glass windows and alteration of the exterior western façade. The interior

layout would be altered. This would be a direct physical impact on the cultural significance of the VIP terminal building. It would alter how the original function, architectural form and composition of the VIP terminal building could be appreciated.

Furthermore, structural work would be needed for seismic compliance. This would result in a further direct physical impact on the building. This would further diminish its cultural significance and the ability to appreciate its character and appearance.

In this option the setting of the VIP Terminal Building would be altered. The VIP terminal building's setting already has elements that are detrimental and unsympathetic to its cultural significance. However, this option would introduce new buildings which would visually dominate the VIP terminal building, and obscure key views of the eastern elevation. This would reduce the ability to understand the simple architectural form and intended landmark character of the building. The ability to appreciate the relationship between the VIP terminal building and the surrounding historic context of Mailin Street would, however, be partially retained. Overall, it would result in a setting that had been substantially altered from its historic context in open land on the edge of the airport runway. The extent to which the VIP terminal building's setting contributes to its cultural significance would be diminished.

Figure 3.3: Option 1.2 New international terminal located behind the VIP terminal building
(ground level pick-up/drop off, removal of windows for passenger movements, and structural improvements for seismic risk are all not shown in the visualisation)

Source: TAV, 2020

Constructability

As with Option 1.1, at present the VIP terminal building does not meet current Kazakhstan regulations relating to seismic risk. As such, any works to the VIP terminal building would require additional structural reinforcement.

Spatial options have been considered which locate an access road elsewhere within proximity to the VIP terminal building, such as around the currently vacant hotel building. However, there is not enough space in the airport boundary to locate the road without using a double-deck access ramp.

Operational suitability

Operationally, this presents a challenge to utilise one level for all arrivals and departures entering and exiting the building simultaneously. There would also be insufficient space for both passenger drop-off and pick-up without significant works (such as demolition of the adjacent hotel building).

This design would affect passenger comfort levels and fire and life safety requirements, as the current VIP terminal building does not contain enough fire escape routes on its ground floor to meet the safety requirements for the projected number of passengers in accordance with National Fire Protection Association (NFPA) standards and the Gost Standard.

Socio-economic benefits

This option would provide significant socio-economic benefits as a direct result of a new international terminal and the increased passenger provision this would provide. The new international terminal would create employment opportunities and new sources of revenue for the local community.

Conclusion

From a heritage perspective, the VIP terminal building is retained in situ, albeit with additional construction modifications required to meet the necessary standards. This would retain some of its cultural significance but the extent to which the VIP terminal building's setting contributes to its cultural significance would be diminished. This option is not capable of meeting the required operational standards, in particular regarding passenger pick-up/drop-off. Similarly, it presents a number of constructability challenges with limited benefit to the heritage importance of the VIP terminal building. For these reasons this option will not be carried forward to further consideration or stakeholder engagement, although it is acknowledged that heritage impacts would be less than with Option 1.1.

3.1.3 Option 1.3: New international terminal located behind the VIP terminal building (access ramp relocated)

Description

This option would see the new terminal building located directly behind the VIP terminal building, with the access ramp relocated underground to prevent obscuring the front elevation of the VIP terminal building. See Figure 3.3 for illustration of the VIP terminal location and proximity to the new international terminal, noting the access ramp is not shown in this visualisation. This would see the VIP terminal building retained in its current situ. The VIP terminal building and new passenger terminal would be inter-linked, with the VIP terminal building acting as the landside entrance/exit part of the new terminal.

Impacts to cultural significance

Retaining the VIP terminal building in its present location would mean its demolition is not required thus reducing the direct physical impact to its cultural significance. This option requires constructing a new passenger terminal immediately to the rear of the VIP terminal building. This would require the alteration of the VIP terminal building and a change to its setting. This would impact its cultural significance and is not desirable.

In this option, the entrance and window openings would not be changed. As passengers would be dropped-off and picked-up underground, the building would no longer serve as an entranceway for users. However, the architectural form and composition of the western elevation and interior of the VIP terminal building could still be appreciated. The interior layout of the VIP terminal building would be retained but its interior layout mostly lacks cultural significance.

Furthermore, structural work would be needed for seismic compliance. This would result in a direct physical impact on the building. Excavation for underground vehicle pick-up/drop-off may also risk subsidence and physical damage to the structure of the VIP terminal building which will need to be carefully considered in the design. This would have the potential to diminish its cultural significance and the ability to appreciate its character and appearance.

The new passenger terminal would be located east and to the rear of the VIP terminal building. This would visually dominate the VIP terminal building and alter its setting. The construction of the new passenger terminal would also sever the relationship with the airport runway. Views from the airport towards the VIP terminal building would be entirely lost. It would prevent the VIP terminal building's eastern façade being a visual focal point to passengers arriving to the airport.

The VIP terminal building's setting already has elements that are detrimental and unsympathetic to its cultural significance. But this option introduces new infrastructure and buildings which would reduce the ability to understand the simple architectural form and intended landmark character of the building. Underground access ramps in the vicinity of the building may distract further from the ability to appreciate the relationship between the VIP terminal building and its setting. The ability to appreciate the relationship between the VIP terminal building and the surrounding historic context of Mailin Street would, however, be partially retained. Overall, it would result in a setting that had been substantially altered from its historic context in open land on the edge of the airport runway. The extent to which the VIP terminal building's setting contributes to its cultural significance would be diminished.

Constructability

Utilising underground vehicle access to the terminal is not considered feasible due to the high cost and programme of necessary works to counter the high groundwater table to prevent the ingress of water. Such works would be significant to accommodate the scale of passenger drop-off/pick-up underground and would make the project financially unfeasible.

Operational suitability

Operationally, this would offer space for passenger drop off/pick-up in an underground space, assuming sufficient space could be made available for it. The ongoing maintenance works for the underground areas (such as ensuring no groundwater ingress) would result in a more expensive asset to manage than variants with above-ground vehicle access.

Air quality issues from vehicular pollution underground would be a substantial issue and would need extensive management to minimise the impact on the health and wellbeing of airport users.

Socio-economic benefits

This option would provide significant socio-economic benefits as a direct result of a new international terminal and the increased passenger provision this would provide. The new international terminal would create employment opportunities and new sources of revenue for the local community.

Conclusion

From a heritage perspective, the VIP terminal building is retained in situ, albeit with additional construction modifications required to meet the necessary standards. This would retain some of its cultural significance but the extent to which the VIP terminal building's setting contributes to its cultural significance would be diminished. This option is not feasible from a construction feasibility perspective due to the challenges and costs of underground engineering. Therefore, this option will not be carried forward to further consideration or stakeholder engagement.

3.1.4 Option 1.4: New international terminal built to envelop the VIP terminal building

Description

A final option within this Scenario was considered where the VIP terminal building is retained in its present location, and the new passenger terminal built around it to envelop the VIP terminal inside it as a feature piece. The VIP terminal building would therefore be located entirely within the new terminal building.

Impacts to cultural significance

Retaining the VIP terminal building in its present location would mean its demolition is not required thus reducing the direct physical impact to its cultural significance. This option would retain the VIP terminal building in its current situation, enveloping the new terminal around it. This radically alters the setting of the VIP terminal building. This would impact its cultural significance and is not desirable.

The structural works needed for seismic compliance would also result in a physical and visual intrusion into building, resulting in the potential loss of historic fabric of cultural significance, and distracting from the ability to appreciate its character and appearance.

The VIP terminal building's setting already has elements that are detrimental and unsympathetic to its cultural significance. Enveloping the VIP terminal building would reduce the ability to understand the simple architectural form of the building and diminish the ability to understand the intended landmark character of the building. It would sever the relationship with the airport runway. Views from the airport towards the VIP terminal building would be entirely lost. It would prevent the VIP terminal building's eastern façade being a visual focal point to passengers arriving to the airport. It would at least partially obscure views of the western façade. This would reduce the ability to appreciate the character and appearance of the building and important architectural features such as the pishtaq and fenestration.

The ability to appreciate the relationship between the VIP terminal building, the airport runway and some of the surrounding historic context of Mailin Street would be lost. Overall, it would result in a setting that had been substantially altered from its historic context in open land on the edge of the airport runway. The extent to which the VIP terminal building's setting contributes to its cultural significance would be diminished.

Constructability

As with Option 1.1, at present the VIP terminal building does not meet current Kazakhstan regulations relating to seismic risk. As such, any works to the VIP terminal building would require additional structural reinforcement so as to not undermine the seismic compliance of the new terminal building.

Operational suitability

Operationally, this design is desirable to separate arrival and departure passenger throughflow, providing enough space for vehicle pick-up and drop-off, and meeting desired passenger comfort levels as it can allow for a split-level pick-up and drop-off at the front of the new terminal. However, internal configuration and layout of the new passenger terminal to accommodate the VIP terminal building presents further challenges to meet the desired passenger throughflow and it will require changes to the VIP terminal building to allow this. It may also require the new terminal to have an increase in footprint to be able to accommodate its functions as the including of the VIP terminal building will take up floorspace that would otherwise be used for other building functions (such as check-in).

Socio-economic benefits

This option would provide significant socio-economic benefits as a direct result of a new international terminal and the increased passenger provision this would provide. The new international terminal would create employment opportunities and new sources of revenue for the local community.

Conclusion

From a heritage perspective, the VIP terminal building is retained in situ, albeit with additional construction modifications required to meet the necessary standards. This would retain most of

its cultural significance but the extent to which the VIP terminal building's setting contributes to its cultural significance would be diminished. This option has limited functionality and presents a number of constructability challenges. Whilst it is capable of retaining the VIP terminal building in situ, it inhibits key views of the terminal and prevents its appreciation as a focal point within the wider airport. Furthermore, works to the VIP terminal building would be required to allow seismic compliance and passenger throughflow which would affect its heritage. For these reasons this option will not be carried forward to further consideration or stakeholder engagement.

3.2 Scenario 2: Demolition and construction of a replacement VIP terminal building within the airport

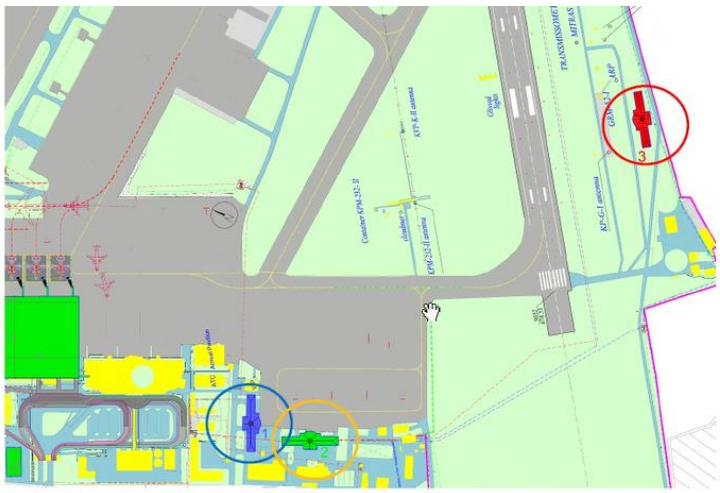
This scenario would see construction of a new international terminal with elevated viaduct structure to connect to the existing drop-off and pick-up roads. The VIP terminal building would be demolished with replacement building of similar style constructed elsewhere at the airport.

Any option within this scenario will have heritage impacts, due to a need to demolish the existing VIP terminal building. However, in doing so an opportunity would be taken to reproduce some original building features which have since been lost in the existing building such as the first-floor balcony. Existing heritage features would be moved across where appropriate.

Three potential options have been identified, shown in Figure 3.4 below, and outlined as follows:

- Option 2.1 (shown in blue)
- Option 2.2 (shown in green)
- Option 2.3 (shown in red)

Figure 3.4: VIP Terminal Building Alternative Locations



Source: TAV, 2020

3.2.1 Option 2.1: VIP terminal building reconstructed, perpendicular to Zakarpatskaya St. in southern apron

Description

This option would see the replacement VIP terminal building reconstructed in a new location in the southern apron area, south of the existing terminal, in a vertical alignment.

Impacts to cultural significance

This option would result in the demolition of the VIP terminal building and loss of original fabric. This would include fabric of low or no cultural significance. However, some elements including the pishtaq, belvedere, decoration and architectural form of greatest cultural significance could be retained in the new building. Its association with the historic spatial context of the airport runway and orientation on Mailin Street would be removed.

The new building would only partially retain elements of the setting which contributed to the original VIP Terminal building's cultural significance. This would only include its continued associated with the airport runway. The design of the northern façade (which used to be the eastern Stalinist style façade) would be largely hidden from public view. Although the southern façade (the former western façade, with south Kazakh style features) would be visible. However, it could not be fully appreciated except when viewed from private space within the airport terminal.

The former association with Mailin Street and axial alignment of its orientation would be entirely lost. The change in orientation would detract from the important symmetry and form of the original VIP terminal building. The appreciation of the principal eastern and western façades would be reduced. The ability to understand that these façades represented the separation between the airport runway to the east and the public space to the west would be lost.

There remains the opportunity to enhance the elements of the spatial context of the airport that form part of the historic landscape to beneficially impact its cultural significance. In particular this includes improving how the relationship between the axial orientation along Mailin Street and the new airport terminal can be appreciated.

Constructability

This option presents limited constructability challenges, however noting that it would require construction of the replacement VIP terminal building. This option allows for further seismic structural reinforcement of the reconstructed building, extending the life of this structure. This area of land is, however, partially owned by Air Astana which would need its office buildings relocated.

A variation to this option was also discussed whereby the VIP terminal building was moved closer to the existing terminal public vehicle access ramp (to increase public visibility), however this variation would require relocating the airport transformer station which is not desirable, due to the extended programme and cost required to deliver this and complexity of building a new transformer station on site.

Construction of a new building will increase material demand above any option which does not require replacement of the VIP terminal building. However, this material increase and associated embodied carbon is not considered to be significant given the size and scale of the new building.

Operational suitability

Operationally, this option has limited challenges and can meet the desired function as a "General Aviation and Presidential" terminal. However, it would intersect the airport service road which would need to be relocated.

Socio-economic benefits

This option would provide significant socio-economic benefits as a direct result of a new international terminal and the increased passenger provision this would provide. The new international terminal would create employment opportunities and new sources of revenue for the local community.

Conclusion

This option presents limited operational and constructability challenges; however, the reconstructed building would not fulfil the VIP terminal building's original role as a key focal point within the local landscape, separating the airport runway from the public sphere, which is a contributing factor towards its cultural significance. It also results in the northern (formerly the eastern) elevation being hidden from view. For this reason, this option will not be taken forward for further consideration or stakeholder consultation.

3.2.2 Option 2.2: VIP terminal building reconstructed, aligned to Zakarpatskaya St. in southern apron

Description

This option would see a replacement VIP terminal building constructed at the southern apron area, in a horizontal alignment to match the current aspect. This is the option that was assessed in the ESIA previously.

Impacts to cultural significance

This option would result in the demolition of the VIP terminal building and loss of some of its cultural significance. However, some elements including the pishtaq, belvedere, decoration and architectural form of greatest cultural significance could be retained in the new building. Its association with the historic spatial context of the airport runway and orientation on Mailin Street would be removed.

However, the potential loss of the belvedere's needle as a permanent feature due to the proximity of the runways is less desirable than Option 2.1 and Option 2.3.

The new building would partially retain elements of the setting which contributed to the original VIP Terminal building's cultural significance. The orientation, important symmetry and form of the original VIP terminal building would be retained. The appreciation of the principal eastern and western façades, that separate the airport runway to the east and the public space to the west, would continue to be legible. Its aligned orientation to the airport apron would continue to act as a point of transition between the private space of the apron to the east and the public space outside the airport to the west. This was an important design element in the VIP terminal building expressed in the architectural Stalinist style on the east and south Kazakh style on the west.

A key contributor factor to the cultural significance of the original VIP terminal building relates to its orientation and visibility of the western façade on the approach to the airport from Mailin Street. The would be entirely lost. Instead, the new building would have a relationship and visibility from Zakarpatskaya Street. This option retains some public visibility of the new VIP terminal building and its historic relationship with the wider airport. This provides greater visibility than Option 2.1 or Option 2.3 and is more desirable than these similar options.

Its location close to the operational airport increases the building's likely viability and continued use as a terminal. This would extend its useful life into the future and means its cultural significance is likely to be retained.

There remains the opportunity to enhance the elements of the spatial context of the airport that form part of the historic landscape to beneficially impact its cultural significance. In particular this includes improving how the relationship between the axial orientation along Mailin Street and the new airport terminal can be appreciated.

Constructability

This option presents few constructability challenges, however noting that it would require reconstruction of the VIP terminal building. This option allows for further seismic structural reinforcement of the reconstructed building, extending the life of this structure.

Reconstruction of a new building will increase material demand above any option which does not require replacement of the VIP terminal building. However, this material increase and associated embodied carbon is not considered to be significant given the size and scale of the new building.

Operational suitability

Operationally, this option has limited challenges as it enables suitable passenger flow for the new terminal and is located adjacent to the existing southern apron, meaning a new apron would not be needed to be built.

The needle aspect of the belvedere tower may not be a permanent fixture as its height could potentially interfere with the safety zones of the nearby runways. Therefore, in this location, a needle which is extendable for special events only would potentially be installed.

Socio-economic benefits

This option would provide significant socio-economic benefits as a direct result of a new international terminal and the increased passenger provision this would provide. The new international terminal would create employment opportunities and new sources of revenue for the local community.

Conclusion

This option presents limited operational and constructability challenges and is capable of restoring in part, some of the historic relationship between the VIP terminal building and the wider airport. This includes its aligned orientation to the airport apron, separating the airside area from the public sphere. In this location views of the replacement VIP terminal building would be maximised compared with Options 2.1 and 2.3. For this reason, this option will be taken forward for further consideration and stakeholder consultation.

3.2.3 Option 2.3: VIP terminal building reconstructed, south of the runways

Description

This option seeks to replace the VIP terminal building and reconstruct a new building on land south of the runway.

Impacts to cultural significance

This option would result in the demolition of the VIP terminal building and loss of some of its cultural significance. However, some elements including the pishtaq, belvedere, decoration and architectural form of greatest cultural significance could be retained in the new building. Its association with the historic spatial context of the airport runway and orientation on Mailin Street would be removed.

It would result in a change in its orientation which reduces how the building and interpretation of how the building was originally used could be understood. In particular this orientation removes the relationship between the building and the mountains of Tien Shan which would have formed

the backdrop on the approach along Mailin Street. Similarly, in this location the public visibility of the new VIP terminal building is significantly reduced.

This option entirely removes the new VIP terminal building from the western side of the airport. It becomes disassociated with the public space around the main terminal and it is harder to understand the original use as the principal terminal building. Its isolation could result in a change in use or the building becoming abandoned. Both of these would result in a reduction in its cultural significance and effect the long-term viability of the building.

There remains the opportunity to enhance the elements of the spatial context of the airport that form part of the historic landscape to beneficially impact its cultural significance. In particular this includes improving how the relationship between the axial orientation along Mailin Street and the new airport terminal can be appreciated.

Constructability

Locating the VIP terminal building on the edge of the apron would likely require a new apron area to be constructed which would extend the construction programme. Land acquisition may also be required as much land in this area is not owned by the airport and this would make this more complicated than other options within Scenario 2 which don't require land acquisition.

It is noted that construction of a replacement VIP terminal building will increase material demand above any option which does not require replacement of the VIP terminal building. However, this material increase and associated embodied carbon is not considered to be significant given the size and scale of the new building.

Operational suitability

The proposed location separates the VIP terminal building from the wider airport infrastructure, creating operational challenges as aircraft would need to cross the active runway to access the terminal and users would need to access the terminal far away from the existing airport terminal infrastructure.

Socio-economic benefits

This option would provide significant socio-economic benefits as a direct result of a new international terminal and the increased passenger provision this would provide. The new international terminal would create employment opportunities and new sources of revenue for the local community.

Conclusion

Whilst this option does present a number of operational challenges, it would provide a replacement VIP terminal building within a prominent place in the wider airport footprint. It would enable the building to be viewed by passengers when landing or taking off, retaining in part the VIP terminal building's role as a focal point within the wider airport landscape. However, its location and orientation are not in keeping with the historic landscape as it would entirely remove the VIP terminal building from the western side of the airport, reducing its public visibility.

The alternative options which do not require potential land acquisition and are located closer to the existing airport infrastructure.

Originally, it was proposed that this option would be taken forward for stakeholder consultation. However, initial discussions with both TAV Construction and key stakeholder groups (7th April 2022) identified that this option is not favourable for either party and presents significant challenges due to land acquisition uncertainties. Following a discussion with Lenders it was agreed this option will not be taken forward for further consideration and stakeholder

consultation. There are other options which are preferable for all parties concerned. However, if during stakeholder consultation, this option will be mentioned as originally proposed for consultation, but was ultimately not taken forward; if the stakeholder consultation determined that there is interest in this option, then it can be retained for further consideration.

3.3 Summary

Following an evaluation of each of the options identified above, the resulting options have been selected to be carried forward for stakeholder engagement:

- Option 1.1: New international terminal located behind the VIP terminal building with a split-level entrance
- Option 2.2: VIP terminal building reconstructed, aligned to Zakarpatskaya St. in southern apron

Table 3.1 provides a summary of the adverse and beneficial impacts identified against the evaluation criteria for each of the options (socio-economic benefits have not been added as these are largely the same). Table 3.2, meanwhile, provides more detail on the heritage issues of the two preferred options.

Table 3.1: Evaluation table *(Adverse impacts in red, beneficial in green)*

Option	Operational Suitability	Constructability	Heritage
Option 1.1: New international terminal located behind the VIP terminal, with a split-level entrance	Split level arrivals and departures. Passenger comfort standards met. Integrated approach with the existing apron, taxiway, kerbside and terminal. No requirement for passengers or planes to cross the apron/runways between the international and domestic terminals. Does not meet required standard for life and fire safety, without significant modification to the façade of the VIP terminal.	Potential issues with existing structural stability of the VIP terminal building. Not seismically compliant – additional structural reinforcement to the VIP terminal building would be needed. Significant works to the VIP terminal building would be needed to facilitate the passenger pick-up/drop-off and passenger flow.	Spatial context of the VIP terminal building retained. Adverse impacts associated with the access ramp in front of the VIP terminal building which detracts from the visual amenity of the building. Adverse impacts to architectural detail of the VIP terminal building due to structural reinforcement needs. Adverse impacts to the VIP terminal building through modifications for passenger flow, in particular the removal of windows and creation of open doorways.
Option 2.2: Replacement VIP terminal constructed, aligned to Zakarpatskaya St. in southern apron	Split level arrivals and departures for the new terminal. Passenger comfort standards met. No requirement for passengers or planes to cross the apron/runways between the international and domestic terminals.	Once reconstructed, the new VIP building can be built to meet seismic structural regulations which will increase longevity of the building. Located adjacent to southern apron, meaning a new apron for the terminal would not be needed to be build. Greater material use (with associated embodied carbon) due to building the new building.	Adverse heritage impacts associated with removal of the current VIP terminal building. Needle above the belvedere would potentially be retractable, rather than a permanent fixture, in order to meet safety requirements due to this location's proximity to the runways. Retains the architectural features of the VIP building once reconstructed. Orientation of the VIP terminal building remains as was, with key views from the airport. Retains the architectural features of the VIP terminal building once reconstructed, and will incorporate historic features that have since been lost in the existing VIP terminal building (such as the first-floor balcony).

Table 3.2: VIP terminal building heritage summary

Scenario	Positive	Negative
Scenario 1, Option 1.1	Retains the VIP terminal building including aspects of its setting which form part of its historic spatial context, most importantly the alignment along Mailin Street. Most architectural elements would be retained. Retains fabric of the building.	Adverse physical impacts to the fabric of the building due to structural work required for seismic compliance. Loss of some architectural features due to alterations to doorways and windows to allow for effective throughflow of passengers. Changes to the setting of the VIP terminal building due to the new terminal building that would obscure one or both of the west and east elevation and further detract from the building's historic context in an area of open land.
Scenario 2, Option 2.2	Architectural proportions and features (including the pishtaq, belvedere, and architectural decoration) would be retained or reproduced. Elements of the historic context which contribute to its cultural significance recreated including clear views of the western and eastern elevation. Clear associations with the airport runway retained. Internal space of the building (a central atrium, with two separate wings) reproduced. Allows reproduction of lost elements of cultural significance (including the former loggia on the eastern elevation).	Does not retain the building in its current location. This results in the loss of elements of its setting which form part of its historic spatial context, most importantly the alignment along Mailin Street. Results in the demolition of the building. This results in the total loss of its actual fabric. The majority of the fabric of the building contributes little or nothing to the cultural significance of the VIP terminal building.

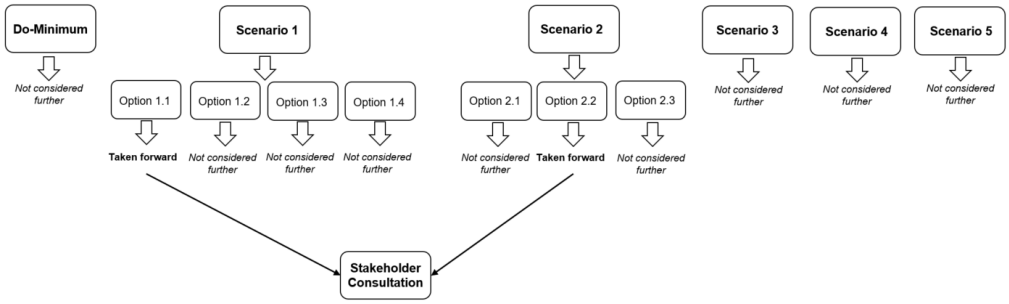
4 Conclusion (Pre-Stakeholder Consultation)

Добавлено примечание ([JS1]): This title has changed since previous version

4.1 Options for Stakeholder Consultation

This report has identified and evaluated spatial options available to locate a new international terminal at ALA, and where applicable, options relating to the VIP terminal. Potential scenarios have been identified and a high-level evaluation undertaken (Chapter 2) before concluding on a short list of scenarios to be considered further. Of the short-listed scenarios, potential options have been identified and further evaluated (Chapter 3), in consideration of the key criteria as detailed in Section 1.2. See Figure 4.1 below for a summary of this process.

Figure 4.1: Optioneering process summary



The evaluation of options in Table 3.1 and Table 3.2 indicates that all preferred options demonstrate a range of adverse and beneficial impacts across the operational suitability, constructability and heritage criteria. Option 1.1 and Option 2.2 will be taken forward to stakeholder consultation where they will be considered in more detail.

4.2 Next Steps

Options 1.1 and 2.2 will be presented to stakeholders at the next phase of stakeholder engagement whereby a preferred option will be selected, based on the criteria in this report and stakeholder responses. A final phase of design modification will then take place, focussed on the construction methodology and working measures specific to the preferred option. This final option will then be presented to stakeholders, with a record of all stakeholder consultation and the option selection process captured in an option selection report.

5 Post-Stakeholder Consultation

Chapters 1 to 4 of this report represent the pre-stakeholder consultation stage, and that part of this report was published and shared for the consultation.

Chapters 5 and 6 of this report comprise additional information following the stakeholder consultations, in anticipation of a further phase of stakeholder consultation (for which these two new chapters will be shared with stakeholders as well).

5.1 Stakeholder Consultation

The first phase of stakeholder consultation took place between 4th July and 4th August 2022, including a stakeholder event in Almaty on Wednesday 20th July. During this period, Option 1.1 and Option 2.2 were presented to the public, including the rationale for both alongside the considered advantages and disadvantages of each.

Opinions were sought to understand stakeholder views about these options to help inform option selection and to provide inputs into more detailed design stages of the following final option selection.

Section 5.3 discusses the preferred option and presents justification for this choice.

However, before such a decision was made, two additional options that were developed following stakeholder inputs have been developed and considered in Section 5.2.

Further details of the stakeholder process so far and the feedback received are presented in the Frequently Asked Questions (FAQ) document and the response to all stakeholder comments received. In line with the project's Stakeholder Engagement Plan, further stakeholder consultation is due to take place in September 2022 on the preferred design which will welcome feedback and opinions on the preferred option, including changes that could be considered for the preferred option at a more detailed level than was considered at the previous stage.

5.2 Additional Options Proposed

Following the stakeholder engagement completed so far, two additional options have been proposed which are considered below.

5.2.1 Additional Option A: Design for integrated terminal, as suggested by key stakeholder

Description

This design is an iteration of Option 1.1, integrating the existing terminal building into the new terminal building, with a two-deck vehicle ramp located in front of the terminal. The project team is grateful that the stakeholder concerned has taken the time and effort to produce an interesting design in order to help inform the options appraisal process.

The TAV-C options considered previously in this report have been at a comparatively more conceptual level for this stage of consideration; however, the design provides further details and focusses on the principle of blending the older design of the VIP Terminal Building with modern architectural elements, inspired by other such projects at transport interchanges around the world. Therefore, for the purposes of this appraisal, this option is considered as an iteration and design development within the Option 1.1 concept.

It is important to note that this additional option does not present a different concept to that of Option 1.1, but instead shows a more detailed visualisation and greater emphasis on the integration of new and old architectural designs (such as the curved roof structure over the external walkways and VIP Terminal Building) as an iteration of Option 1.1. This is therefore more detailed than the options presented in Chapter 3, and a direct comparison is not possible.

The aim of the design is to demonstrate a possible means of retention of the existing VIP Terminal Building but using alternative architectural styles to provide more visual contrast between the old and the new building styles being combined.

As per Option 1.1, the VIP Terminal Building would be retained, with a two-deck vehicle ramp installed in front of it. Walkways would be provided through and above the existing VIP Terminal Building to provide access between the new passenger terminal and the vehicle ramp. The new passenger terminal would be built behind the VIP Terminal Building, but the two would be integrated. A glazed structure would be provided over the VIP Terminal Building and associated walkways to provide some visual interest and to link the two architectural styles. Landscape planting would be provided on both levels.

Figure 5.1: Visualisation of Additional Option A (without showing works for seismic compliance)

Source: Mr Aydin Akbay, 2022

Impacts to cultural significance

Retaining the VIP Terminal Building in its present location would mean its full demolition is not required thus reducing the direct physical impact to its physical cultural significance compared with other options which do not retain the VIP Terminal Building in place (Option 2.2).

However, seismic compliance means that significant works to the building would be required, which means its full retention would not be possible in its current form (as described in the constructability section).

This option requires constructing the new passenger terminal immediately to the rear of the VIP Terminal Building and locating the vehicle access ramp in front of the VIP Terminal Building (western façade) with associated walkway bridges cutting through the roof. In order to allow for passenger flow on the lower and upper ramp levels and sufficient emergency exits the window

openings would be changed and extra space would be provided through making gaps in the façade to allow for the new walkways. In this option, both the interior layout of the VIP Terminal Building and the exterior architectural details is likely to be altered.

The proposal will result in loss of historic fabric, as the walkways cut through the parapets, causing direct physical impacts which will diminish its cultural significance. The amenity belvedere would be impacted by the glass roof and walkways. Structural work would be needed for seismic compliance and it would be unlikely to look as visually represented in Figure 5.1 due to these reinforcements. This would result in a further, direct physical impact on the building. The key features (belvedere, pishtaq, decorative panels and cornices) would be retained.

The form of the building would be altered as roofs would be replaced by walkways. The links and views between different elements of the building will also be obscured, for instance, the relationship between the pishtaq and belvedere will be near blocked by the glass roof covering, whilst walkways and supporting columns will prevent the entirety of the western elevation to be easily viewed as a single elevation. This will affect the ability to understand the intended architectural form and design of the buildings, and detrimentally effect the cultural significance of the building.

As with Option 1.1, the setting of the building will be changed. This includes the relationship with the airport runway and the alignment with Mailin Street. It would result in a setting that had been so substantially altered from its historic context in open land on the edge of the airport runway that it would contribute very little to its cultural significance.

Constructability

Due to the proximity of the VIP Terminal Building to the new international terminal, the structural foundations of the new terminal could adversely impact the stability and structure of the VIP Terminal Building. At present, the VIP Terminal Building does not meet current requirements relating to seismic risk (as per the Kazakhstan set of rules for construction in areas of seismic activity, СП РК 2.03-30-2017). As such, any works to the VIP terminal building would require additional structural reinforcement which is likely alter the aesthetic quality of the building.

To meet the structural needs of the building, full retention of the existing building would not be possible; façade demolition is likely required to install concrete columns for additional support, which would affect the internal layout of the building. This means excavation and drilling works inside, and the additional vibration is a risk for the structural integrity of the building during this phase. New foundations inside the building footprint would be required to support the columns as well as the new glass roof to go over the building and any requirements that a green roof would place on the structural requirements. As the building's support system has to be rooted in the foundations, the VIP Terminal Building has to be opened-up to install these foundations.

Although it has been suggested through stakeholder consultation that bypassing such requirements through creating "Special Technical Conditions" may be possible, it has been determined that given that this will be a publicly-accessible building used by millions of passengers per year, that this is not a route which the project wants to pursue as compliance with international best practice is instead preferred for building safety reasons.

Similarly, the VIP Terminal Building could pose a risk to the new passenger terminal, should the structure fail due to seismic activity and collapse towards the new terminal.

The construction of a vehicle ramp would require significant modifications to both levels of the VIP terminal building to provide appropriate space on both levels and would require removal of windows/wall sections and creation of suitable space to enable passenger flow. Changes to the roof would be required to allow access to/from the upper vehicle ramp. The proposed new glass

roof would need consideration as to how that would be installed whilst able to maintain the structural integrity of the VIP Terminal Building.

TAV Construction analysis has also showed that the image shown in Figure 5.1 doesn't fully take into account the different height levels of the various elements. The transitional levels would be different by over a metre for the area between the passenger drop off and the VIP terminal walkways to the new passenger terminal building, requiring ramped access rather than flat access.

This option would require a greater overall footprint for the terminal facilities as the new passenger terminal would need to be located further east. This would require airfield modifications and an enlarged apron area to facilitate this, and the associated aircraft stands.

Operational suitability

Operationally, this split-level design is desirable to separate arrival and departure passenger throughflow, providing enough space for vehicle pick-up and drop-off, and meeting desired passenger comfort levels.

However, life and fire safety standards can't be fully met, as the VIP Terminal Building does not provide sufficient escape routes in the event of a fire, without significant modification to the number of entry/exit points from the VIP Terminal Building.

These issues are broken down as follows:

Passenger Access

In comparison with Option 2.2, Alternative Option A, as per the Option 1.1 concept, intends to keep old VIP building in front of the new terminal. The space for this in front of the terminal area to accommodate this means at least one of the following would be necessary compared to Option 2.2:

- reduce the size of the vehicular approach roads drop off lanes;
- remove pedestrian spaces; or
- reduce parking space area.

This will affect the capability of the passenger drop off/pick-up area to support the capacity of six million passengers annually, and not be in-line with international optimum standards for airport design (IATA, ICAO, GOST, SNIP).

Furthermore, the proposal is for vehicle pick-up and drop-off areas along the curbside length to use an area of 270m in length, whereas to comply with IATA space norms for such an area it would need to be 351m (Option 2.2 allows for 385m).

Passenger space

The existing VIP terminal floor space is not considered to be suitable to assign as part of operational functions of an international airport. Incorporating this floor area into the new passenger terminal will therefore reduce the overall terminal floorspace area that can be used for terminal functions.

Therefore, this will directly affect average space per passenger area and the optimum design limit of IATA regulations would not be reached.

Energy efficiency

The incorporation of the VIP Terminal Building into the new passenger terminal façade would block some natural light entering the building for the arrival public hall compared with Option 2.2. The area concerned is located on the first floor of terminal. This area needs to be always illuminated.

The new terminal is aimed to be awarded EDGE Advanced certification and the lack of access to this daylight would affect the ability for this option to attain a high score and would require additional heating which would increase the difficulty in reaching EDGE Advanced certification.

Life and Fire Safety

As per life safety requirements, the VIP Terminal Building being integrated into the new passenger terminal cannot maintain the regulations of NFPA/GOST. Using the VIP Terminal Building to form the western façade of the new passenger terminal would affect life safety requirements as it will not provide required fire escapes distances within the terminal building according to NFPA/GOST standards. For example, the Option 2.2 design enables compliance with the longest distance to a fire escape being 51m, but both Option 1.1 and Additional Option A would result in the longest distance being 83m (with 60m being required for compliance.

The VIP Terminal Building, although integrated in terms of operation, would still need to be considered as a separate building due to its size and development. There is a need, as part of local building requirements, for a 13m distance between buildings and surrounding structures, which this would not comply with.

Green Roof

Additional Option A proposes a green roof for the existing VIP Terminal Building. The suitability of the roof space for this, including adequate drainage, has not been assessed as the building was not designed to incorporate this. It may be that this part of the proposal is not possible.

Socio-economic benefits

This option would provide significant socio-economic benefits as a direct result of a new international terminal and the increased passenger provision this would provide. The new international terminal would create employment opportunities and new sources of revenue for the local community.

Conclusion

The VIP Terminal Building is retained in situ, albeit with additional construction modifications required to meet the necessary standards. It is the combination of culturally significant elements in the building (its Stalinist style, terminal building form with a central block and flanking wings, the pishtaq and belvedere, and south Kazakh decoration) that are important. The combination of culturally significant elements would be retained but the parapets and belvedere would be affected by the glass roof and walkways. The form of the building would be altered as roofs would be replaced by walkways.

Its setting would be substantially changed such that it would contribute very little to its cultural significance. However, it is acknowledged that the architectural enhancements that the design proposes (namely landscape planting and the additional glass entrance roof) would provide new visual interest for those using the terminal.

Whilst this option has multiple constructability challenges, passenger comfort and drop-off/pick-up would be possible, but the optimum level of service would not be able to be met for either. Modifications to the building would be needed for seismic compliance and suitable entry and exit points. There remain multiple construction and operational issues, such as around structural modifications required and life and fire safety, which remain unresolved with this option, and which perform more poorly than Option 2.2.

In conclusion, this option is welcomed as an interesting development of the Option 1.1 concept, and the thought and effort that have gone into its development are appreciated.

However, Section 5.3 (below) outlines that Option 2.2 is the preferred option to be taken forward to the next stage, therefore this alternative is proposed to not be taken forward on that basis.

5.2.2 Additional Option B: Partial retention of the existing VIP Terminal

Description

This alternative applies to Options 1.1 to 1.4 (discussed in Chapter 3). Those options are variants of the concept of retaining the existing VIP Terminal Building in place and integrating the new passenger terminal into it.

This alternative option proposes instead of full retention of the VIP Terminal Building, a partial retention. This could comprise a single façade (i.e. the front-facing façade as currently faces landside on the eastern elevation of the building), or retention of a section of the building (e.g. the central section which incorporates the pishtaq and belvedere) whilst removing the remainder of the building. There are many variants for this; rather than consider each possible variant, instead this section considers the principle of partial retention as a concept.

The advantage of such an option would be to minimise the challenges associated with the integrated options (Options 1.1 to 1.4) through a more limited retention of the existing VIP Terminal Building. For example, retention of the front façade only of the existing VIP Terminal Building may require a smaller land area.

Impacts to cultural significance

Retaining the VIP Terminal Building in its present location would mean its demolition is not required thus reducing the direct physical impact to its cultural significance. However, this benefit is more limited where only part of the VIP Terminal Building is retained.

The Heritage Statement (2022), prepared by Mott MacDonald, identified the combination of culturally significant elements of the Building: its Stalinist style, terminal building form with a central block and flanking wings, the pishtaq and belvedere, and south Kazakh decoration as relatively unique and of cultural significance; therefore variants which retain these would have the fewest heritage impacts.

In contrast, the loss of individual elements of the VIP Terminal Building diminishes how the original architectural vision of the building is understood. The symmetry of the flanking wings, central block, the pishtaq and belvedere is an essential part of the original design. As stated in the Heritage Statement, it is the combination of the Stalinist architectural design and South Kazakh decoration that is unique and of greatest cultural significance not the individual elements. Loss of these relationships would diminish the cultural significance of the VIP Terminal Building substantially.

As with Option 1.1, the setting of the building will be changed. This includes the relationship with the airport runway and the alignment with Mailin Street. It would result in a setting that had been so substantially altered from its historic context in open land on the edge of the airport runway that it would contribute very little to its cultural significance.

The landmark status of the VIP Terminal Building may be partially retained by the presence of the belvedere and central section, but vehicle access ramps in front of the VIP terminal building are likely to obscure and diminish this relationship.

Constructability

Options 1.1 through to 1.4 presented in Chapter 3 provide more consideration to the specifics of the constructability aspects. Further details are also provided in Additional Option A, above, which are also applicable here and should also be considered.

In addition to those impacts, the impacts of retention of a part of the building only would add some level of complexity to the construction as works to retain the fabric of only a part of the building during removal of the remainder would need to be made. Additional structural reinforcement would also still be needed for the retained part in order to ensure that the new passenger terminal building meets seismic compliance requirements. This work would affect the aesthetic quality of the retained section of the building.

Operational suitability

Options 1.1 through to 1.4 presented in Chapter 3 provide more consideration to the specifics of the operational aspects. Further details are also provided in Additional Option A, above, which are also applicable here and should also be considered.

Designs which offer a split-level passenger pick up/drop-off are desirable for passenger throughflow, providing enough space for vehicle pick-up and drop-off, and meeting desired passenger comfort levels. Life and fire safety standards would be unlikely be fully met, as the VIP Terminal Building does not provide sufficient escape routes in the event of a fire, without significant modification to the number of entry/exit points from the VIP terminal building (even if only part of it is retained). Therefore, modifications to the retained part would be required. However, those variants of this Option which would retain smaller sections of the VIP Terminal Building would require the smallest level of modification.

Socio-economic benefits

This option would provide significant socio-economic benefits as a direct result of a new international terminal and the increased passenger provision this would provide. The new international terminal would create employment opportunities and new sources of revenue for the local community.

Conclusion

This alternative option would enable partial retention of the VIP Terminal Building, the benefit of which would be the potential for lower feasibility impacts than other options which propose retention of the VIP Terminal Building.

However, there would be greater constructability impacts due to the need for building preservation during partial demolition, and most of the other heritage issues as per the other retention options (Options 1.1 to 1.4) still remain.

The partial demolition of part of the VIP Terminal Building would diminish its cultural significance as the relationship between the combination of relatively unique and culturally significant elements of the building (highlighted in the Heritage Statement) will be lost. The building would be visually obscured from the wider area and there would still be disconnection from its historic context.

In conclusion, such an option does not provide any greater benefits than those of Options 1.1 to 1.4, and it the alternative option is therefore not proposed to be taken forward.

5.3 Finalised Option to Take to Next Stage

Consideration has been made to the feasibility of the options considered (as presented in this report) and the views of stakeholders.

The views from stakeholders were mixed, with views including those who preferred options to integrate or not develop (to preserve the existing VIP Terminal Building in place), those who preferred Option 2.2 in order for the replacement VIP Terminal Building to be more visible, and those who presented alternative views.

A decision has been taken to balance the issues concerned, including from stakeholders, designers, the airport, construction specialists, heritage specialists, and technical specialists. This also includes the requirements from lead project lenders - International Finance Corporation (IFC) and the European Bank for Reconstruction and Development (EBRD). Both of these lenders have requirements for their projects to accord with, including environmental and social safeguards. Heritage considerations form fundamental part of this, as captured in IFC Performance Standard 8, and EBRD Performance Requirement 8, which require projects to avoid loss or diminished heritage value.

On balance, the preference is for Option 2.2 to be considered further as the preferred final option. Overall, even when taking the significance of the VIP Terminal Building into account, retaining it in place, either substantially or in part, is outweighed by the socio-economic benefits, both locally and nationally, that are to be derived from the option (as described below). Mitigation to manage the heritage impacts are considered suitable in this case in order to avoid the loss or diminished value of the building. Although the existing building is lost in Option 2.2, the significant heritage features identified are either architectural in nature (and therefore can be preserved by being an architectural feature in the replacement building) or are features which can be moved across (the stained glass windows).

The reasons for selecting this option as the preferred final option over Option 1.1 are:

- Option 2.2 improves the visibility of the building from surrounding streets. Although it would be better if it would be visible down Mailin Street, Option 1.1 would mean the building is hidden behind the concrete vehicle ramps which would diminish the aesthetic considerably, even if the glass roofing of Alternative Design A was used.
- The Heritage Statement identified the combination of features which were unique and culturally significant as:
  - The transport terminal building form of central block and flanking wings due to its Stalinist architectural style;
  - The belvedere due to its Stalinist architectural style;
  - The pishtaq due to its Timurid inspired South Kazakh architectural style;
  - The flanking panels and decorative elements due to their South Kazakh architectural style; and
  - The cornices due to their South Kazakh architectural style.

  Option 2.2 would be seen as a continuation of architectural development at the airport. It would be inspired by the transport terminal form including the central block, flanking wings and the belvedere tower. This would be combined with South Kazakh inspired elements including the Timurid style pishtaq, and decoration utilising South Kazakh embroidery. The stained-glass windows would be moved across to the new building which in form are inspired by the lattice work of the traditional Kazakh yurt. This would enable the continued representation of South Kazakh inspired architecture preserving continuity of this important intangible cultural heritage.
- Option 2.2 means a new VIP terminal Building can be developed which is already seismically compliant, avoiding the works to the existing building which would affect its aesthetic if preserved in Option 1.1.
- Option 2.2 means that the architectural quality of the building can be maintained without the need for holes to be cut in the walls and roof for walkway provision.

It is important to note that Option 2.2 retains many of the features of the existing VIP Terminal Building in the replacement structure (e.g. pishtaq, belvedere, cornices), but that these would be of new construction, based on the original. Therefore, the architectural style would be retained and preserved, but the physical features themselves would not. This is because structural

surveys commissioned by TAV Construction Ltd identified that these features are in a poor state of repair and would likely fail if moving would be attempted. Therefore, to protect structural integrity, and for health and safety, these elements will be newly-constructed based on the existing designs. The stained glass windows will, however, be relocated across from the current building. This consideration was taken into account when deciding on Option 2.2 as the preferred single option.

More detailed design work on this option will now be undertaken in preparation for the next stakeholder consultations. There still remain areas of further consideration going forwards, following stakeholder feedback, which are as follows:

- There is a need to provide a visual focus down Mailin Street, and it is understood from stakeholder feedback that the proposed new passenger terminal would not provide a satisfactory design for this in replacing the VIP Terminal Building (which originally formed that visual focus point along Mailin Street prior to screening that the airport entry barriers now have). Therefore, further work is proposed to create a form of visual focus down Mailin Street towards the airport, such as a statue or installation, to form a recognisable feature for the airport. Stakeholder input for this would be sought. This would be a medium-term aspiration which would be developed following the new passenger terminal in cooperation with the relevant authorities and Almaty Airport.
- Landscaping at the new passenger terminal should be considered further in order to help improve the visual aesthetic of the area for airport users. This can be considered as part of the more detailed design prior to finalisation. There is opportunity for a garden to be laid out in the forecourt area that will be at least partly in the spirit of other public buildings in the city which have garden forecourts at the termination of orchestrated view axes.
- Architectural details of the replacement VIP Terminal Building should be considered further and stakeholder input during the next consultation phase sought on this topic.

6 Approach to Option 2.2

As outlined in Chapter 5, Option 2.2 is being taken forward as the preferred option. This involves relocation the existing VIP Terminal Building through removal of the existing feature, building a replacement in the new location to the south of the existing terminal area, and moving some elements across to the new building.

This section considers options within this option, such as the level to which the new building would be a replica or not, which items to move across and which to create as new, and any methodology options for reconstruction.

6.1 Methods of reconstruction

The following represents a summary of how reconstruction methodology may be categorised:

- A 'true to original' reconstruction, using the same materials as the former building, but relocated where authenticity is thereby maximised
- A modelled/stylistic reconstruction, not using 100% original materials but incorporating to a lesser or greater degree, key/signature elements reused from the former building representing a particular period of that building's history
- A replicative reconstruction, constructing a replica of the old building using all or mostly new materials. Replicative reconstructions are strongly discouraged in terms of the Riga Charter (2002) and Burra Charter (2013). Replicas lack authenticity and can be historically misleading. New buildings or additions to old buildings should be architectural products of their time. Replication creates confusion between what is authentic fabric recovered from the old building, and new fabric constructed to look like, or match the old. Because of the confusion between what is new and genuinely old, the significance of the old can, by implication, be devalued
- A contemporary interpretative reconstruction, i.e. a new design incorporating reused elements from the old building as feature elements, and clearly distinguishing old from new.

For the VIP Terminal Building, a "contemporary interpretive reconstruction" will be applied. This means that the Burra Charter and Riga Charter will be followed by avoiding a replicative reconstruction. However, the design will be heavily influenced by the style of the current VIP Terminal Building, but with differences (such as interior layout and scale) and it should be seen as a new building. By using a contemporary building but drawing upon the South Kazakh and Stalinist styles that were the focus of the original design of the existing building, this architectural style will be continued for Almaty at this location.

6.2 Consideration for reconstruction of the VIP Terminal Building

As Option 2.2 will be taken forward, the VIP Terminal Building will be reconstructed as a contemporary interpretation, aligned to Zakarpatskaya Street in the southern apron of the airport. In this reconstruction process, the following should be considered:

- The significance of fabric and key architectural features of significance within the VIP terminal building (Significant Fabric Assessment (Report Number 100107121-001) and the Heritage Statement (Report Number 100107121-001).
- Fabric that is not of cultural significance or lacks authenticity.
- Requirements to utilise materials and techniques which will allow the building to conform with necessary airport and earthquake resistance regulations.

- Elements of the form of the building which contributed to its cultural significance as highlighted in the Heritage Statement (Report Number 100107121-001).

6.2.1 Principles of reconstruction of the new VIP Terminal Building

The overall design approach should consider the building as a contemporary interpretative reconstruction. This means that the following approach to the new replacement building is proposed:

- The fabric of the VIP terminal building is largely considered not significant, is of low cultural significance and/or is inauthentic (as outlined below, as per the Heritage Statement). Most of these elements will not be retained and instead new material will be used. However, the fundamental design has been used as the basis for the new building, albeit with a differing window and door layout, different floorspace size and dimensions (for example it is wider than the existing building), the modern extension is not incorporated, and there will not be an upper story as it will be a single story internal layout.
- The artistic stained glass panels; and surrounds including decorative tympana will be physically moved across from the existing building to the new in order to preserve it. Investigations have concluded that this will be possible due to the condition of the materials, and a methodology is under development on how to do this, including the need for a “like for like” replacement for any panels that are damaged during the construction process (although the methodology will look to minimise any such damage as far as practicable).
- The other architectural features of the VIP terminal building which are considered authentic and/or of moderate or high cultural significance will be retained in the new building’s design, but using new materials as for these elements. In line with the Riga Charter, these will be differentiated from the original through their detailed design as the aim is for it to be contemporary reconstruction and so they will not be a replica or exact copy. However, given stakeholder concerns about the quality of the design of the existing building, these key features will be heavily influenced by the existing VIP Terminal Building so that visually they are clearly inspired by the original. Other decorative elements will be created as new features but inspired by the existing VIP Terminal Building, comprising the pishtaq; belvedere; cast cement relief decorative panels, cornices, ornamental relief and engaged columns.
  - Structural investigations commissioned by TAV Construction considered whether these features (the pishtaq; belvedere; cast cement relief decorative panels, cornices, ornamental relief and engaged columns) would be structurally suitable to be moved across in order to maximise the relocated elements. These items have been found to be in a structurally poor condition and therefore would be unsuitable to be moved. Given this situation, it has been considered preferable to incorporate such features into the new design as newly constructed items inspired by the existing items that reflects their cultural significance.
- Where historic fabric is reconstructed, this should be differentiated from new fabric to ensure the attributes of cultural heritage credibly and accurately bear witness to their significance.
- The principles of the architectural form of the VIP terminal building will be retained. These are: an east-west alignment perpendicular to the airport runway; a central block formed of a pishtaq, mounted by a belvedere; and flanking low wings.
- The principles of the setting of the VIP Terminal will be retained. These are: the contrast between private (airport) and public space defined by the alignment of the VIP terminal building and the contrasting style of the eastern and western facades; the association with the airport runway; and the retention of a space to the west to enable an appreciation of the form of the building.

- The principles of the spatial context of the historic landscape will be retained. These are: the historic location of the airport runway; the axial alignment of Mailin Street; and the culturally significant relationship between the terminal complex, runway and alignment of Mailin Street.
- A three-dimensional scan of the existing VIP Terminal Building to be undertaken and be available to be shared with appropriate organisations. This forms a record of the physical form of the building that can be considered for future use as needed.
- The stained glass windows in the current building currently benefit from two-story lighting. However, the new building will be of one-story which could affect the lighting behind the stained glass. Therefore, the designs will include provision for backlighting of these windows to ensure the full height of the stained glass windows will be backlit.
- Landscaping in front of the new passenger terminal will be considered, including the potential for a garden space in front of the new building to form a feature ats the end of Mailin Street to align with that axis. As per Section 5.3, this will be influenced by the style of similar garden features elsewhere in the city.

6.2.2 Principles for the new Passenger Terminal

As Option 2.2 has been selected, the new passenger terminal building will be a standalone development, without the existing VIP Terminal Building being integrated into it.

On this basis, there are design features which need to form the development in order to maximise heritage value for this area of the airport. Two key areas have been identified, as follows:

6.2.2.1 Landmark visual feature

The heritage analysis identified that the viewpoint along Mailin Street towards the VIP Terminal Building is of heritage importance for the airport. This is particularly true of periods when the VIP terminal Building was not surrounded by more modern buildings and the airport road entry barriers weren't installed, which would have given a clearly identifiable view along Mailin Street towards the airport of the VIP Terminal Building, in particular the belvedere tower.

At the time of writing, there is a lack of a clear viewpoint along Mailin Street due to the installation of road entry barriers and other intervening features, which means that the principle of an identifiable view of the airport along Mailin Street does not exist.

Therefore, it is proposed that options are developed, with stakeholder inputs from the start of the process, for a landmark feature or installation at the airport that would be visible along Mailin Street and create a recognisable landmark for the airport. This would require re-alignment of the existing advertising hoardings over the road access barriers.

The feature would not need to be historical in nature, and can represent modern Kazakh elements. The key aim is to create a recognisable landmark feature that is visible along Mailin Street when looking towards the airport.

This is recommended to form a separate workstream to the new passenger terminal development and can be developed later.

6.2.2.2 Cultural heritage exhibition

There is potential for an area of the new airport terminal to be set aside for an exhibition space to explain the history of the airport which can include showcasing the VIP Terminal Building. Small elements of the VIP Terminal Building which are not suitable to be transferred to the new building can be showcased and exhibits here alongside explanations of architectural styles and building history (such as perhaps, a panelled section or elements of the columns or pishtaq).

The three-dimensional scan referred to above, could also form part of a display.

This would be subject to further discussion, including consideration of the most suitable location within the terminal area for this to be located and the form and layout it should take. Items may also considered for display in museums elsewhere.

Further work on identifying which items would be considered for retention would be considered at the next stage, and consider both the feasibility of recovery of parts (which would include the cost of recovery, the ability of the elements to be recovered, and the condition of the elements), and their value for display (as per the Heritage Statement's assessment of the value of the different building aspects).