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## **NON-TECHNICAL SUMMARY**

# **ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) REPORT FOR IZMIR ADNAN MENDERES INTERNATIONAL AIRPORT EXPANSION PROJECT**



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**ANKARA**

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## INTRODUCTION AND BACKGROUND

TAV Ege Terminal Yatırım Yapım ve İşletme A.Ş. (TAV-Ege), a subsidiary of TAV Havalimanları Holding A.Ş. ("TAV Holding"), has won the tender for the operating rights of the İzmir Adnan Menderes Airport Domestic and International Terminals until the year 2032. According to the Lease Agreement between TAV-Ege and General Directorate of State Airports Authority (DHMİ), TAV-Ege will be responsible for the daily management and operation of the terminals as well as transforming the existing Domestic Terminal into a more modern facility with higher passenger capacity. TAV-Ege, however, will not be responsible for airside operations and aircraft and apron management issues will be dealt with by DHMİ.

İzmir International Airport Expansion Project is exempt from the provisions of the Turkish Environmental Impact Assessment (EIA) Regulation<sup>1</sup>.

Although the Project is legally exempt from the requirement of an official EIA Process, an Environmental and Social Impact Assessment (ESIA) has been prepared in line with the requirements of International Finance Institutions, namely European Bank for Reconstruction and Development (EBRD) and UniCredit Group (UniCredit) - an Equator Principles Financial Institution (EPFI) - who are considering financing the Project. In this respect, TAV-Ege hired "DOKAY-ÇED Çevre Mühendisliği Ltd. Şti. (DOKAY-ÇED)" for conducting the ESIA study for the proposed Project.

This Non-Technical Summary (NTS) describes the findings of the ESIA including the potential impacts on the environment and people, and actions that will eliminate, reduce, or mitigate those impacts. The full ESIA is available at the Project website ([www.adnanmenderesairport.com](http://www.adnanmenderesairport.com)).

## PROJECT PURPOSE AND NEED

İzmir is one of the touristic regions and import-export centers of Turkey. The province as a whole is Turkey's third largest exporter after İstanbul and Bursa. Due to these facts, the province is one of the main provinces with a hectic traffic flow and, İzmir Airport is currently ranked as the fourth among the country airports in terms of passenger traffic.

The competition among airline companies has emerged low cost airfare in Turkey in recent years. Hence, the popularity of air transportation has significantly grown in the country compared to past.

The estimated increases in domestic passenger and flight numbers at İzmir Adnan Menderes Airport in accordance with lender base case projections and show an annual increase in domestic passenger numbers by 6% from approximately 6 million in 2011 to approximately 23 million in 2032.

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<sup>1</sup> Official Gazette dated July 17, 2008 and numbered 26939, as per Provisional Article No:3 of the subject Regulation

Based on these facts, an expansion was deemed necessary to accommodate the forecasted increase in flights at the airport which forecast (under the base case scenario) about 6% annual increase in air traffic during the concession period. The expansion;

- will improve the efficiency of airport operations,
- will increase the number of aircraft and passengers the airport can serve,
- will help reductions in travel, access and waiting time,
- will support for the growth of the regional economy, and
- will minimize the need for airport development in new locations by making best use of existing capacity where possible.

### **EBRD, EU, EPFI AND NATIONAL REGULATORY FRAMEWORK**

The development of the ESIA, including the Environmental and Social Management Plan (ESMP), were guided by:

- Environmental Law No. 2872 (As Amended with the Law dated April 26, 2006 and numbered 5491) (which requires compliance with pertinent Turkish regulations concerning air, water, soil quality etc.)
- *Turkish EIA Regulation (Official Gazette dated 17.07.2008 and numbered 26939)<sup>2</sup>*;
- Directive on Environmental Impact Assessment (85/337/EEC) as amended by EC Directive 97/11/EC, 2003/35/EC and 2009/31/EC
- Review of the European Union Strategy for Sustainable Development (COM/2009/0400 final)
- Environmental and Social Policy of the EBRD, May 2008
- Equator Principles, June 2006<sup>3</sup>
- IFC Sustainability Framework, January 2012
- IFC General Environmental, Health and Safety Guidelines, April, 2007 (including wastewater and ambient water quality, waste management and hazardous materials management, noise management, occupational health and safety, and construction and decommissioning guidelines)
- IFC Environmental, Health and Safety Guidelines for Airports”, April, 2007
- IFC General Environmental, Health and Safety Guidelines: Contaminated Land”, April 2007

<sup>2</sup> Although the Project is legally exempt from the provisions of Turkish EIA Regulation, due regard will be given to the Regulation in terms of environmental management and monitoring of the Project.

<sup>3</sup> To be updated to reflect updated IFC Performance Standards of January, 2012

## SCOPE OF THE ESIA AND METHODOLOGY

The ESIA has been undertaken in accordance with the guidelines and procedures outlined above and followed a systematic process involving the collection of environmental and social baseline information, the identification of works associated with the project that may affect the baseline conditions and the prediction of impacts that may result from the construction or operation of the scheme.

The significance of impacts identified has been evaluated for project during construction and operation by assessing the magnitude of the change to baseline conditions, the sensitivity of the receptor and the likelihood of its occurrence. Where adverse impacts have been identified, TAV has proposed mitigation measures to prevent, reduce or control adverse impacts. An assessment of the residual impact (the impact of the scheme following the incorporation of mitigation measures) has then been made and classed as non-significant or significant.

Mitigation measures identified during the ESIA process are incorporated in the ESMP (and summarized in this NTS) and will be contractually imposed on contractors through the development of plans and procedures such as Construction Environmental Management Plan and Health and Safety Plan during the construction phase of the project and an Operational Environmental Management Plan during operation.

Consultation with key stakeholders has been undertaken throughout the ESIA process and project development. This included consultations with local communities, with local and regional authorities and pertinent civil organisations (the results of these discussions and how issues raised were taken into account in the ESIA are summarised in Chapter 9 of the ESIA available at [www.adnanmenderesairport.com](http://www.adnanmenderesairport.com)). Stakeholder engagement activities will continue through the duration of construction activities and during operation and are described in the Stakeholder Engagement Plan (SEP) which is available as a separate document ([www.adnanmenderesairport.com](http://www.adnanmenderesairport.com)).

## TECHNICAL SCOPE OF THE ESIA

During the initial stages of the ESIA, TAV undertook a scoping exercise to identify potential environmental and social aspects that required to be assessed in the ESIA. Following the completion of a scoping exercise the following topics were considered within the ESIA:

- Air quality;
- Water quality;
- Soil quality;
- Ecology;
- Traffic & transport;
- Waste management;

- Social (including health & safety); and
- Socio-economics.

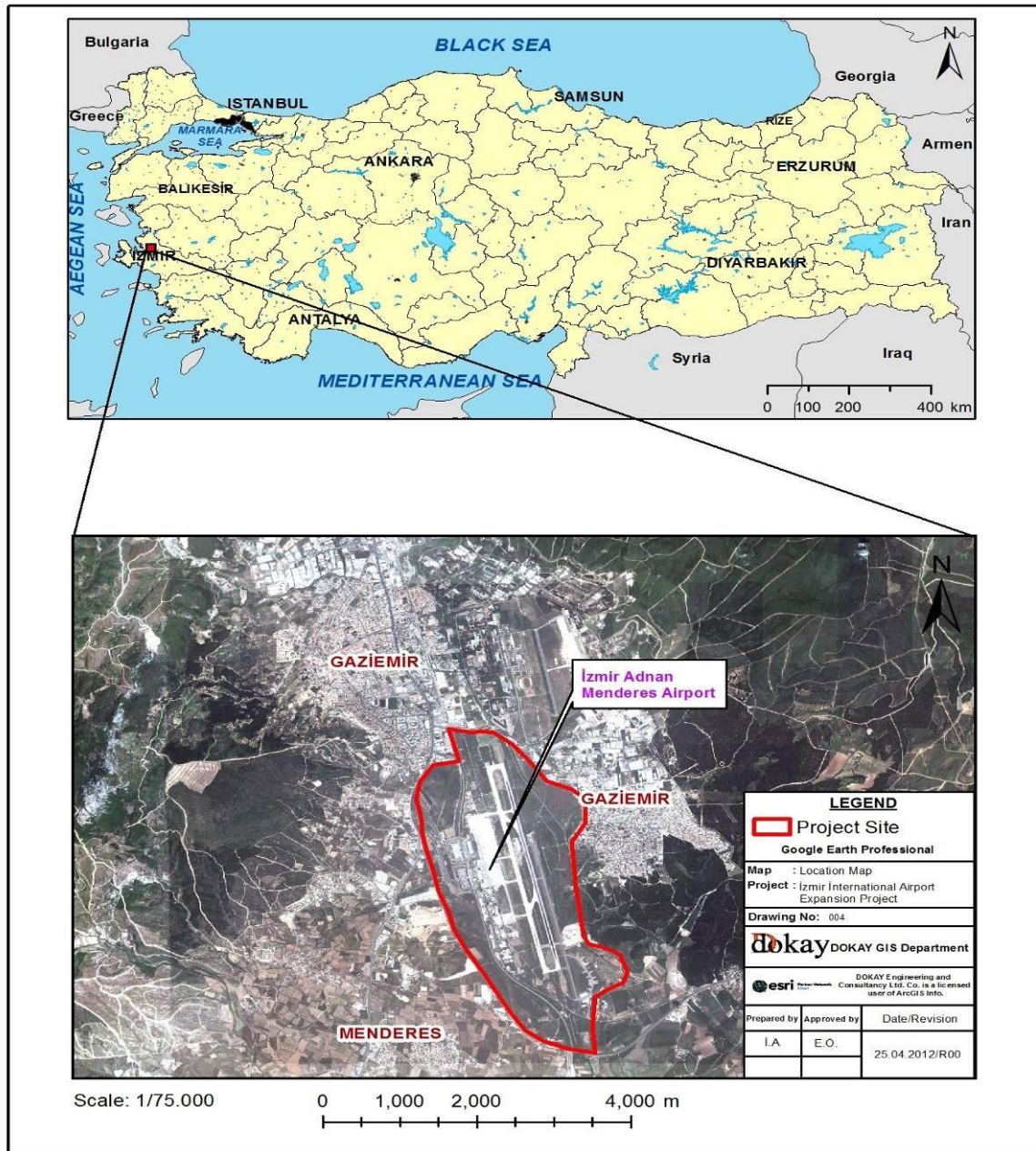
Impacts related to involuntary resettlement and indigenous peoples were scoped out of the assessment. Following consultation with Izmir Board of Preservation of Cultural Heritage there are also not anticipated to be any archaeological or cultural heritage resources at the site and as such cultural heritage was scoped out the ESIA. However in order to ensure compliance with PS 8/PR 8 “Cultural Heritage”, TAV will develop a chance find procedure which has been incorporated in the ESMP.

## **PROJECT DESCRIPTION**

### **Project Site**

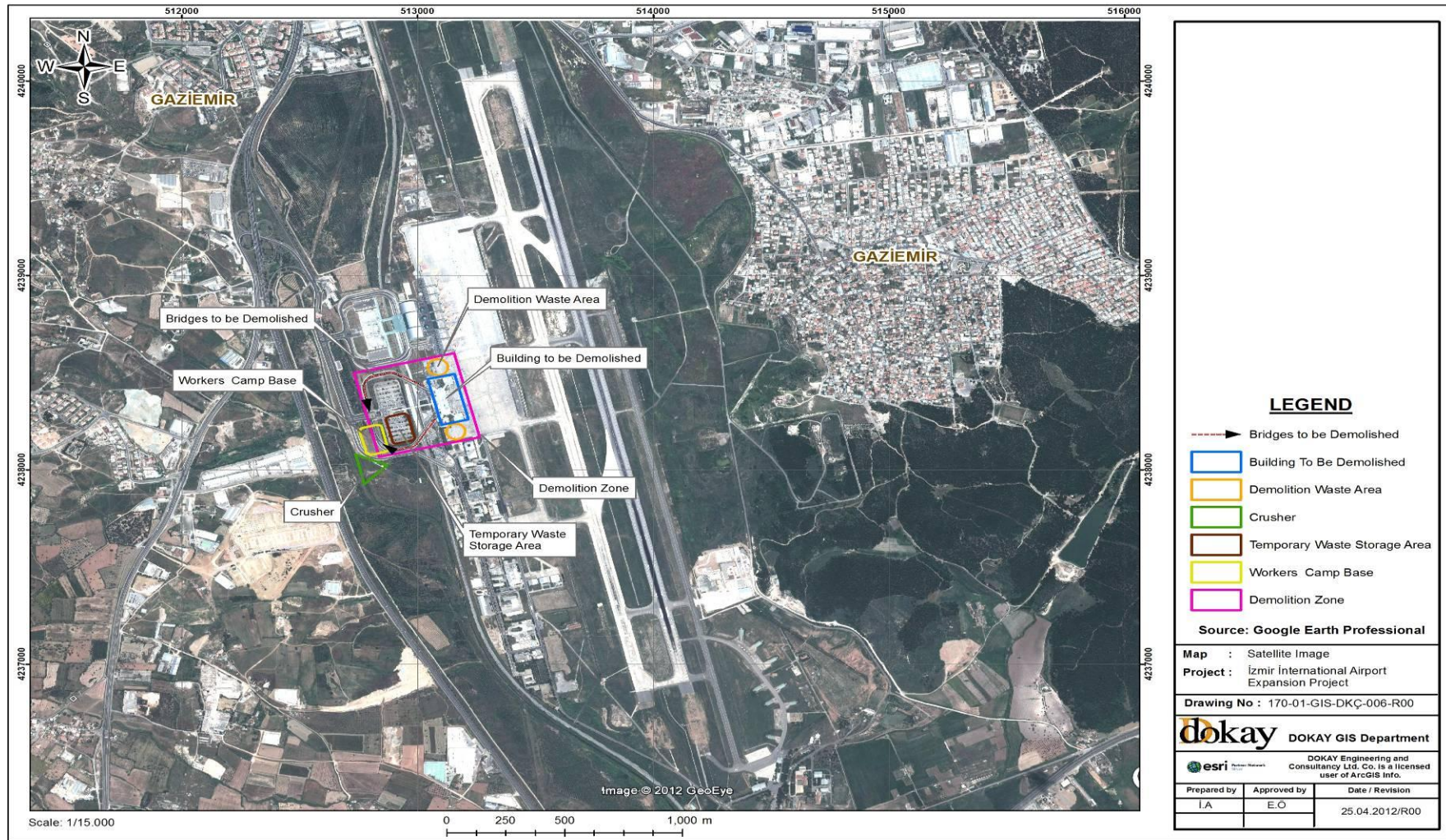
The Project Site is located in Gaziemir District of İzmir Province in Aegean Region of Turkey. The Project Site is situated at 18 km southwest of İzmir on the way to Selçuk, Ephesus and Pamukkale. Location map of the Project Site providing a general overview of the site and surrounding area is given in Figure 1 and satellite image is given in Figure 2.





**Figure 1** Location Map of the Project Site





**Figure 2** Satellite Image of the Project Site

## Scope of Works

The proposed Project comprises demolition of the existing Domestic Flights Terminal Building and its auxiliary structures and construction of a new Domestic Flights Terminal Building with its auxiliary structures including passenger boarding bridges.

The existing Domestic Terminal has a total area of 28,500 m<sup>2</sup> with six passenger boarding bridges and 35,000 m<sup>2</sup> car park with a capacity of 947 spaces and 1,800 m<sup>2</sup> tourism car park with a capacity of 60 spaces. This terminal will be demolished according to the Lease Agreement and a new terminal will be constructed.

The new Domestic Terminal, which will be located on the site of the existing Domestic Terminal, is designed to have a total area of 185.000m<sup>2</sup> with eight passenger boarding bridges and is planned to be connected with the International Terminal by a bridge system similar to the one in İstanbul Airport as shown in Figures 3 & 4 below. The new multi storey car park is designed to have a total area of 82.500m<sup>2</sup> and 2,559 spaces for car parking in multi-storey carpark and 535 spaces in the open carpark area. The new terminal building will be able to provide service to up to 25 million passengers annually.



**Figure 3** 3D Render of the New Domestic Terminal (1)





**Figure 4** 3D Render of the New Domestic Terminal (2)

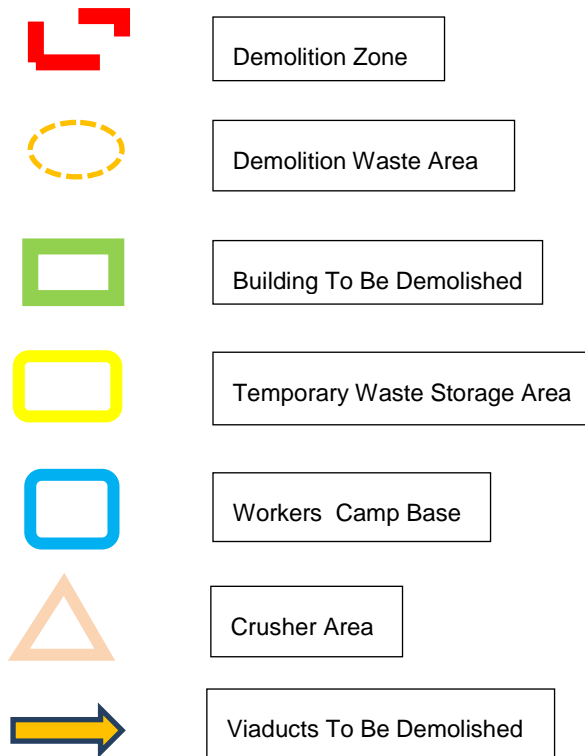
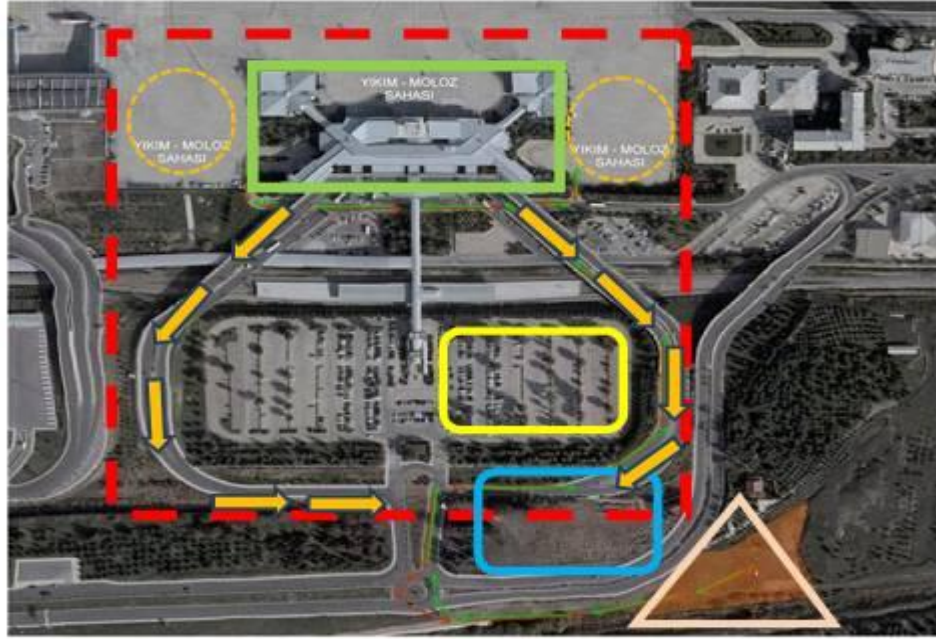
The Project's scope also comprises the construction of a tri-generation plant that will provide combined cooling, heating and power for the terminal complex.

The demolition phase includes;

- demolition of the Terminal building and a total of five viaducts including two arrival, two departure and one connection viaduct in front of the building (see Figure 5),
- breaking of apron site concretes and reinforced concrete parts, and
- recycling and disposal of debris resulted from all demolition and breaking works with stone crusher.

In addition, temporary site offices and a workers accommodation camp has been constructed within the existing airport boundary in accordance with IFC/EBRD Guidance on Workers Accommodation with the intention of accommodating approximately 350 workers on-site during the construction phase of the project. Depending on the number of workers requiring accommodation on-site during the duration of the project, there is the potential for the capacity of the worker accommodation camp increasing to up to 2000 workers.

Following the completion of construction works at the site the area will be landscaped similar to the existing domestic terminal.



**Figure 5** General View of Demolition Area

The existing International Terminal building was built in 2006. It has a total area of 107,669 m<sup>2</sup> with nine passenger boarding bridges and 69,168 m<sup>2</sup> multi-storey car parks with a capacity of 2,237 spaces. All domestic flights have been taking place from the International Terminal since January 2012 and this will be sustained during the process of construction of the new Domestic Terminal.

## **Time Frame and Estimated Cost of the Project**

The Project's commencement date was taken as the date of the construction area hand over which was 02 January, 2012. Target completion date is proposed as 31 March, 2014.

A Construction Turn key Lump sum EPC was awarded to a third party contractor, TAV Construction (TAV-C). Indicative amount of the contract, by the date of this report, is 265.9 million Euros. Total project value will be 400 million Euros including the Lease Payments during construction, capitalized interest and other non-construction costs.

## **POTENTIAL IMPACTS AND MITIGATION MEASURES**

### **Issues considered during Design**

Adnan Menderes Airport Domestic Terminal is designed considering a number of environmental, social and geotechnical aspects. A couple of examples are as follows:

- Resource efficiency enhancement measures have been developed including use of solar panels in the dormitory area for provision of hot water, installation of LED source lighting fixtures in public areas for electrical energy saving.
- Fire and life safety strategies will be incorporated in the design in line with best international practice.
- The Terminal will be friendly to disabled people and those needing special assistance.
- Measures for seismicity are considered in the building design in accordance with the relevant regulations and standards.

A summary of issues considered during the design along with pertinent mitigation/enhancement measures are given in Table 1.

### **Environmental Impacts during Demolition and Construction**

Demolition and construction of the Adnan Menderes Airport Domestic Terminal will cause environmental impacts typical of construction projects, including traffic congestion, noise, dust, and gaseous emissions of construction equipment and vehicles. These disturbances will be temporary and mostly confined to the construction site and its immediate vicinity. Impacts will be minimized through good construction management practices and construction methods that avoid or reduce environmental disturbances. Mitigation measures to prevent, reduce or control the potential impacts are shown in Table 1 at the end of the document.

### **Air Quality**

The main sources of potential impacts on air quality during construction phase of the Project are the generation of dust from earthworks, spreading of dust during demolition process, dust generated from crusher, construction equipment movement and the release of engine emissions from construction equipment and vehicles at the construction sites.



Mitigation measures such as regular maintenance of construction equipment and frequent water spraying for unpaved roads at dry and windy conditions will be taken to minimize air emissions and dust impacts during construction (see Table 1). A modeling study was performed to simulate emissions originating from demolition and construction works found that concentrations are expected to be within allowable limits defined for air quality by Turkish, EU and IFC limit values/standards. The impacts on air quality during construction will be minor and short term in duration.

There is not anticipated to be any significant residual effects in relation to air quality during the construction phase of the project.

### Water Quality

The Project Site is approximately 12 km (air distance) away from Tahtalı Dam which provides drinking water for İzmir Province. Therefore, the Project Site is within the Tahtalı Dam Catchment Basin and the discharge of wastewater to the receiving environment is forbidden for the protection of existing water quality.

There are not any surface water sources in the vicinity but there is a water well close to the Project Site.

In order to protect existing groundwater quality, the wastewater generated at the Project Site during this phase is treated in the existing biological wastewater treatment plant of the Adnan Menderes Airport and treated wastewater will be discharged to the sewage system of Menderes Municipality. Moreover, appropriate mitigation measures such as storage of fuel/chemicals in appropriately bunded areas and the development of an emergency response plan as part of the CEMP will significantly reduce the risks of local soil and groundwater contamination from fuel and chemical spills (see Table 1). In order to prevent possible groundwater pollution during piling activities, geotextiles which is an impermeable material will be laid down prior to piling activities when groundwater table is high.

Since there is not any direct discharge to the receiving media and following the implementation of mitigation measures, the impact on groundwater is expected to be negligible.

There is not anticipated to be any significant residual effects in relation to water quality during the construction phase of the project.

### Soil Quality

During the demolition and construction works of the Project, the quality and stability of the soils on site may be affected by earthworks (during the demolition process, crushing, dumping of debris, leveling of site etc.), the creation of pollutant pathways from construction works such as piling, accidental fuel spillage, and the storage of hazardous wastes. Appropriate mitigation measures such as storage of fuel/chemicals in appropriately bunded areas and the development of an emergency response plan as part of the CEMP will

significantly reduce the risks of local soil and groundwater contamination from fuel and chemical spills (see Table 1). Since the area before the Project is also an airport site and there are no agricultural land in the close vicinity the impact significance on soil quality will be minor to negligible.

According to the soil quality survey carried within the Project Site, Nickel, Arsenic values in the soil are higher than the limit values defined in the national and international standard. It is known from the scientific studies and researches that Arsenic occurs as a constituent in more than 200 minerals. It can natural geological presence in local bedrock. Arsenic-containing bedrock formations of this sort are known in İzmir in Turkey (Garellick, H. at.al., 2008). Aegean Region – especially İzmir – has generally high Arsenic concentration as a result of its geochemical characteristics. Regarding that Aegean Region has large mine reserves and it is a mining region, higher amount of metals and Arsenic is a usual case.

TPH concentration analyzed for the sample taken from well location is significantly higher than the national generic soil quality limit and indicates pollution of soil with oil or other petroleum byproducts. Since the sampling location is nearby the main road, some individual activities performed at the edge of the road (such as oil changing, maintenance of vehicles, etc.) or polluted surface runoff coming from the road could cause pollution at this location. There will not be any construction activity near well since the well is out of borders of Project Site and is under the responsibility of DSI. Remediation for this area is recommended.

There are not anticipated to be any significant residual effects in relation to soil quality during the construction phase of the project.

### Noise

Demolition and construction phase of the proposed facility has the potential to create noise associated with use of construction equipment and increased road traffic. On the other hand, vibration may be caused by the construction machinery.

The nearest residential area that can be possibly affected by noise of construction works is Görece Town with a distance of 795 m. Effect of construction noise on this residential area was calculated by using noise distribution laws and equations. As a result, noise levels originating from demolition and construction activities are in compliance with the national limit values at the sensitive receptor, Görece Town.

Moreover, daytime noise level at this receptor due to the activities in this period complies with the corresponding international standards. However, noise level at nighttime exceeds the associated IFC standard. IFC Guidelines also stated that noise impacts should not result in a maximum increase in background levels of 3 dBA at the nearest receptor. There have not been any data on background noise levels at the nearest sensitive receptor (Görece Town) prior to execution of demolition and construction works. Therefore, the increase in background noise levels at Görece Town due to construction and demolition activities could not be identified to check the compliance with IFC Guideline. On the other hand, Görece

Town is under the noise influences of traffic on highway, operations of small industries within close proximity and ongoing aircraft operations. Regarding the characteristics and orientation of noise sources, the construction noise could be screened at the receptor by the other mentioned noise sources. In addition to that, since noise level calculations at sensitive receptor were performed for the worst-case scenario supposing all construction equipment is operated at the same time period, actual noise levels are expected to be lower than the calculated values since all equipment will not be used at the same time especially at night time period.

Preventing noise at source is one of the most effective control methods. The main purpose is to prefer the lower one of the audio power emitted by source of the sound. Precautions to minimize the noise at the construction site are presented in Table 1. The significance of the residual impact could be decreased to minor level by taking necessary measures mentioned above such as regular maintenance, adjusting close position when not used etc.

There are not anticipated to be any significant residual effects in relation to noise during the construction phase of the project.

### Ecology

The immediate Project Site and proposed influence area of facility do not include any natural and critical habitats or protected species. The main activities predicted to disturb the terrestrial ecology during construction works are (i) excavation works and land clearance and (ii) dust creation in association with excavation and transportation of materials.

The possible negative effects during the construction phase are planned to be reduced by mitigation measures outline in Table 1. Following the construction works, vegetation of the area will be protected via relocation of existing plant species which have been removed during land clearing stage.

Provided that the mentioned mitigation measures are implemented, no significant residual impacts are expected in terms of biodiversity.

### Waste Management

Waste will be expected to be generated during demolition and construction works are:

- Domestic Solid Waste;
- Recyclable Waste (packaging waste, paper, cables, glass, wool, plastic, steel, metals etc.);
- Excavation Waste and Debris;
- Liquid Waste (domestic wastewater); and
- Hazardous Waste (waste vegetal oil, waste oil, contaminated soil/waste, medical waste, isolation waste, gaskets of pipes, fluorescents, waste batteries and accumulators, etc.



TAV aims to minimize wastes and maximize the recycling or reuse of the wastes during construction period up to 65%. During demolition phase, the concrete material demolished from the old terminal building and surroundings is being processed in the crusher for recycling and reuse purposes and then it will be used as a filling material where required. Moreover, certain amount of metals and lightings demolished from old building are being reused in the TAV-C offices and related areas.

During construction, waste will be collected and stored at the Project Site in compliance with a Waste Management Plan and will not cause environmental pollution as a result of leakage and odor. Wastes will be collected, stored, transported and disposed according to the associated rules and regulations in the force. Mitigation measures are listed in Table 1. With these mitigation measures, impacts from domestic, hazardous and other wastes are expected to be negligible to minor level.

### **Potential Socioeconomic Issues during Demolition and Construction**

#### Occupational and public safety and health.

Workers could potentially be exposed to contact with hazardous materials such as diesel fuel and chemicals, and to noise and dust, and could potentially be subject to injuries from construction related activities and slips, trips, and falls from height. Given the need for the use of construction vehicles on-site, there is also the risk of collision with equipment and vehicles. Mitigation measures to reduce the risk to employees would include the development of a construction health and safety plan, employee training programs and site inductions that address construction safety, the provision of personal protective equipment to all staff working at the site, and plans and training for environmental responsibility (for example, spill prevention planning and training).

Surveys to identify the presence of asbestos have been conducted by TAV and asbestos containing material removed from the site by licensed contractors in line with the relevant regulations.

People in the closest settlement, Görece Town, will be potentially affected by noise and dust generated by the activities at site. There will be some traffic impacts due to construction traffic carrying materials and workers to and from the site. A traffic management plan will be produced and construction traffic will use designated routes that minimize the impact of construction traffic movements on local residents at Görece Town. In addition training for drivers, tracking systems with GPS and strict speed controls will reduce the risk of traffic incidents.

#### Economics

The development of the new domestic terminal has the potential to provide economic benefits during the construction phase of the project. The work will provide short term employment opportunities for approximately 1500-1800 local labor during construction. Additionally, local supply of goods and services (construction materials, food, medicine, accommodation, catering, transportation etc.) associated with Project activities will contribute to the local economy as well.

A temporary worker accommodation area is constructed within the boundary of the site with the intention of accommodating approximately 350 workers on-site during the construction phase of the project. The accommodation has been developed in line with the ERBD/IFC Guidance on Workers' Accommodation. Depending on the number of workers requiring accommodation on-site during the duration of the project, there is the potential for the capacity of the worker accommodation camp increasing to up to 2000 workers.

## **Environmental Impacts during Operation**

### Air Quality

The main sources of the airport air emissions include both mobile and stationary sources such as exhaust gases from aircrafts during landing and takeoff and ground operations, exhaust emissions from local ground transportation activities servicing the airport, emissions from fuel storage and handling, and emissions from boilers and emergency generators. TAV is directly responsible from the exhaust emissions of local transportation activities (passengers, luggage, etc.) as well as boilers, the tri-generation plant and emergency generators. Indirectly responsibilities are for fuel storage and aircraft emission. During the ESIA studies both direct and indirect impacts of the air pollutants were studied. In the project site, an air quality modeling study was conducted for the assessment of impacts in the air emissions (including increased aircraft activities).

According to the results of that study—in the scope of direct impacts—ground level concentrations of primary air pollutant levels are significantly lower than the associated national and international limits. In addition to direct impacts, secondary impacts (aircraft activities and fuel storage) were also assessed via a modeling study. As a cumulative assessment, when direct impacts and secondary impacts are simulated together with the help of software model, it is seen that calculated air quality concentrations are within both the national and international limit values. Therefore, the impact on air quality in operation phase will be minor.

There are not anticipated to be any significant residual effects in relation to air quality during the operational phase of the project.

### Water Quality

Water consumption will include the operation of sanitary facilities for large numbers of passengers and cleaning activities in general. Domestic wastewater to be generated as a result of water usage in the airport facility will be treated in the existing biological wastewater treatment plant and given to the sewerage system to Menderes. Wastewater at the inlet of Menderes sewerage system will be complied with the discharge standards given in the WPCR for discharge to sewerage system and will being regularly analyzed and controlled by İZSU. There will be no direct discharge to the receiving environment; therefore, no impact on groundwater quality is expected.

There are not anticipated to be any significant residual effects in relation to water quality during the operational phase of the project.

### Soil Quality

There could be local soil and groundwater contamination if there are accidental spills of chemical and fuel at the Project Site. Management of chemicals and fuel for aircraft is in the responsibility of DHMİ. The fuel needed for ground services is in the responsibility of TAV. Appropriate mitigation measures such as storage of fuel/chemicals in appropriately bunded areas and the development of emergency response procedures as part of the operational EMP will significantly reduce the risks of local soil and groundwater contamination from fuel spills. These would include precautions when using fuel, using them over impervious surfaces, and having cleanup materials nearby. Operational impact on soil quality is expected as minor to negligible.

There are not anticipated to be any significant residual effects in relation to soil quality during the operational phase of the project.

### Noise

During the operation period, the most significant sources of noise and vibrations from airport operations are aircraft during the landing and takeoff cycles, followed by a variety of ground operations equipment including aircraft taxiing; operation of ground support vehicles (e.g. passenger buses, mobile lounges, fuel trucks, aircraft tugs, aircraft and baggage tractors, and dolly carts); aircraft auxiliary power units; and aircraft engine testing activities in airports with aircraft maintenance activities. Other indirect sources of noise include ground vehicle traffic from access roads leading to the airport. Regarding the Project, noise due to aircraft landing and takeoff is indirect noise emission for TAV since the aircraft movement is in the responsibility of DHMİ.

A noise calculation study for the estimation of approximate increases in noise (including increased aircraft activities) was carried out. According to the calculations, cumulative noise levels estimated at the noise sensitive receptors on the flight path such as (Sarnıç Town), based on the flight projections for 2032 including both direct and secondary effects are within the national noise limits.

Mitigation measures to decrease noise level at the source are listed in Table 1. Following the incorporation of these mitigation measures, the residual direct impact of the airport operation on the nearest residential areas will be minor and does not represent a significant effect.

### Waste Management

Waste expected to be generated during operation phase are:

- Domestic Solid Waste;
- Recyclable Waste (packaging waste, paper, glass, plastic, metals, cans, etc.);



- Liquid Waste (domestic wastewater); and
- Hazardous Waste (waste vegetal oil, waste oil, contaminated soil/waste, medical waste, waste batteries and accumulators, waste fluorescents, end-of-life-tyres, etc.)

TAV aims to minimize wastes and maximize the recycling or reuse of the waste material during the operation of the new domestic terminal. The wastes will be collected and stored at the Adnan Menderes Airport in such a way that waste will not cause environmental pollution as a result of leakage and odor. Wastes will be collected, stored, transported and disposed according to the associated rules and regulations in the force. Mitigation measures are listed in the Table 1. With these mitigation measures, impacts from domestic, hazardous and other wastes are expected to be negligible to minor.

### **Potential Socioeconomic Issues during Operation**

#### Increased aircraft and passengers

The Project will enable more domestic flights into and from İzmir. New terminal building will be able to provide service to about 25 million passengers annually.

İzmir is a candidate for hosting EXPO 2020, which is a globally important cultural activity attracting millions of participants. The realization of the Project is considered to be an advantage in this nomination process.

#### Economics

Due to the capacity increase of the Airport, more operational airport jobs will be created and there will be induced development benefits for local economy.

The development of the new domestic terminal has the potential to provide economic benefits during the operation of the new domestic terminal through the provision of employment opportunities for approximately 300-400 local workers in a number of management, retail, security and maintenance roles within in the terminal.

TAV also has human resource policies that encourage positive discrimination in favour of women job candidates and will develop a “Gender Action Plan” to reinforce this approach.

**Table 1 Environmental and Social Management Plan - Summary of Potential Impacts and Mitigation Measures**

Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
ALL PHASES	GENERAL	<p>The Project will be designed, built and operated in accordance with the more stringent obligations of the applicable Turkish Regulations and the international standards and guidelines of the lending institutions:</p> <ul style="list-style-type: none"> <li>• Equator Principles</li> <li>• IFC Performance Standards and EHS Guidelines</li> <li>• EBRD Performance Requirements</li> <li>• EU Directives and Regulations</li> </ul>	TAV	Positive
ALL PHASES	HR Management	<p>TAV Holding will establish institutional HR Policies compliant with the requirements of PS2/PR"2 and in particular clear policies on: non-discrimination, equal rights, child labour, forced labour, worker organizations, wages and conditions of work (including over time payments) and employee grievances.</p> <p>A worker grievance procedure will be implemented and maintained by the project for all workers on site.</p> <p>All contract documents with subcontractors make clear requirements for contractors to meet all applicable legal and ESMP/ ESAP requirements.</p> <p>TAV will maintain an organizational structure defining HSE Critical roles for each Phase of the Project and ensure that these posts are appropriately staffed at all times.</p>	TAV	Positive
ALL PHASES	Occupational Health and Safety	<p>TAV-C will maintain "OHSAS 18001:2007" certification and pertinent HS documentation.</p> <p>A Construction Health and Safety Plan(s) will be maintained for all aspects of the projects activities to achieve and maintain compliance with National and EU Standards.</p> <p>All contract documents with subcontractors make clear requirements for contractors to meet all applicable legal and Project-specific OHS requirements , EU standards and Lender Requirements which include</p> <ul style="list-style-type: none"> <li>• Periodical technical inspections of equipments and medical inspections of staff, provision of HSE trainings, PPEs and enforcement of PPE usage, timely reporting of work accidents to relevant official authorities, measures to be taken for fire, pressurized gas tubes, working at heights, falling, welding and cutting works and equipment, electrical works and equipment, lifting works and equipment, demolition, excavation and construction works etc</li> </ul>	TAV & TAV-C	Positive

Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
ALL PHASES	Emergency Response Plan	<p>TAV and its Contractors will maintain and update an Emergency Response Plan for the site at all times. The Plan shall cover emergency response arrangements in the event of fire, accidents, spills, earthquakes etc and include details of how information will be disclosed to local communities in the event of an incident.</p> <ul style="list-style-type: none"> <li>The Plan shall include regular emergency response training and also an Emergency communication procedure with local authorities and local communities.</li> </ul>	TAV & TAV-C	Positive
ALL PHASES	Stakeholder Engagement	<p>TAV will implement the Stakeholder Engagement Plan (SEP) that has been developed for this project and will keep the SEP updated – at least annually.</p> <ul style="list-style-type: none"> <li>The SEP will be published on the Project website and include a grievance mechanism.</li> </ul>	TAV	Positive
ALL PHASES	Grievances	<p>Grievances will be resolved within a maximum 15 working days during construction and a maximum of 2 days during operation</p> <ul style="list-style-type: none"> <li>A Grievance Log will be kept by TAV for the follow-up of grievances</li> </ul>	TAV & TAV-C	Positive
DESIGN	Natural Resources and Energy Efficiency Air Quality Ecology Water Quality	<ul style="list-style-type: none"> <li>TAV- C will use the materials from existing domestic terminal and perimeter area, which are going to be demolished, to build TAV Staff Offices, to produce the necessary signage boards.</li> </ul>	TAV	Positive
		<ul style="list-style-type: none"> <li>In Dormitory Area, hot water will be provided by solar panels on summer.</li> </ul>	TAV	Positive
		<ul style="list-style-type: none"> <li>All trees which can be re-planted on the construction sites will be transplanted.</li> </ul>	TAV	Positive
		<ul style="list-style-type: none"> <li>Design of the Terminal Building and Car Park also consists of an environmental point of view with the usage of technologic systems like Photovoltaic Solar Power Panels, water source heat pumps and Hygroscopic Air-Handling Units.</li> </ul>	TAV	Positive
		<ul style="list-style-type: none"> <li>Natural Ventilation, Rain Water Harvesting possibilities will be studied.</li> </ul>	TAV-C	Positive
		<ul style="list-style-type: none"> <li>On site waste water drainage will be designed to prevent the release of contaminants through collection systems, separation of waste water systems, use of bunding etc.</li> </ul>	TAV	Positive
		<ul style="list-style-type: none"> <li>To save the electrical energy, LED source lighting fixtures in public areas are going to be installed and the lighting installations in the building should be performed together with the luminaries, and this should be done in accordance with the interior, the use of the room, photometric calculations with reference to their illumination, the room conditions</li> </ul>	TAV	Positive

Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
DESIGN	Fire & Life Safety	<ul style="list-style-type: none"> <li>TAV to develop fire and life strategy and incorporate the findings into the new domestic terminal design in line with international best practice (NFPA101 is the Life Safety Code developed by the National Fire Protection Association in the United States - Fire Safety Codes for buildings accessible to the public).</li> </ul>	TAV	Minor
	Disabled Access and measures	<ul style="list-style-type: none"> <li>TAV to develop disabled access and facilities strategy and incorporate the findings into the new domestic terminal design in accordance with Law No: 5378 on Disabled People and on Making Amendments In Some Laws and Decree Laws.</li> </ul>		
	Seismicity	<ul style="list-style-type: none"> <li>TAV will ensure that the building design is designed in accordance with design standards namely, Regulations on Buildings to be Erected in Earthquake Zones-2007, TS 500- Requirements for Design and Construction of Reinforced Concrete Structures -2000, TS 498- Calculation Values of Loads to be applied in Dimensioning Structural Elements-1997, TS 06164- Design and Drafting Rules of Reinforced Concrete Projects –General to reduce the risk of impacts from seismic activity.</li> </ul>		
DEMOLITION AND CONSTRUCTION	Air quality	<p>Construction Environmental Management Plan to include the following mitigation measures for decreasing dust impacts:</p> <ul style="list-style-type: none"> <li>Truck loading and unloading activities will carefully be performed and control measures will be taken against spinning of the excavations and/or demolition materials.</li> <li>Truck speed will be limited as 20 km/hour at site.</li> <li>Water spraying for unpaved roads will be frequently done especially at dry and windy conditions.</li> <li>Trucks will be covered when transporting materials.</li> <li>Wind barriers will be established (if needed) in case of windy seasonal conditions.</li> <li>Water spraying system will be established and continuously operated for crusher operations, especially at dry and windy conditions.</li> <li>The drop height of potentially dust generating materials will be kept as low as possible and stockpiles sprayed.</li> </ul>	TAV-C & Contractor	Minor
		<p>Construction Environmental Management Plan to include the following mitigation measures for decreasing exhaust emissions:</p> <ul style="list-style-type: none"> <li>Regular inspection and maintenance of construction plant and equipment will be conducted.</li> <li>Regular measurement of exhaust emissions will be performed.</li> <li>Engines will be turned off when possible to reduce idling and exhaust emissions.</li> </ul>	TAV-C & Contractor	Minor

Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
<b>DEMOLITION AND CONSTRUCTION</b>	Water quality	Project Site is within the Tahtalı Dam Water Catchment Basin. Any discharge of wastewater to the receiving environment is forbidden for the protection of existing water quality. The wastewater generated at the Project Site will be treated in the existing biological wastewater treatment plant of the Adnan Menderes Airport and be discharged to the existing sewage system of Menderes Municipality.	TAV & Contractor	Negligible
		<p>Spill response procedure given in the Emergency Response Plan prepared by TAV-C will be applied. In accordance to this procedure, the source of contamination should be identified and the plug or valve causing the spill should be closed. Supervisor and HSE Department should be informed about the spill. The hazardous substance should be absorbed by a spill kit or any other absorbent. Contaminated soil, contaminated absorbed cloths should carefully be removed and sent to hazardous waste storage area by putting suitable waste bags and/or barrel. Subsequent to realization of a spill, accident investigation for identifying necessary corrective action should be performed.</p> <p>Construction Environmental Management Plan to include the following mitigation measures and precautions:</p> <ul style="list-style-type: none"> <li>•Fuel and chemicals will be stored in appropriately bunded areas in line with IFC guidance and drip trays used where appropriate</li> <li>•Fuel loading will be performed at certain areas having a concrete base and drainage located to a wastewater pond.</li> <li>•Regular maintenance and cleaning of demolition and construction equipment will be conducted at certain places having a concrete base and drainage located to a wastewater pond.</li> <li>•Corresponding absorbents will be near to locations with possible leakages.</li> <li>•Geotextiles will be used during piling activity when groundwater table is high.</li> </ul>	TAV & Contractor	Minor or negligible
	Soil quality	Top soil which is the productive part of the soil will be carefully removed and be stored properly in a separate place. In the storage area, top soil will be carefully managed in order to ensure stability. Top soil will be used in the landscaping works subsequent to the completion of construction.	Contractor	Negligible
		<p>In case of a spill, spill response procedure given in the Emergency Response Plan prepared by TAV-C will be applied and set out in the Construction Environmental Management Plan.</p> <p>Construction Environmental Management Plan to include the following mitigation measures and precautions:</p> <ul style="list-style-type: none"> <li>•Fuel and chemicals will be stored in appropriately bunded areas in line with IFC guidance and drip trays used where appropriate</li> <li>•Fuel loading will be performed at certain areas having a concrete base and drainage located to a wastewater pond.</li> <li>•Regular maintenance and cleaning of demolition and construction equipment will be conducted at certain places having a concrete base and drainage located to a wastewater pond.</li> <li>•Corresponding absorbents will be near to locations with possible leakages.</li> </ul>	TAV-C & Contractor	Negligible or minor



Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
<b>DEMOLITION AND CONSTRUCTION</b>	Noise and vibration	<p>Construction Environmental Management Plan to include the following mitigation measures for noise control at the source:</p> <ul style="list-style-type: none"> <li>•Maintenance of that equipment will be done periodically and replacement of broken equipment will be provided immediately.</li> <li>•All equipment will be silenced where appropriate and operated to prevent excessive noise and switched off when not in use.</li> <li>•Pitch, barriers and natural obstacles can be counted among the precautions. Flora or bushes and so like obstacles present around the noise sources are natural obstacles.</li> <li>•Noisy equipment operating hours will be specified</li> </ul> <p>Noise complaints will be immediately investigated and mitigation measures implemented on a timely basis.</p>	TAV-C & Contractor	Minor
	Waste Management	Demolition subcontractor has prepared a detailed Waste Management Plan and gave estimated amount of waste for each type. The amount and disposal methods are given in the ESIA.	TAV-C & Contractor	Minor
	Production of	Contractor to develop a Waste Management Plan in relation of all stages of the construction phase and the waste management hierarchy will be applied in all cases.		
	• Domestic Solid Waste	Mitigation measures are listed at below rows to avoid negative effects on the environment:		
	• Recyclable Waste	•Domestic solid waste generated by workers will be collected in closed bins located at the construction site and workers' camp and given to the Municipality.	TAV-C & Contractor	Negligible
	• Liquid Waste	The waste management plan will include the following measures:		
	• Hazardous Waste	<ul style="list-style-type: none"> <li>•Recyclable wastes will be collected separately in suitable containers and temporarily stored in the Waste Storage Area.</li> <li>•The closed collection bins for short-term storage, placed at the outdoor, will be located on the concrete platforms with a pentroof for the protection of bins from weather conditions.</li> <li>•Recyclables will be given to the associated licensed recycling facilities.</li> <li>•For demolition phase, the disposal methods and recycling plant are presented in the Demolition Plan of the subcontractor.</li> <li>•A detailed waste management plan shall be prepared and disposal methods shall be defined.</li> </ul>	TAV-C & Contractor	Positive
		The waste management plan will include the following measures		
		<ul style="list-style-type: none"> <li>•Concrete part of debris will be recycled at the crusher to produce different-sized aggregates.</li> <li>•Crushed concrete will be reused at where necessary.</li> <li>•Excavation material will be reused as filling material at where required.</li> <li>•Excavation wastes will be stored appropriately at an area where the local authorities are mentioned.</li> <li>•Excavation waste will be appropriately stored to ensure stability.</li> </ul>	TAV-C & Contractor	Positive (waste recycling)
			TAV-C & Contractor	Minor (for waste storage)

Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
<b>DEMOLITION AND CONSTRUCTION</b>	Waste Management	<ul style="list-style-type: none"> <li>Domestic wastewater will be treated by the existing biological wastewater treatment plant of the International Terminal.</li> <li>Treated wastewater will be discharged to the existing sewage system of Menderes Municipality.</li> </ul>	TAV & Contractor	Negligible
	Production of <ul style="list-style-type: none"> <li>Domestic Solid Waste</li> <li>Recyclable Waste</li> <li>Liquid Waste</li> <li>Hazardous Waste</li> </ul>	<p>The waste management plan will include the following measures:</p> <ul style="list-style-type: none"> <li>Hazardous waste will be collected separately at closed containers (where available) suitable for the chemical components of the waste.</li> <li>These waste stored at separate places in the Hazardous Waste Temporary Storage Area to be established according to the current legislation.</li> <li>Hazardous wastes will be stored in this area for at most six months.</li> <li>Hazardous wastes will be sent to the licensed hazardous waste incineration facilities or recycling facilities via licensed transportation companies.</li> </ul>	TAV-C & Contractor	Minor
	Hazardous Materials Management	<p>A Hazardous Materials Management Procedures shall be implemented on site to comply with national and EU standards.</p> <p>The handling, storage and disposal of hazardous materials will be will be managed in accordance with manufacturers instructions.</p> <p>Suitably sized impervious bunding and base will be used for the storage of fuels, oils and other hazardous materials and drip trays will be used during refueling.</p> <p>On site personnel will be given training and PPE on hazardous materials management and emergency response procedures.</p> <p>According to the Asbestos Research Report prepared by Gemisander, glass wool used in the insulation does not contain asbestos. It is not carcinogenic; however, it is in the 3<sup>rd</sup> risk group. Therefore, insulation wastes from demolition works and hazardous packaging wastes will be stored in the Temporary Waste Storage Area at most six months. These wastes will be transferred to the licensed waste incineration facility via licensed transportation companies.</p>	TAV-C & Contractor	Minor to negligible

Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
DEMOLITION AND CONSTRUCTION	Archaeological chance finds during construction works	<p>Chance Find Procedure will be implemented and included in the construction environmental management plan and all construction personel will be trained on the Procedure.</p> <p>Works will be stopped at that location, and the corresponding authorities in İzmir listed below will be notified according to the pertinent law (<i>The Law on Protection of Cultural and Natural Assets (dated July 23, 1983 and numbered 2863) Article 4: Obligation for notification.</i>). Further work at the site will not commence until the find has been examined by the relevant authority.</p> <p><b>1-İzmir Archaeological Museum</b></p> <p><u>Address:</u>Halit Rifat Paşa Caddesi 4. Konak/İZMİR</p> <p><u>Phone:</u>0 232 489 07 96</p> <p><b>2- İzmir Provincial Directorate of Culture and Tourism</b></p> <p><u>Address:</u> Akdeniz Mah.1344 Sokak, No:2</p> <p>35210 Pasaport/İZMİR</p> <p><u>Phone:</u> 0 232/483 51 17 - 483 62 16</p>	Contractor	N/A
DEMOLITION AND CONSTRUCTION	Landscape and Vegetation	<p>Top soil will be preserved for re-use</p> <p>Vegetation of the area will be protected via relocation of existing plant species which has been removed during land clearing stage.</p>	Contractor	Negligible
	Contribution to local economy by employment opportunities	<p>%40-45 local labour will be utilized during demolition and construction</p> <p>Information about work opportunities will be made available to the local population through newspaper ads and HR companies</p>	TAV & Contractor	Positive
	Worker accommodation	<p>Worker housing compounds are to be designed and operated in compliance with International Best practice and Guidance Workers' Accommodation : Processes and Standards: A guidance Note by IFC and EBRD, 2009.</p>	Contractor	Positive

Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
<b>DEMOLITION AND CONSTRUCTION</b>	Traffic Management	<p>The contractor will produce a traffic management plan and define construction traffic routes that minimize impacts on local populations</p> <p>There will be traffic control measures and flagmen placed on all intersections in airport area and tracking system with GPS for vehicles out of the airport boundary. Where the use of GPS tracking systems is not feasible audits will be conducted to ensure that vehicles are adhering the the required construction traffic routes</p> <p>Strict speed controls of 50km/hour as per national limits will be applied to all vehicles in the road network around the project area. A speed limit of 20 km/hour will be applied on site.</p> <p>Vehicle inspections will be carried out and include checks that Project vehicle signage is in use.</p> <p>The number of trips, when delivering the necessary construction material and equipment to the construction site, will be minimized. The trips are scheduled to be during evening and night times -outside the peak traffic hours- to minimize difficulties due to hot weather.</p> <p>To ensure safety in emergency situations, the spill response plan will include necessary measures for responding to accidents that involve hazardous materials from vehicles.</p>	Contractor	Negligible
<b>OPERATION</b>	Air quality	<p>Operational Environmental Management Plan to include the following mitigation measures to reduce direct air emissions during the operation of the terminal:</p> <ul style="list-style-type: none"> <li>• Environmental-friendly fuel where possible will be used (i.e. natural gas usage in boilers and Tri-Gen Plant)</li> <li>• Emission sources will be turned-off when the operation of the source is not required.</li> <li>• Regular maintenance of the emission sources will be performed.</li> </ul> <p>Greenhouse gas monitoring and foot printing to be undertaken and measures identified to reduce greenhouse gas emissions as part of TAV İzmir's ongoing participation in the ACI Carbon Accreditation programme.</p>	TAV	Minor
<b>OPERATION</b>	Water quality	<p>Project Site is within the Tahtalı Dam Water Catchment Basin. Any discharge of wastewater to the receiving environment is forbidden for the protection of existing water quality.</p> <p>The wastewater generated at the Terminal will be treated in the existing biological wastewater treatment plant of the Adnan Menderes Airport and be discharged to the existing sewage system of Menderes Municipality.</p>	TAV	Negligible
		<p>Operational Environmental Management Plan to include chemical spill response procedure that has been prepared by TAV İzmir and given in the Emergency Procedure prepared for International Terminal. In case of chemical spill, the necessary procedure for avoiding pollution will be performed.</p>	TAV	Minor or negligible

Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
OPERATION	Soil Quality	In case of a spill, spill response procedure given in the Emergency Response Plan prepared by TAV will be applied.	TAV	Negligible or minor
	Noise and vibration	Operational Environmental Management Plan to include the following mitigation measures for the control of noise at the source: <ul style="list-style-type: none"> <li>• Equipment having advance technology shall be used at installed facility as well.</li> <li>• Maintenance of that equipment will be done periodically and replacement of broken equipment will be provided in the direction of project's feasibility by taking other precautions into account.</li> <li>• All equipment will be silenced where appropriate and operated to prevent excessive noise and switched off when not in use.</li> <li>• Pitch, barriers and natural obstacles can be counted among the precautions. Flora or bushes and so like obstacles present around the noise sources are natural obstacles.</li> </ul> Noise complaints will be immediately investigated.	TAV	Minor compared to aircraft noise (secondary impact)
OPERATION	Waste Management Production of • Domestic Solid Waste • Recyclable Waste • Liquid Waste • Hazardous Waste	<u>General:</u> Waste hierarchy defined in the ESIA will be applied for all types of wastes to minimize the amount or avoid the waste at the source. Waste Management Plan should be prepared by TAV. The amount and disposal methods of waste types are given in the ESIA. Mitigation measures are listed at below rows to avoid negative effects on the environment:	TAV	Minor
		• Domestic solid waste generated by personnel and passengers will be collected in closed bins located at the various locations of the Terminal and given to the Municipality.	TAV	Negligible
		An Operational Waste Management Plan will include the following measures: <ul style="list-style-type: none"> <li>• Recyclable wastes will be collected separately in suitable containers and temporarily stored in the Waste Storage Area.</li> <li>• The closed collection bins for short-term storage, placed at the outdoor, will be located on the concrete platforms with a pentroof for the protection of bins from weather conditions.</li> <li>• Recyclables will be given to the associated licensed recycling facilities.</li> <li>• A detailed waste management plan shall be prepared and disposal methods shall be defined.</li> </ul>	TAV	Positive



Phase	Impacts/Issues	Mitigation/Enhancement Measures	Responsibility	Residual Impact Significance
OPERATION	Waste Management	<ul style="list-style-type: none"> <li>Domestic wastewater will be treated by the existing biological wastewater treatment plant of the International Terminal.</li> <li>Treated wastewater will be discharged to the existing sewage system of Menderes Municipality.</li> </ul>	TAV	Negligible
	Production of <ul style="list-style-type: none"> <li>Domestic Solid Waste</li> <li>Recyclable Waste</li> <li>Liquid Waste</li> <li>Hazardous Waste</li> </ul>	An operational waste management plan will include the following measures: <ul style="list-style-type: none"> <li>Hazardous waste will be collected separately at closed containers (where available) suitable for the chemical components of the waste.</li> <li>These wastes stored at separate places in the Hazardous Waste Temporary Storage Area to be established according to the current legislation.</li> <li>Hazardous wastes will be stored in this area for at most six months.</li> <li>Hazardous wastes will be sent to the licensed hazardous waste incineration facilities or recycling facilities via licensed transportation companies.</li> </ul>	TAV	Minor

## FURTHER INFORMATION

Further information on the construction and operation of the new Domestic Terminal is available on the TAV project website at the address below:

([www.adnanmenderesairport.com](http://www.adnanmenderesairport.com))

Anyone seeking further information, wishing to comment on the project or the findings of the ESIA are requested to contact TAV by the e-mails, phone number or in writing at the address stated below:

**E-mails:** [info.izmir@tav.aero](mailto:info.izmir@tav.aero) (TAV-Ege Contact)

[info@tavconstruction.com](mailto:info@tavconstruction.com) (TAV-Construction Contact)

**Phone:** +90 (232) 455 00 00

**Address:**

Adnan Menderes International Airport

35410 Gaziemir-İZMİR

In addition if any stakeholder has a complaint about the process, a separate Grievance Procedure has been established and details of this can be found in the Stakeholder Engagement Plan which is available on the project website ([www.adnanmenderesairport.com](http://www.adnanmenderesairport.com)).