

# Ankara Metropolitan Municipality and EGO

## Dikimevi-NATO Road Metro Line Project

### Non-Technical Summary



November 2022

## 1. What is this document?

This Non-Technical Summary (NTS) document provides an overview of the proposed Project and presents a summary of relevant potential environmental and social issues and impacts related to the construction and operation of the proposed Ankara Metropolitan Municipality Dikimevi-NATO Road Metro Line line Project (“Project”). Appropriate measures to mitigate the key adverse environmental and social impacts that may arise during construction and operation of the Project are also presented within this document.

## 2. The Project Summary

The metro system in the City is presently primarily an underground metro system with a 64.361-kilometer network and 54 stations network. The existing system consists of the M1 Batikent-Kızılay line (14.661 km and 12 stations), M2 Çayyolu-Kızılay line (16.590 km and 11 stations), M3 Batikent-Sincan/Örekent line (15.360 km and 9 stations), M4 Keçiören-AKM line (9.223 km and 9 stations) and A1 AŞTİ-Dikimevi line (8.527 km and 11 stations).

The 7.46 km long Project will be an underground metro line with the stations and tunnel having an average depth between 30 to 45 meters below ground level. The line will start at Dikimevi and there will be eight stations namely Dikimevi (existing metro station), Abidinpaşa, Aşık Veysel, Tuzlu Çayır, General Zeki Doğan, Fahri Koruturk, Cengizhan, Akşemsettin, and NATO road. The line will provide an integration with the existing A1-Ankaray Dikimevi-AŞTİ metro Line, the Başkentray metro Line at Kurtuluş Station, the M1Kızılay-Batikent Line at the Kızılay Station and M2-Kızılay-Çayyolu Line and Intercity at the AŞTİ Station and integration with the Bus Terminal. The Project will result in safer and more reliable transport services for 625,000 passengers per day.

The Project will contribute to a significant reduction in air pollution in the City of Ankara. It will also result in new passengers switching to public transport, leading to a substantial modal shift from private cars and buses to a low-carbon metro mode. In terms of CO<sub>2</sub> emissions, the project is expected to generate 346,115 tons of CO<sub>2</sub> due to the construction. Still, overall, the Dikimevi - NATO Road Metro line in the CO<sub>2</sub> emissions within the 2026-2050 period is expected to save 308,452 tons of CO<sub>2</sub>. Regarding HC the yearly savings will grow from 4,152 kg (in 2026) to 6,678 kg (in 2050), NO<sub>x</sub> from 22,196 kg (in 2026) to 35,700 kg (in 2050), and the PM values from 361 kg to 581 kg. These annual savings will allow a global CO<sub>2</sub> saving of 324,792 tons of CO<sub>2</sub>. The metro construction is expected to start in 2022 and will take approximately 4 years to complete.

*The Project is in an urban setting and all land is urban, zoned land, and heavily developed. It is not located within any biodiversity or nature reserve areas or national parks. There will be expropriation on pavements or a section of gardens of the buildings however the Project is not expected to trigger physical displacement due to expropriation. Details of environmental and social impacts and mitigation measures are provided below.*

## 3. Project Finance

The project's estimated cost is EUR 309million (excluding metro vehicles), which will be confirmed with this assignment. While AMM will be the Borrower for the Project, Ankara Transportation Company (“EGO” or “Company” – wholly owned by AMM) is expected to implement and operate the proposed metro line. The final construction investment cost will depend on the final negotiation between the City and the Construction Contractor.

The City is in the process of obtaining all the necessary approvals from the central government to include the Project in the National Annual Investment Program (“NAIP”) for making the Project eligible for foreign financing. Subject to approval by their respective authorities, the following

international financial institutions are considering providing long-term finance to the City for this project:

- The European Bank for Reconstruction and Development (the “EBRD”)
- Agence Française de Développement (AFD), and
- Other Lenders

#### **4. Who are Project owners?**

The parties of interest for the planning, tendering, construction, and operation of the metro lines are Ankara Metropolitan Municipality (AMM), Ankara Elektrik, Havagazı ve Otobüs İşletme Müessesesi (EGO), Construction Contractor, and Owner’s Engineer.

##### ***Ankara Metropolitan Municipality (AMM):***

AMM has the authority to:

- Develop and implement the metropolitan transportation master plan, planning and coordinating transport and public transport services; and
- Carry out public transportation services within the metropolitan and for this purpose to establish, build, operate, or allow the operation of the necessary facilities

AMM, therefore, develops and implements the tendering process to plan, design, and construct the metro lines. AMM will manage the land acquisition and resettlement process and various other permits as required by in-country legislation. AMM will also engage an Owner’s Engineer to supervise the selected construction company. The construction company and the Owner’s Engineer have not been awarded the construction project yet.

##### ***EGO***

EGO has the authority to undertake public transportation services tasks, including operating on and above ground with rail, trackless, and mobile machinery. EGO has been responsible for managing the AMM railway system on behalf of AMM, and they will take over the metro operation once construction is completed.

##### ***Construction Company***

The Construction Company will be engaged as a Contractor via a contract that will be a typical “Red Book” FIDIC (The International Federation of Consulting Engineers) contract. AMM provides the designs, and the Contractor is responsible for construction implementation design, undertaking construction and finalizing the Metro Line along the construction bid document prepared by the Republic of Turkey AMM Department of Suburban and Rail System Investments, qualification, testing, and AMM.

##### ***Owner’s Engineer***

The Owner’s Engineer will serve as an independent representative of AMM. The company will provide project management and quality assurance support during all stages of tender execution. AMM will also task the Owner’s Engineer with environmental, health and safety, and labour conditions review of Contractor activities.

Therefore, the Project will be constructed under the responsibility of AMM and operated by EGO.

## 5. Public Transportation System in Ankara

In 1993, Ankara became the first city to approve a Transport Master Plan. The Transport Master Plan’s drafting began in 1985 and gained approval after eight years. In 1998, with the help of the World Bank, an annex was added to this plan. In 2011, AMM signed a protocol with Gazi University, which was assigned to develop Ankara’s Transport Master Plan. Gazi University had a ‘Transport Master Plan’ office in 2013 and 2014. According to the university’s web page, household and outdoor surveys were realized between March and May 2013, with 125,000 inhabitants surveyed in households, 1,276 pedestrian surveys, and 2,500 public transport users surveys. With the obtained data, a transport model was developed. For projection purposes, it was estimated that Ankara will have more than 10 million inhabitants by 2038. However, the drafted plan did not get AMM’s approval. More recently, in July 2020, AMM requested an update to the ‘Transport Master Plan’ from Gazi University.

The intercity connections in Ankara are realized through airports, train, and bus stations. Ankara’s main airport that serves domestic and international flights is Esenboğa International airport. High-speed trains connect Ankara with Istanbul, Eskişehir, and Konya. Other railway connections include Izmir Mavi Train, Doğu Ekspres, Van Gölü Ekspres, and Guney Kurtalan Ekspres. The central intercity bus station is Ankara Şehirlerarası Terminal İşletmesi (AŞTI), which is the largest in Turkey and among the largest in Europe

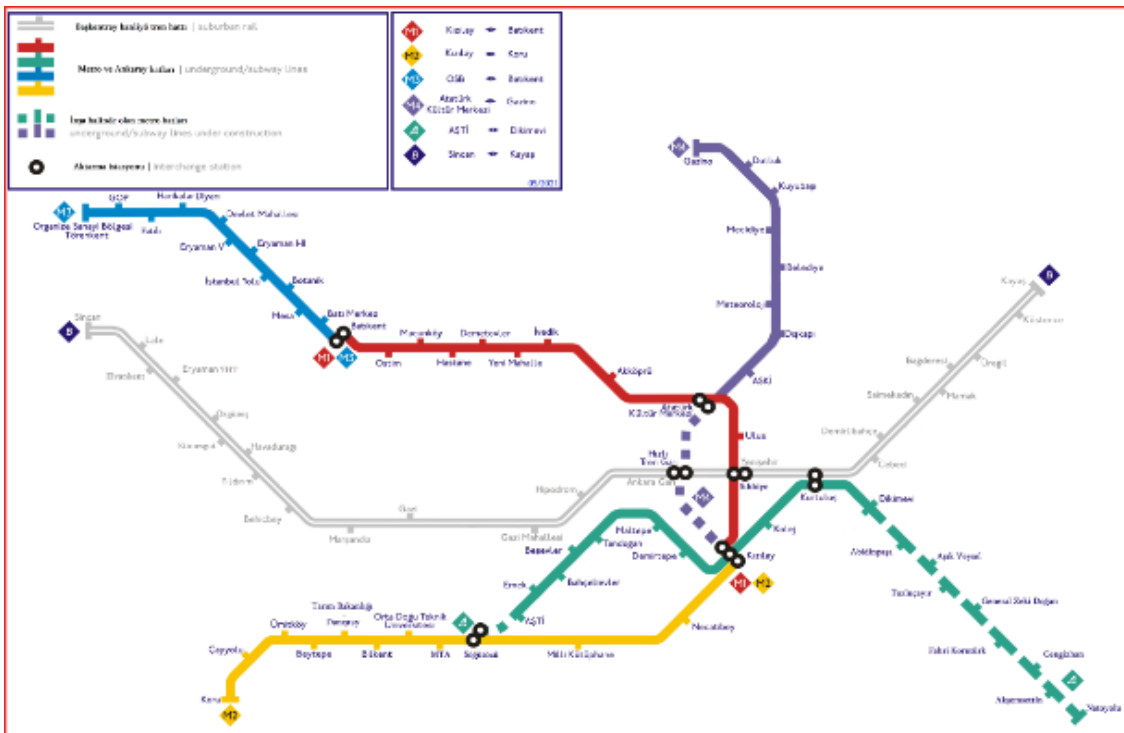


Figure 1 Ankara Public Transport Components

Ankara Metro has a total length of 55.83 km, whereas Ankaray has 8.52 km with the components shown in Figure 1

BASKENTRAY	□	A 37 km long commuter railway line with 24 stations
METRO	■	A network of two lines (M1-M2-M3, and M4), 43 and a total length of 55.83 km
ANKARAY	■	A 8.52 km long light railway line with 11 stations
TELEFERİK	■	A 3.26 km long cable car, with 4 stations and 106 cabins
BUS		Operated by: EGO, ÖHO (Özel Halk Otobüsü) and ÖTA (Özel Toplu Taşıma Aracı)

Ankara's public transport works as an integrated railway, metro, buses, and a cable car network. EGO, is a public institution responsible for Ankara's public transport planning and operation. It is responsible for procuring goods, services, and infrastructure construction. Ankara's public transport system consists of Başkentray (commuter railway), Ankara Metro, Ankaray (Rapid Transit), Teleferik (urban cable car), and buses. Başkentray is operated by TCDD (Turkish State Railways). Ankara Metro, Ankaray and Teleferik are operated by EGO.

## 6. Ankara Metro System

Ankara Metro is a network of two lines M1-M2-M3, and M4. Since 2019, Metro lines M1, M2, and M3 have been connected and work as a single line. Ankaray is a Light Railway Transit line. Teleferik is an urban cable car with a capacity of 2,400 passengers/hour/direction. Bus lines are operated by EGO and two other bus operators: ÖHO, and ÖTA.

EGO Rail Operation and Maintenance Centers are as follows

- Ankara Metro Macunköy: 220,000 m<sup>2</sup> Total Area, 20,000 m<sup>2</sup> Maintenance Area, 15 Warehouse Lines, 11 Maintenance Line, Capacity of 3 Sets of 6 on Each Line, Total parking capacity of 45 of 6 sets.
- Ankara Metro Çayyolu: 125,000 m<sup>2</sup> Total Area, 15,000 m<sup>2</sup> Maintenance Area, 10 Warehouse Lines, 8 Maintenance Lines, Capacity of 3 Sets of 6 on Each Line and Total 30 of 6 sets parking capacity.
- Ankaray AŞTİ: 50,000 m<sup>2</sup> total area, 10,000 m<sup>2</sup> Maintenance Area, five parking lots, two maneuvering lines, and one test line in the maneuvering area; two vehicles can park on each parking line. All lines, including the 6 Workshop lines, are interconnected with 23 switches controlled from the Command Center – SCADA Room.

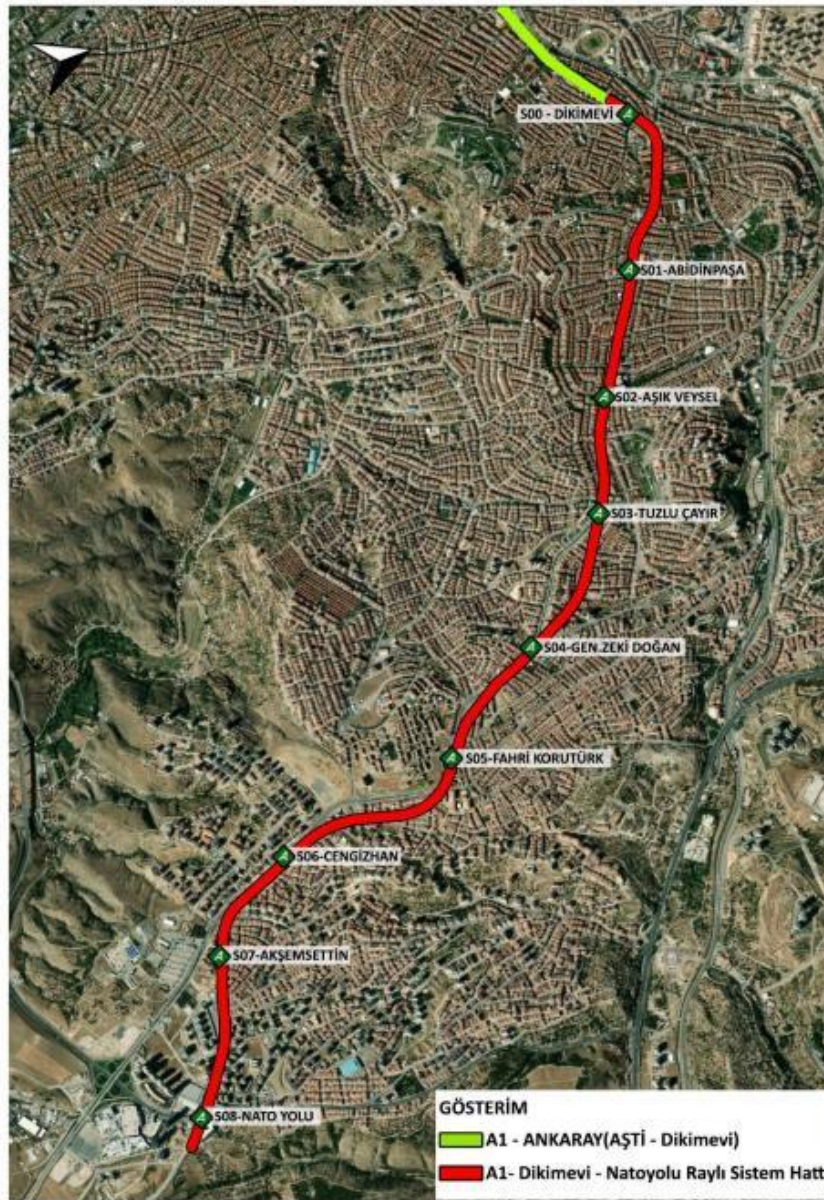
Ankara, with a population of 5,747 million inhabitants, has a total of 64.35 km length of built Metro network, which corresponds to 11.20 km length of metro per million inhabitants. Ankara stands better in metro network density than its national counterparts, Istanbul, and Izmir. However, compared to its European counterparts, Ankara has a lower metro network density. Metropolitan areas with a similar population (4-6.5 million inhabitants), such as Barcelona, Hamburg, Madrid, Munich, and Rome, have an average of 25 km metro length per million inhabitants. In terms of network density per surface area, Ankara Metropolitan Area has a comparable metro network density to its European counterparts. However, the metro network density per surface area is not a reliable comparison due to the several factors that impact the administrative boundaries definition.

## 7. Dikimevi-NATO Road Metro Line Project Description:

The Project will start in the Çankaya district after Dikimevi Station and continue along Mamak district. It provides a rail connection from the Mamak district to the city centre. Additionally, it provides a significant increase in the overall connectivity and accessibility:

- Connect Mamak district to Başkentray line at Kurtuluş Station,
- M1 Kızılay-Batıkent line at Kızılay Station
- M2 Kızılay-Çayyolu line again at Kızılay Station
- M4 Kızılay-Keçiören line again at Kızılay Station
- M2 Kızılay-Çayyolu line at Söğütözü Station, Intercity Bus Terminal at AŞTİ





**Figure 2 Dikimevi-NATO Road Metro Line**

The new line between Dikimevi station and NATO Road station will extend the Ankaray line between AŞTI – Dikimevi stations hospital complex (Ankara University). The line will start at Dikimevi and there will be eight stations namely Dikimevi (existing metro station), Abidinpaşa, Aşık Veysel, Tuzlu Çayır, General Zeki Doğan, Fahri Koruturk, Cengizhan, Akşemsettin, and NATO Road (Figure 2).

The project includes the following features:

- Civil works for 7,46km of line extension
- Civil works for stations and auxiliary facilities
- Elevator and escalators
- Power supply and distribution
- Signaling: Sogutozu-ASTI (existing but non-operational), ASTI-Dikimevi (operational section), and Dikimevi-NATOyolu (new section)
- Communication
- Environmental systems

## 8. What Environmental And Social Studies Have Been Undertaken?

A Project Description File (PDF), prepared in 2021 was submitted to the Ankara Provincial Directorate of Environment and Urbanization (PDEU). Under the Environmental Impact Assessment Regulation (Official Gazette Date/Number: 25.11.2014/29186), an ‘EIA not Required’ decision (official notification dated 28.06.2022) was issued for the Project.

A third party Environmental and Social Due Diligence (ES DD) was commissioned by the EBRD for the Project. The objective of the ES DD was to identify and assess the environmental and social impacts associated with the construction and operation of the proposed metro line and the capacity of the Project development to address these impacts in line with the Lender's environmental and social requirements.

The Project has been designated as a Category B project by the EBRD’s 2019 Environmental and Social Policy as the potential E&S impacts associated with the project are assessed to be limited and can be readily addressed and managed through the implementation of the Environmental and Social Action Plan (ESAP). The potential environmental and social impacts/risks will be mitigated through careful design and implementation of effective measures including avoidance of physical and economic resettlement during the design stage, use of tunnel boring machine (TBM), and New Austrian Tunneling Method (NATM) technique resulting in fewer impacts compared to other techniques. The potential environmental and social impacts are generally site-specific and can be avoided or mitigated by adhering to relevant Lenders’ performance requirements, procedures, guidelines, and design criteria.

## 9. Scope of the Environmental and Social Due Diligence

The scope of work for the ESDD comprised of the following:

- Identify existing and Project-related environmental and social impacts and risks, including an assessment of AMM and the contractor's responsibilities for the construction.
- Describe and characterize a relevant environmental and social baseline commensurate with the risks posed by the Project.
- Develop an E&S Assessment report by the Bank’s requirements as defined in the ESP, including a Compliance Summary table with the Bank’s PRs.
- Prepare a Stakeholder Engagement Plan (SEP), a grievance mechanism, Environmental and Social Action Plan (ESAP), and Non-Technical Summary (NTS).
- Determine emissions reduction of the Project, including CO<sub>2</sub> and toxic emissions (NO<sub>x</sub>, SO<sub>x</sub>, CO, PM, etc.) based notably on modal transfer from the existing transport mode.
- Identify if any additional studies will be required to cover relevant aspects in greater detail (e.g., biodiversity, land acquisition, and livelihood restoration plan, retrenchment/demobilization plan, contractor control management plan, etc.). (Any such work, if required to be undertaken, will be commissioned under separate Terms of Reference)
- A separate assessment has been prepared for a Gender audit,

The work included an environmental and social audit through a site visit to the selected existing facilities of AMM and EGO, interviews with management and workforce, review of available environmental and social documents and a detailed environmental and social management review and analysis for the Project about national regulatory requirements and relevant international standards.

As part of the ES DD, a detailed Environmental and Social Due Diligence Report, an Environmental and Social Action Plan (ESAP) and a Stakeholder Engagement Plan (SEP) and this Non-Technical Summary (NTS) were prepared for the Project.

## 10. What are the key environmental and social impacts of the Project and the proposed mitigation measures?

The main benefit that will be experienced by the Project will be the extension of the current metro system in line with the Ankara transport masterplan, enabling the provision of frequent and efficient services to Ankara residents in a way that is fast, reliable, comfortable, and environmentally friendly, providing an alternative to the use of cars. There will be time savings due to decreased travel time compared to using buses and minibuses, as well as a reduction in the vehicle operating costs in public transportation in the city and reduction in the minibus and bus traffic in the route which is expected to result in savings in road maintenance costs.

On the other hand, the Project can potentially result in some negative impacts on the environment and people, if not managed carefully. The ESDD has identified all potential environmental and social impacts associated with the construction and operation phase of the Project and appropriate mitigation measures. AMM and the Construction Contractor will be responsible for the management of construction phase impacts whereas EGO will be implementing measures to prevent, reduce, or mitigate any potential negative impacts of the operation of the metro line.

The Dikimevi-NATO Road line will go through a densely-built predominantly residential area of Mamak district, a university hospital complex (Ankara University), and the last station near a shopping mall. The project follows existing roads to minimize land acquisition. As the fourth most populated district of Ankara, Mamak has a population of 682,420 residing in a 345.7 km<sup>2</sup> area. Mamak district has sixty-four neighborhoods. The neighborhoods within the Project side include: Abidinpaşa, Akşemsettin,, Aşık Veysel,, Cengizhan, Fahri Korutürk, General Zeki Doğan and Tuzluçayır. The population likely to benefit from the Metro would correspond to at least 46.6<sup>1</sup>% of the Mamak population.

The Project is in an urban setting. All land is urban, zoned land, and heavily developed. The Project will require land acquisition for entry and exits to the metro and other auxiliary facilities. When expropriation files are analyzed according to title-deed registration, site visit and review revealed that only pavements or a section of gardens of the buildings would be impacted and hence will not induce physical resettlement of Potentially Affected Parties. A number of small shops are prone to economic displacement during construction due to limited customer accessibility (only pedestrian access), road closures, and traffic interruptions. There are several sensitive receptors such as schools and hospitals within the zone of influence of the construction sites at stations, which will need to be carefully considered during the establishment of the construction area and management of the construction process. The zone of influence for the physical environment will be based on the noise propagation, air emissions distribution, impacts on traffic created by construction activities, soil settlement, and vibrations in the soil matrix caused by the tunneling activities, vibration impacts on buildings and structures. Each station vicinity will have its unique set of Area of Influence (AOI); the exact AOI will be established during the preconstruction period and then monitored regularly through air, noise, vibration, waste and traffic measurements and observations during the construction activities. Stakeholders including schools, hospitals, universities, residents, shop owners, passengers, vulnerable people such as women, elderly, disabled and children etc. will be informed and consulted about Project activities, risks and mitigations at each phase of the project. The AoI will include at a minimum the immediate vicinity of the boundaries of the metro station. An effective grievance management system

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<sup>1</sup> Nearby settlements mentioned in the interviews with the muhtars of the station neighborhoods are Balkiraz, Akdere, Saimekadın, Peyami Safa, Kartaltepe, Şahintepe, Kutlu, Mutlu, Ege and Durali Alıç.  
Dikimevi-NATO Road Metro Line



will be developed and implemented for the project. Lenders will monitor effective implementation of the project throughout Project lifetime.

The following outcomes were identified

- Significant improvements of AMM E&S management system and also allocation of sufficient resources to manage the project's EHSS risks in line with the EBRD's requirements are required. Similar findings were obtained in relation to the Company (EGO) responsible for the operation of the proposed metro.
- AMM and the operating company EGO manage their labour and working conditions in accordance with Turkish Labour Law, however improvements are required to meet EBRD PR 2 requirements.
- Construction activities will generate include the generation, transportation and disposal of construction waste; rainwater runoff from the construction site that can potentially impact the surrounding waterway's quality via an increase in suspended solids, oil and grease, and chemical pollutants; increasing flow on the existing rainwater system, and altering the local flood regime, etc.
- Health and safety risks to workers and communities will be present including, but not limited to, traffic, vibration, noise impacts and fire safety risks during operations.
- The residents who use the Aşık Veysel Park for recreational reasons will be affected during the construction phase. However, the adverse impacts will be temporary and construction related. Additional mitigations will be developed and implemented to ensure the safety of children, the elderly and other affected people using the park.
- AMM considered effective measures to avoid significant resettlement impacts though the use of existing roads to minimize land acquisition. Nevertheless, the Project still requires land acquisition for entry and exits to the metro and other auxiliary facilities. The permanent land acquisition for the Project entails expropriation of private parcels and parcels belonging to the Municipality, Military, or used as roads. There are 38 parcels impacted by land acquisition; 33 parcels will be acquired by expropriation according to Law on Expropriation 2942; The total land required for the Project is 4,480 m2. Private land expropriation is 3,793 m2, with an average expropriation size of 115 m2. All land will be acquired according to Turkish expropriation law and PR 5 requirements.
- The Project is expected to trigger physical resettlement of two taxi stations (one temporary, one permanent) and two Municipal bread buffets. The Project will also create temporary impacts on local businesses, shops around metro stations during construction due to road closures, dust and noise. The client will develop and implement a Resettlement Plan in consultation with affected people to address all these temporary and permanent impacts in line with PR 5 and national requirements.
- Gender and Gender Based Violence and Harassment (GBVH) risks both to workers and communities are being assessed under a separate gender impact assessment report and various actions included into the ESAP to address gender/GBVH risks.

The key potential environmental and social impacts and mitigation measures are presented in Table 1, 2 and 3 below. If you need further information, please contact the project team through the contact details provided at the end of this NTS.

**Table 1 Potential Environmental & Social Impacts of the Project During the Pre Construction Phase**

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
Management Systems	<p>AMM and Contractors will be required as to perform a sound environmental and social performance and to prepare management plans specific to construction sites</p> <p>EGO operates the metro lines and requires management plans to be implemented</p>	High	<ul style="list-style-type: none"> <li>• AMM to establish a Health, Safety, Environment, and Social (HSES) management system in line with ISO 14001, ISO 45001 standards;</li> <li>• AMM to establish an HSES team to monitor construction projects, including H&amp;S, environment and community liaison experts (CLO) to monitor metro projects;</li> <li>• AMM to develop a contractor management plan to cascade all E&amp;S requirements throughout contractors (</li> <li>• AMM to integrate Lenders’ E&amp;S performance and ESAP requirements as part of the tender package and construction contracts</li> <li>• AMM to ensure HSES monitoring requirements are clearly defined in the Owners’ Engineers Scope</li> <li>• Contractor to be selected to develop and implement an environmental and health and safety management system in line with the requirements of ISO 14001 and OHSAS 18001 (ISO 45001:2018) and SA 8000 standards;</li> <li>• Contractor to be selected to develop and implement environmental and social management system (ESMS) and plans to mitigate E&amp;S impacts and risk;</li> <li>• Contractor to be selected to establish a strong HSE team with clearly defined roles and responsibilities and authority;</li> <li>• Contractor to be selected and AMM to develop a clear and comprehensive procedure for supply chain risk assessment and management</li> <li>• Owner’s Engineer to be selected to undertake appropriate monitoring during construction and commissioning to ensure Contractor ESAP requirements are met;</li> <li>• EGO to develop an Environmental and Social Management System (ESMS) to manage operation phase impacts of the Project</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
Permit requirements	<p>Generation of excavated earth material</p> <p>Generation of domestic wastewater at construction sites</p> <p>Institutional regulatory requirements</p>	Medium	<ul style="list-style-type: none"> <li>• AMM to develop E&amp;S permit register;</li> <li>• AMM to obtain land permits;</li> <li>• AMM to obtain Ministry of Education approvals for Metro Construction near school areas;</li> <li>• Contractor to be selected to obtain excavated earth material disposal permit;</li> <li>• Contractor to be selected to Obtain ASKI water and wastewater connection permits at sites;</li> <li>• Permits to work at sites, and night time;</li> <li>• Traffic management plan approvals;</li> <li>• Establishment of the registration statuses, protection areas, and protection statuses of buildings before construction and then obtain the permissions;</li> <li>• Infrastructure displacement approvals</li> </ul>
Air quality	<p>Generation of dust during site preparation and excavation works, vehicle movement, stockpiles, unpaved surfaces in the working area.</p> <p>Exhaust emissions from construction machinery/vehicles.</p> <p>EGO has air emission sources that need to be monitored</p>	Medium	<ul style="list-style-type: none"> <li>• Develop an air quality management plan for construction sites;</li> <li>• EGO to take steps to ensure all air emission parameters are within the threshold as per the regulation;</li> </ul>
Noise and Vibration	<p>Generation of noise and vibration from construction/installation activities and construction machinery/vehicles.</p> <p>Generation of noise and vibration during operations</p>	High	<ul style="list-style-type: none"> <li>• Develop noise and vibration management plan for construction and operation phases. Additional measures to be taken near sensitive areas;</li> <li>• Review proposed mitigation measures in the table developed in section 4.3.4;</li> <li>• Survey the structural integrity of buildings within the zone of influence of the construction activities;</li> <li>• EGO to conduct noise monitoring at the above-ground and underground stations of the existing metro line to ensure compliance with the regulatory requirements;</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
			<ul style="list-style-type: none"> <li>• EGO to develop and implement a noise and vibration monitoring plan for the Project</li> </ul>
Geology, Soils, and Groundwater	Potential to affect soil and groundwater quality through spills from hazardous chemicals and hazardous material storage tanks.	Medium	<ul style="list-style-type: none"> <li>• EGO to obtain an opinion letter from the MoEU officials on whether the AMM facilities performing repair and maintenance fall within the RSPC Regulation;</li> <li>• EGO to conduct soil and groundwater site investigations in areas where former and present underground storage tanks are present;</li> <li>• Contractor to conduct a geological assessment after any natural hazards like an earthquake for the structural integrity of buildings within construction areas;</li> <li>• Contractor to be selected to conduct soil and groundwater investigations on potential sources of contaminants</li> </ul>
Biodiversity	The Project will affect existing trees and bushes along the Project corridor, needing replanted.	Medium	<ul style="list-style-type: none"> <li>• AMM to ensure a baseline survey for trees conducted carefully by relevant experts before construction;</li> </ul>
Surface and Wastewater	Runoff from construction has the potential to impact the surrounding waterways by increasing suspended solids, oil and grease, and chemical pollutants Generation of domestic wastewater at construction and operational sites	Medium	<ul style="list-style-type: none"> <li>• Develop a surface water management plan for construction;</li> </ul>
Waste	Risks from the generation of excavated soils, solid wastes (including domestic and packaging wastes), construction and operation waste, and generation of hazardous wastes, including	Medium	<ul style="list-style-type: none"> <li>• Develop a waste management plan and obtain permits for the construction phase;</li> <li>• EGO to develop an Environmental and Social Management System (ESMS) as it relates to waste management;</li> <li>• Continues to implement ISO 14001 as it relates to waste management</li> <li>• EGO should ensure that new temporary waste storage area will be established according to the Waste Management Regulation provisions;</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
	waste oil, oily rags, and similar.		<ul style="list-style-type: none"> <li>• EGO should ensure that industrial waste management plan is submitted and approved by the authorities;</li> <li>• EGO should ensure that all types of wastes are declared in accordance with Waste Management Regulation and are in line with the industrial waste management plan</li> </ul>
Hazardous Material	EHS risks due to potential poor storage conditions at the site, lack of MSDS	Medium	<ul style="list-style-type: none"> <li>• Develop a hazardous material management plan for the construction phase;</li> <li>• EGO to perform an inventory of the transformers, and oil-used in the transformers and if needed, analyze and treat in line with the related regulations</li> </ul>
Traffic	Adverse impact on existing roads and surroundings of the construction sites	High	Develop <ul style="list-style-type: none"> <li>• Air quality management plan</li> <li>• Noise and vibration management plan</li> <li>• Traffic management plan</li> </ul>
Cultural Heritage	Potential for encountering archaeological findings during construction Adverse impact for existing cultural assets during construction and operation	High	<ul style="list-style-type: none"> <li>• Contractor to develop a Cultural Heritage Management Plan, and a Chance Find Procedure in line with national laws and PR 8 requirements);</li> <li>• The workforce to be trained to respect the cultural differences/religion in affected settlements;</li> <li>•</li> </ul>
Employment	Creation of employment opportunities during the construction process Labour and working conditions	Medium	<ul style="list-style-type: none"> <li>• AMM to ensure that the main construction Contractor develops and implements an HR Policy and a Personnel Regulation Procedure, which defines fundamental employee rights in line with national laws and PR 2 requirements;</li> <li>• Prepare a labor-management plan and workers' engagement program in line with EBRD PR 2 requirements</li> <li>• EGO to enter a contractual agreement with workers stating which amount will be allotted to wage increases for workers and which conditions apply.</li> </ul>
Neighboring facilities-community health and safety	Impact to neighboring facilities because of installation/construction activities	High	<ul style="list-style-type: none"> <li>• AMM to ensure Contractor will include public safety issues in the risk assessment process; and develop/implement a community health safety and security management plan</li> <li>•</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
			<ul style="list-style-type: none"> <li>•</li> <li>• AMM and contractor shall develop a building evacuation and resettlement procedure and be linked to the Emergency Response Plan. The procedure should have components of PR5 requirements for the physical and economic resettlement needs. These cases should be monitored and reported to EBRD;</li> <li>• Contractor to Develop Air quality management plan                             <ul style="list-style-type: none"> <li>• Noise and vibration management plan</li> <li>• Traffic management plan</li> </ul> </li> </ul>
Workers Health and Safety Risk Assessment	Lack of OHS management system written work permit procedure creates the risk of accidents and injuries Covid 19 pandemic	High	<ul style="list-style-type: none"> <li>• Contractor to develop risk assessment documentation based on 5 x 5 (likelihood vs. severity) risk assessment methodology and make available for review, to evaluate risks and identify applicable “corrective and preventive actions;</li> <li>• Ankaray’s maintenance workshop heating system and maintenance ventilation system to be improved;</li> <li>• Develop hearing conservation program in EGO maintenance workshop;</li> <li>• Both EGO and AMM develop a LOTO system for the workers’ safety and develop a work permit system for non-routine tasks such as working at height;</li> </ul>
Accident reporting system and Key Performance Indicator	Lack of written procedure prevents the effectiveness of accident reporting system Lack of KPI definition prevents measuring the effectiveness of safety systems in place Lack of monitoring and analysis of public accidents and incidents related to construction activities	High	<ul style="list-style-type: none"> <li>• Clear definition of targets and objectives and development of KPIs</li> <li>• Record public accidents and incidents</li> </ul>
Construction Equipment Usage	Risks due to:	High	<ul style="list-style-type: none"> <li>• Develop road safety policy and defensive driving training;</li> </ul>



Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
	Lack of driving safety policy and procedure Use of non-approved personnel lifts in shafts		
Working conditions	Risks due to: Lack of noise, vibration, illumination, thermal comfort and air quality measurements create risks in the work environment Covid 19 pandemic conditions Ventilation systems do not present in shafts and tunnels creates poor ambient air quality	High	<ul style="list-style-type: none"> <li>• Iron dust particles measurement should be taken in the workshop, and AŞTİ station's result should be controlled according to regulatory and ILO standards;</li> <li>• After the pandemic breakout, dining facilities were closed and unavailable now. Ankaray labor change room and wash facilities' conditions are getting old and need improvement. Each work unit has its rest place and dining place; especially on hygiene and kitchen safety</li> <li>• Before entry into confined spaces, CH4, O2, H2S, and VOC measurements should be conducted before entering inside the confined spaces</li> </ul>
Emergency Planning	Risks due to deficient emergency planning covering all potential scenarios	High	<ul style="list-style-type: none"> <li>• Develop a comprehensive emergency response plan and implement the exercise of a worst-case scenario with a strong emphasis on earthquake scenarios;</li> <li>• An Emergency Action COVID-19 plan to be integrated with the site emergency plan for all three tiers AMM, EGO, Contractor;</li> <li>• Conduct a complete life and fire safety review of the Project components (with emphasis on the metro stations) by third-party competent fire experts</li> </ul>
Wages, benefits, and conditions of work and accommodations	Noncompliance of workers work schedule with the Turkish Labour Laws and ILO Conventions Noncompliance of dormitory conditions with IFC/EBRD - Workers' accommodation; process and standards	High	<ul style="list-style-type: none"> <li>• AMM to conduct an internal labor audit every quarter to ensure contractors' compliance with labour law and PR 2 requirements during construction;</li> <li>• AMM to ensure that the Contractor communicates its HR procedures and policies, including the grievance mechanism, to all its workers at the time of the hiring;</li> <li>• AMM and Contractor shall ensure that all sub-contractors adopt its HR policy and standards through contractual requirements and regular audits;</li> <li>• Ensure that the contractors' accommodation camps align with IFC/EBRD _Workers' accommodation; process and standards</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
			<p>(<a href="http://www.ebrd.com/downloads/about/sustainability/Workers_accomodation.pdf">http://www.ebrd.com/downloads/about/sustainability/Workers_accomodation.pdf</a>). AMM to ensure the main Contractor to be selected and its subcontractor's records and shares employee data in line with the legislation;</p> <ul style="list-style-type: none"> <li>• EGO to align its HR policies with PR 2 through the following actions; <ul style="list-style-type: none"> <li>○ Review working hours (regular + overtime) and other aspects within seven days-time scales, maximum 7,5 hours night shift to ensure compliance with national regulations and EBRD PR 2 standards, identify and correct any potential deficiencies;</li> <li>○ Take measures to facilitate the payment of a decent living wage for all employees by making additional improvements in base wages and ensure work towards this;</li> </ul> </li> </ul>
Grievance Mechanism	Lack of procedure or grievance mechanism for obtaining suggestion/complaints of contracted and subcontracted employees (of the construction contractor)	Medium	<ul style="list-style-type: none"> <li>• EGO / BUGSAŞ to establish and implement a “formal employee grievance mechanism” for all direct and sub-contracted employees and provide them information on channels for internal communication and raising grievances. The workers should be informed of the mechanism and procedures in their local language at the time of hire. As a best practice, an anonymous grievance mechanism options should be established to encourage concerns to be raised freely.</li> <li>• Develop a detailed procedure for evaluating the use of suggestion and grievance boxes to inform employees.</li> <li>• To make worker representatives freely elected by secret ballot election in each department. Regular meetings (minimum monthly) should be arranged between BUGSAŞ, EGO, and all worker representatives. The free nomination process should take place before the election.</li> <li>• To ensure that grievance investigation processes, decision making processes are recorded, and workers are provided with feedback related to the suggestions and concerns raised.</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
Unauthorized Workers	Risks due to the presence of illegal workers (i.e., without a work permit, such as Syrian workers) in subcontractors of the construction contractor	High	Implement checks on the status of subcontractor workers
Subcontractor Management	Risks due to: inadequate subcontractor management / insufficient control mechanisms Insufficient wage benefit control system in place for subcontracted workers	High	Develop a clear and comprehensive procedure for subcontractor management
Land acquisition and economic displacement		High	<ul style="list-style-type: none"> <li>• A RAP to be developed and implemented by AMM/the Contractor to manage and monitor temporary displacements.</li> <li>• The plan will include the following steps                             <ul style="list-style-type: none"> <li>○ Conducting risk assessment and building structure survey by expert institutions;</li> <li>○ Obtain a list of potential apartments/households under risk, monitoring of risks and reporting arrangements;</li> <li>○ Information on the decision on temporary displacement;</li> <li>○ Information disclosure for households and consultation with them.</li> <li>○ Develop a building evacuation plan and implemented it in cases where the building structure is identified as risky for households living in it</li> <li>○ Compensation measures to be made in line with PR 5 requirements. This should also include identification and engagement of vulnerable groups as the elderly, sick, people living in poverty situation/unregistered buildings, single women households, university students with livelihood difficulties or there may be informal tenants such as students and refugees;</li> <li>○ Clear activities on the conduct of meaningful consultations with the households to be delivered and keeping proper documentation (minutes) of results of consultations and agreements reached;</li> </ul> </li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
			<ul style="list-style-type: none"> <li>○ A proper monitoring and evaluation plan to monitor outcomes and ensure that displacement does not cause worse-off situations;</li> <li>● AMM to confirm with a selected contractor that there will be no road closures and traffic/pedestrian restrictions or blocking of loading and display areas of businesses to prevent economic impacts on local businesses;</li> <li>● A list of local businesses closest to construction areas and their basic economic data needs to be recorded by the Contractor under the supervision of AMM (i.e., customers, sales, and revenues) and monitored. Despite all measures, if losses occur, these shall be compensated.</li> </ul>
Stakeholder and Information Disclosure	Lack of stakeholder engagement leads to uninformed PAPs and result in opposition to the project	High	<ul style="list-style-type: none"> <li>● AMM takes an active role in identifying stakeholders and developing the stakeholder engagement plan. The list of stakeholders needs to be strengthened in a way to be more inclusive of SMEs, women, and youth (students);</li> <li>● More detailed content needs to be prepared for a stakeholder engagement plan on impacts and mitigation measures. These all need to be identified and use of these (when, which content/document using which mechanism or tool, by whom to be managed, recording and reporting, evaluating results, etc.) needs to be planned properly in the stakeholder engagement plan</li> </ul>
Gender-Based Violence	There is no clear policy in place on the prevention of gender-based violence and harassment concerning an interaction with workers, communities, and stakeholders.	High	<ul style="list-style-type: none"> <li>● A policy by AMM should be adopted and circulated to the Owner’s Engineer company and contractors as well as operation company, EGO. to be integrated into their E&amp;S policies and management plans;</li> <li>● Tender documents can also include requirements for measures to prevent GBVH in line with this policy;</li> <li>● The policy should also be turned into the delivery arrangement through cascading in all relevant documents: code of conduct, E&amp;S management plan, grievance management plan, operation plans, contractor control plan, risk documents, monitoring and evaluation plans, audits/reports as well as field control form;</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
			<ul style="list-style-type: none"> <li>• The policy should also be communicated to stakeholders and impacted communities to promote awareness and engagement on the issue. Website and online tools in train and station multimedia boards during operation can be effectively used for public awareness-raising;</li> <li>• Policy and identified actions should complement training and awareness-raising by AMM and all contractors/affiliated operational companies. Training shall also be part of the induction of all staff AMM, Owner’s Engineer company, and contractors. For operation, staff managing stations and operation on the field should be trained specifically by experts (especially security staff);</li> <li>• The grievance mechanism and complaints line shall be revised to track GBVH issues. Staff handling these should be trained. Ideally, specially trained staff/focal points can receive complaints properly. Contractors and operations on the field should also be scrutinized to monitor risks of underreporting and misconduct;</li> </ul>

**Table 2 Potential Environmental & Social Impacts of the Construction Phase**

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
Air quality	<p>Generation of dust during site preparation and excavation works, vehicle movement, stockpiles, unpaved surfaces in the working area.</p> <p>Exhaust emissions from construction machinery/vehicles.</p> <p>EGO has air emission sources that need to be monitored</p>	Medium	<ul style="list-style-type: none"> <li>• Conduct air quality measurements at construction sites;</li> <li>• Water spraying at sites during dry/windy weather conditions;</li> <li>• Regular maintenance of vehicles;</li> <li>• EGO to take steps to ensure all air emission parameters are within the threshold as per the regulation;</li> </ul>
Noise and Vibration	<p>Generation of noise and vibration from construction/installation activities and construction machinery/vehicles.</p> <p>Generation of noise and vibration during operations</p>	High	<ul style="list-style-type: none"> <li>• implement noise and vibration management plan for construction and operation phases. Additional measures to be taken near sensitive areas;</li> <li>• Conduct Noise and vibration measurements at construction sites;</li> <li>• EGO to conduct noise monitoring at the above-ground and underground stations of the existing metro line to ensure compliance with the regulatory requirements;</li> <li>• EGO to implement a noise and vibration monitoring plan for the Project</li> </ul>
Biodiversity	The Project will affect existing trees and bushes along the Project corridor, needing replanted.	Medium	<ul style="list-style-type: none"> <li>• AMM to ensure that trees and flora are relocated at AMM plant nursery for replantation later and the former biodiversity characteristics are recaptured to conditions before construction activities following completion of construction</li> </ul>
Surface and Wastewater	Runoff from construction has the potential to impact the surrounding waterways by increasing suspended	Medium	<ul style="list-style-type: none"> <li>• Domestic wastewater discharge to ASKI sewer system at construction and operational facilities</li> </ul>



Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
	solids, oil and grease, and chemical pollutants Generation of domestic wastewater at construction and operational sites		
Waste	Risks from the generation of excavated soils, solid wastes (including domestic and packaging wastes), construction and operation waste, and generation of hazardous wastes, including waste oil, oily rags, and similar.	Medium	<ul style="list-style-type: none"> <li>• EGO to implement an Environmental and Social Management System (ESMS) as it relates to waste management;</li> <li>• EGO implement the E&amp;S and Plan and Procedures in line with the Bank requirements which would require a waste management plan;</li> <li>• Continues to implement ISO 14001 as it relates to waste management</li> <li>•</li> </ul>
Traffic	Adverse impact on existing roads and surroundings of the construction sites	High	<p>implement:</p> <ul style="list-style-type: none"> <li>• Air quality management plan</li> <li>• Noise and vibration management plan</li> <li>• Traffic management plan</li> </ul>
Cultural Heritage	Potential for encountering archaeological findings during construction Adverse impact for existing cultural assets during construction and operation	High	<ul style="list-style-type: none"> <li>• Contractor to implement a Cultural Heritage Management Plan, and a Chance Find Procedure in line with national laws and PR 8 requirements);</li> <li>• AMM to undertake regular monitoring of cultural heritage impact management by the contractor in the vicinity of the metro construction where vertical excavations are being undertaken;</li> <li>• Contractor to continuously monitor vibrations in buildings identified as cultural assets</li> </ul>
Employment	Creation of employment opportunities during the construction process Labour and working conditions	Medium	<ul style="list-style-type: none"> <li>• AMM to ensure that the main construction Contractor implements an HR Policy and a Personnel Regulation Procedure, which defines fundamental employee rights in line with national laws and PR 2 requirements;</li> <li>• implement a labor-management plan and workers' engagement program in line with EBRD PR 2 requirements</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
			<ul style="list-style-type: none"> <li>• Conduct quarterly labour audits during construction phase</li> <li>•</li> </ul>
Neighboring facilities-community health and safety	Impact to neighboring facilities because of installation/construction activities	High	<ul style="list-style-type: none"> <li>• Contractor to take prevention measures around construction camps with fencing, safety signs, and safety bands under the security guard control;</li> <li>• Necessary safety precautions to be controlled regularly by AMM/Owner’s Engineer during construction activities to ensure public safety;</li> <li>• Survey the structural integrity of buildings within the zone of influence of the construction activities;</li> <li>• AMM and contractor shall implement a building evacuation and resettlement procedure and be linked to the Emergency Response Plan. The procedure should have components of PR5 requirements for the physical and economic resettlement needs. These cases should be monitored and reported to EBRD;</li> <li>• AMM to ensure that its main Contractor implement road safety policy, practices, and procedures to include a defensive, off-road, and antiskid driving training program for own drivers, shareholder companies, metro construction contractor, and subcontractors’ drivers;</li> <li>• AMM to ensure its main Contractor conducts a regular risk assessment to address risks related to third-party access to the construction areas and risks related to driving from the construction site to the excavated material storage areas;</li> <li>• AMM to monitor community safety risks and implementation of measures by the Contractor and conduct root cause analysis to all incidents involving 3rd parties during construction activities;</li> <li>• Contractor to assess the skills of the drivers of the heavy vehicles before hiring or the skills of existing drivers need to be evaluated to ensure that they have the right driving skills and monitor speed limits of the drivers daily;</li> <li>• Contractor to implement: <ul style="list-style-type: none"> <li>• Air quality management plan</li> <li>• Noise and vibration management plan</li> <li>• Traffic management plan</li> </ul> </li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
Workers Health and Safety Risk Assessment	Lack of OHS management system written work permit procedure creates the risk of accidents and injuries Covid 19 pandemic	High	<ul style="list-style-type: none"> <li>• Both EGO and AMM implement a LOTO system for the workers' safety and develop a work permit system for non-routine tasks such as working at height;</li> <li>•</li> </ul>
Accident reporting system and Key Performance Indicator	Lack of written procedure prevents the effectiveness of accident reporting system Lack of KPI definition prevents measuring the effectiveness of safety systems in place Lack of monitoring and analysis of public accidents and incidents related to construction activities	High	<ul style="list-style-type: none"> <li>• Clear definition of targets and objectives and development of KPIs</li> <li>• Record public accidents and incidents</li> </ul>
Construction Equipment Usage	Risks due to: Lack of driving safety policy and procedure Use of non-approved personnel lifts in shafts	High	<ul style="list-style-type: none"> <li>• implement road safety policy and defensive driving training;</li> <li>• Test personnel lifts and loading equipment;</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
Working conditions	<p>Risks due to: Lack of noise, vibration, illumination, thermal comfort and air quality measurements create risks in the work environment Covid 19 pandemic conditions Ventilation systems do not present in shafts and tunnels creates poor ambient air quality</p>	High	<ul style="list-style-type: none"> <li>• Conduct noise, vibration, illumination, thermal comfort, and air quality measurements for the construction process;</li> <li>• Ensure COVID-19 transmission mitigation measures are taken;</li> <li>• Iron dust particles measurement should be taken in the workshop, and AŞTİ station's result should be controlled according to regulatory and ILO standards;</li> <li>• Before entry into confined spaces, CH4, O2, H2S, and VOC measurements should be conducted before entering inside the confined spaces</li> </ul>
Wages, benefits, and conditions of work and accommodations	<p>Noncompliance of workers work schedule with the Turkish Labour Laws and ILO Conventions Noncompliance of dormitory conditions with IFC/EBRD - Workers' accommodation; process and standards</p>	High	<ul style="list-style-type: none"> <li>• AMM to conduct an internal labor audit every quarter to ensure contractors' compliance with labour law and PR 2 requirements during construction;</li> <li>• Ensure that the contractors' accommodation camps align with IFC/EBRD _Workers' accommodation; process and standards (<a href="http://www.ebrd.com/downloads/about/sustainability/Workers_accomodation.pdf">http://www.ebrd.com/downloads/about/sustainability/Workers_accomodation.pdf</a>). AMM to ensure the main Contractor to be selected and its subcontractor's records and shares employee data in line with the legislation;</li> <li>• EGO to align its HR policies with PR 2 through the following actions; <ul style="list-style-type: none"> <li>○ Review working hours (regular + overtime) and other aspects within seven days-time scales, maximum 7,5 hours night shift to ensure compliance with national regulations and EBRD PR 2 standards, identify and correct any potential deficiencies;</li> <li>○ Take measures to facilitate the payment of a decent living wage for all employees by making additional improvements in base wages and ensure work towards this;</li> </ul> </li> </ul>
Grievance Mechanism	Lack of procedure or grievance mechanism for obtaining suggestion/complaints of contracted and subcontracted	Medium	<ul style="list-style-type: none"> <li>• EGO / BUGSAŞ to implement a “formal employee grievance mechanism” for all direct and sub-contracted employees and provide them information on channels for internal communication and raising grievances. The workers should be informed of the mechanism and procedures in their local language at the time of hire. As a best</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
	employees (of the construction contractor)		<p>practice, an anonymous grievance mechanism options should be established to encourage concerns to be raised freely.</p> <ul style="list-style-type: none"> <li>• To ensure that grievance investigation processes, decision making processes are recorded, and workers are provided with feedback related to the suggestions and concerns raised.</li> </ul>
Unauthorized Workers	Risks due to the presence of illegal workers (i.e., without a work permit, such as Syrian workers) in subcontractors of the construction contractor	High	Implement checks on the status of subcontractor workers
Land acquisition and economic displacement		High	<ul style="list-style-type: none"> <li>• A RAP to be , implemented by AMM/the Contractor to manage and monitor temporary displacements.</li> <li>• Effective dust and noise control shall be ensured to protect local businesses from customer and revenue losses;</li> <li>•</li> </ul>
Stakeholder and Information Disclosure	Lack of stakeholder engagement leads to uninformed PAPs and result in opposition to the project	High	<ul style="list-style-type: none"> <li>• AMM shall ensure the Stakeholder Engagement Plan developed for the Metro Line is implemented, documented, and reported to the Banks in line with PR 10 requirements.</li> </ul>
Gender-Based Violence	There is no clear policy in place on the prevention of gender-based violence and harassment concerning an interaction with workers, communities, and stakeholders.	High	<ul style="list-style-type: none"> <li>• For operation, set of actions on <ul style="list-style-type: none"> <li>○ Physical measures such as lightening at stations and CCTVs, notifications on the use of these should be effectively engaged,</li> <li>○ awareness-raising (i.e., posters, brochures, display in digital boards) in trains and stations,</li> <li>○ display of access to complaint and help on these issues (more visibly display of complaint lines as well as general helplines for women on violence prevention) in trains and stations,</li> <li>○ monitoring of trains and stations without violating personal rights especially in rush hours and night operations,</li> </ul> </li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
			<ul style="list-style-type: none"> <li>○ training of operation staff especially security staff by experts on the issue, especially drivers and security staff</li> <li>○ audits and monitoring of implementation should be in place with the identification of relevant KPIs. Especially complaints should be scrutinized not to miss incidents.</li> </ul>

*Table 3 Potential Environmental & Social Impacts of the Operation Phase*

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
Permit requirements	<p>Generation of excavated earth material</p> <p>Generation of domestic wastewater at construction sites</p> <p>Institutional regulatory requirements</p>	Medium	<ul style="list-style-type: none"> <li>● AMM to develop E&amp;S permit register;</li> <li>● AMM to obtain land permits;</li> <li>● AMM to obtain Ministry of Education approvals for Metro Construction near school areas;</li> <li>● Contractor to be selected to obtain excavated earth material disposal permit;</li> <li>● Contractor to be selected to Obtain ASKI water and wastewater connection permits at sites;</li> <li>● Permits to work at sites, and night time;</li> <li>● Traffic management plan approvals;</li> <li>● Establishment of the registration statuses, protection areas, and protection statuses of buildings before construction and then obtain the permissions;</li> <li>● Infrastructure displacement approvals</li> </ul>



Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
Air quality	<p>Generation of dust during site preparation and excavation works, vehicle movement, stockpiles, unpaved surfaces in the working area.</p> <p>Exhaust emissions from construction machinery/vehicles.</p> <p>EGO has air emission sources that need to be monitored</p>	Medium	<ul style="list-style-type: none"> <li>• EGO to take steps to ensure all air emission parameters are within the threshold as per the regulation;</li> </ul>
Noise and Vibration	<p>Generation of noise and vibration from construction/installation activities and construction machinery/vehicles.</p> <p>Generation of noise and vibration during operations</p>	High	<ul style="list-style-type: none"> <li>• EGO to conduct noise monitoring at the above-ground and underground stations of the existing metro line to ensure compliance with the regulatory requirements;</li> </ul>
Biodiversity	<p>The Project will affect existing trees and bushes along the Project corridor, needing replanted.</p>	Medium	<ul style="list-style-type: none"> <li>• AMM to ensure a baseline survey for trees conducted carefully by relevant experts before construction;</li> <li>• AMM to ensure that trees and flora are relocated at AMM plant nursery for replantation later and the former biodiversity characteristics are recaptured to conditions before construction activities following completion of construction</li> </ul>
Waste	<p>Risks from the generation of excavated soils, solid wastes (including domestic and packaging wastes), construction and operation waste, and generation of hazardous wastes, including</p>	Medium	<ul style="list-style-type: none"> <li>• EGO implement an Environmental and Social Management System (ESMS) as it relates to waste management;</li> <li>• EGO implement the E&amp;S and Plan and Procedures in line with the Bank requirements which would require a waste management plan;</li> <li>• Continues to implement ISO 14001 as it relates to waste management</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
	waste oil, oily rags, and similar.		
Employment	Creation of employment opportunities during the construction process Labour and working conditions	Medium	<ul style="list-style-type: none"> <li>• EGO to enter a contractual agreement with workers stating which amount will be allotted to wage increases for workers and which conditions apply.</li> </ul>
Workers Health and Safety Risk Assessment	Lack of OHS management system written work permit procedure creates the risk of accidents and injuries Covid 19 pandemic	High	<ul style="list-style-type: none"> <li>• Both EGO and AMM implement a LOTO system for the workers' safety and develop a work permit system for non-routine tasks such as working at height;</li> <li>• Develop work permit systems during construction project</li> </ul>
Emergency Planning	Risks due to deficient emergency planning covering all potential scenarios	High	<ul style="list-style-type: none"> <li>• Develop a comprehensive emergency response plan and implement the exercise of a worst-case scenario with a strong emphasis on earthquake scenarios;</li> <li>• An Emergency Action COVID-19 plan to be integrated with the site emergency plan for all three tiers AMM, EGO, Contractor;</li> <li>• Conduct a complete life and fire safety review of the Project components (with emphasis on the metro stations) by third-party competent fire experts</li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
Grievance Mechanism	Lack of procedure or grievance mechanism for obtaining suggestion/complaints of contracted and subcontracted employees (of the construction contractor)	Medium	<ul style="list-style-type: none"> <li>• EGO / BUGSAŞ implement a “formal employee grievance mechanism” for all direct and sub-contracted employees and provide them information on channels for internal communication and raising grievances. The workers should be informed of the mechanism and procedures in their local language at the time of hire. As a best practice, an anonymous grievance mechanism options should be established to encourage concerns to be raised freely.</li> <li>• To make worker representatives freely elected by secret ballot election in each department. Regular meetings (minimum monthly) should be arranged between BUGSAŞ, EGO, and all worker representatives. The free nomination process should take place before the election.</li> <li>• To ensure that grievance investigation processes, decision making processes are recorded, and workers are provided with feedback related to the suggestions and concerns raised.</li> </ul>
Stakeholder and Information Disclosure	Lack of stakeholder engagement leads to uninformed PAPs and result in opposition to the project	High	<ul style="list-style-type: none"> <li>• AMM to ensure the Stakeholder Engagement Plan that is implemented, documented, and reported to the Banks in line with PR 10 requirements;</li> <li>• AMM takes an active role in identifying stakeholders and developing the stakeholder engagement plan. The list of stakeholders needs to be strengthened in a way to be more inclusive of SMEs, women, and youth (students);</li> </ul>
Gender-Based Violence	There is no clear policy in place on the prevention of gender-based violence and harassment concerning an interaction with workers, communities, and stakeholders.	High	<ul style="list-style-type: none"> <li>• For operation, set of actions on <ul style="list-style-type: none"> <li>○ Physical measures such as lightening at stations and CCTVs, notifications on the use of these should be effectively engaged,</li> <li>○ awareness-raising (i.e., posters, brochures, display in digital boards) in trains and stations,</li> <li>○ display of access to complaint and help on these issues (more visibly display of complaint lines as well as general helplines for women on violence prevention) in trains and stations,</li> <li>○ monitoring of trains and stations without violating personal rights especially in rush hours and night operations,</li> <li>○ training of operation staff especially security staff by experts on the issue, especially drivers and security staff</li> </ul> </li> </ul>

Impact Topic	Potential Impact / Source		Proposed Remedial Measures
	Source	Significance	
			<ul style="list-style-type: none"> <li>○ audits and monitoring of implementation should be in place with the identification of relevant KPIs. Especially complaints should be scrutinized not to miss incidents.</li> </ul>

## **11. How will EGO and AMM communicate and engage with stakeholders?**

Both EGO and AMM consider stakeholder engagement (including dialogue, consultation, and the disclosure of information) to be a key element of Project planning, development, and implementation and are committed to a transparent and respectful dialogue with stakeholders.

AMM mapped out the potential stakeholders and their interests and developed a Stakeholder Engagement Plan. This will ensure conduct of regular engagement with the affected people and vulnerable people, wider communities, local/national government, and non-governmental organizations, and media to inform them about project activities, plans and developments on an ongoing basis, and gather any complaints or feedback. Special attention will be given to vulnerable people including women, elderly, disabled and children throughout the project activities. The stakeholder engagement plan (SEP) is to be completed.

## **12. How can stakeholders make a request, complaint or inquire?**

Both AM and EGO established Grievance Mechanisms which provide a process for all people to easily convey their complaints and suggestions and allows the project to respond to and appropriately resolve the issues. Grievance procedures provide an opportunity for people to raise anonymous complaints if they wish to.

You can raise requests, questions, feedback, and complaints through the contact details provided below.

The contact details for submitting grievances to  
Ankara Metropolitan Municipality (AMM) and EGO are provided below:

**T.C. ANKARA BÜYÜKŞEHİR  
BELEDİYESİ**

**EMNİYET, HIPODROM CD. NO:5 D:NO:5,  
06430 YENİMAHALLE/ANKARA**

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