
MERSİN-ADANA-GAZİANTEP HIGH STANDARD RAILWAY PROJECT

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT ADDENDUM REPORT

NOVEMBER 2021

ANKARA



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TABLE OF CONTENTS

	<u>Page</u>
<i>Table of Contents</i>	<i>i</i>
<i>List of Tables</i>	<i>iii</i>
<i>List of Figures</i>	<i>iii</i>
1 SCOPE	1
2 METHODOLOGY OF THE RÖNESANS MAG HST PROJECT SOCIAL IMPACT ASSESSMENT ADDENDUM STUDY	4
2.1 Impact Assessment Methodology	9
2.1.1 Impact Value.....	9
2.1.2 Residual Impact.....	11
3 SOCIO-ECONOMIC ADDITIONAL BASELINE	13
3.1 Vulnerable Groups.....	13
3.1.1 Status of Immigrant and Minority Communities	14
3.2 Livelihood Activities in Project Affected Area	15
4 IDENTIFICATION OF RISKS AND IMPACTS	17
4.1 Land Acquisition Impacts	17
4.1.1 Project Impacts on Housing and Shelter Rights	17
4.1.1.1 Construction Phase Impacts	17
4.1.1.2 Mitigation Measures	24
4.1.1.3 Residual Impacts	24
4.1.1.4 Operation Phase	24
4.1.2 Project Impacts on Buildings or Structures.....	24
4.1.2.1 Construction Phase Impacts	24
4.1.2.2 Mitigation Measures	28
4.1.2.3 Residual Impacts	28
4.1.2.4 Operation Phase	29
4.2 Project Impacts on Livelihoods	29
4.2.1 Impacts on Agricultural Activities	29
4.2.1.1.1 Construction Phase Impact Analysis	29
4.2.1.1.2 Mitigation Measures	31
4.2.1.1.3 Residual Impacts.....	32
4.2.1.1.4 Operation Phase	32
4.2.1.2 Impacts on the Irrigation/Drainage Channels and Pipes	32
4.2.1.2.1 Mitigation Measures	34
4.2.1.2.2 Residual Impacts.....	34
4.2.1.2.3 Operation Phase	35
4.2.2 Impacts on Husbandry Activities	35
4.2.2.1 Mitigation Measures	37
4.2.2.2 Residual Impacts	38
4.2.2.3 Operation Phase	38
4.3 Community Health, Safety and Security Impacts	38

4.3.1	Impacts in the Urban Area	38
4.3.1.1	Impacts on Education and Health.....	38
4.3.1.1.1	Mitigation Measures	40
4.3.1.1.2	Residual Impacts.....	40
4.3.1.1.3	Operation Phase	40
4.3.1.2	The Impacts on Traffic Density.....	40
4.3.1.2.1	Mitigation Measures	42
4.3.1.2.2	Residual Impacts.....	43
4.3.1.2.3	Operation Phase	43
4.3.1.3	Impacts on Community Health and Safety	43
4.3.1.3.1	Mitigation Measures	46
4.3.1.3.2	Residual Impacts.....	47
4.3.1.3.3	Operation Phase	47
4.3.2	Impacts in the Rural Area	47
4.3.2.1	Impacts On Community Health and Safety.....	47
4.3.2.1.1	Mitigation Measures	48
4.3.2.1.2	Residual Impacts.....	49
4.3.2.1.3	Operation Phase	50
5	WORKERS ACCOMMODATION AND WORKPLACE ENVIRONMENT	51
6	HUMAN RIGHTS	53
7	PROJECT OPPORTUNITIES	54
7.1	Local Employment & Procurement.....	54
7.1.1	Enhancement actions	54
7.2	Developing and Strengthening the Labour Force.....	55

LIST OF TABLES

	<u>Page</u>
Table 2-1. Visited neighborhoods during the site visits of the Project addendum study	5
Table 4-1. Impact of the Project on Housing and Shelter Rights component	24
Table 4-2. Impact of the Project on Buildings or Structures component	28
Table 4-3. Impact of the Project on Agricultural products due to the Dust	32
Table 4-4. Impact of the Project on irrigation and drainage channel	35
Table 4-5. Impact of the Project on Agricultural products due to the Dust	38
Table 4-6. Impact of the Project on education	40
Table 4-7. Impact of the Project on Traffic density	43
Table 4-8. Impact of the Project on community health and safety	47
Table 4-9. Impact of the Project on community health and safety on the rural area.....	49

LIST OF FIGURES

Figure 1-1. MAG Route	1
Figure 4-1. Women Users of Houses Covered by Expropriation	18
Figure 4-2. Expropriated House in Toktamış	19
Figure 4-3. House In the Expropriation Border Of the Project.....	20
Figure 4-4. House In the Expropriation Border Of the Project.....	21
Figure 4-5. House in the Expropriation Border of the Project.....	22
Figure 4-6. Project Impact on Houses Located in Sariibrahmli and Gazi Neighborhoods	25
Figure 4-7. Project Impact on Houses Located in Yeni Neighborhood.....	26
Figure 4-8. Cumulative Impact on the Houses Located on Ray Street	27
Figure 4-9. Cumulative Impact on the Houses Located on Ray Street	28
Figure 4-10. Çakaldere Irrigation and Drainage Channels.....	33
Figure 4-11. Irrigation and Drainage in Arıklı Village	33
Figure 4-12. Irrigation Well Near the Railway	34
Figure 4-13. Crossing way for husbandry.....	36
Figure 4-14. The Pasture Road by Passing Through the Level Crossing	37
Figure 4-15. Project Impacted Schools	39
Figure 4-16. Level crossing in inner cities	41
Figure 4-17. Inner Community Safety in Inner Cities	45
Figure 4-18. Community safety in Inner Ciities for Students	46

1 SCOPE

In this ESIA addendum study, in order to support the main ESIA document, impact assessments were made focusing on the evaluations of vulnerable groups, the impact of the land acquisition process on livelihoods, community health and safety, and human rights. Within this scope, field work was carried out.

In the project Information section of the MAG ESIA document, the project components and works which are included on the MAG project are shown with a map and identified.

In addition, for the addendum field study, the KMZ map containing the expropriation boundaries and expropriation data of the Project is considered. The reason for this is to reach the directly affected settlements and lands along the high-speed train line, to identify possible overlooked impacts and to carry out additional assessment studies within the scope of the Project impact area boundaries. Project route is given in Figure 1-1 and Figure 1-2.

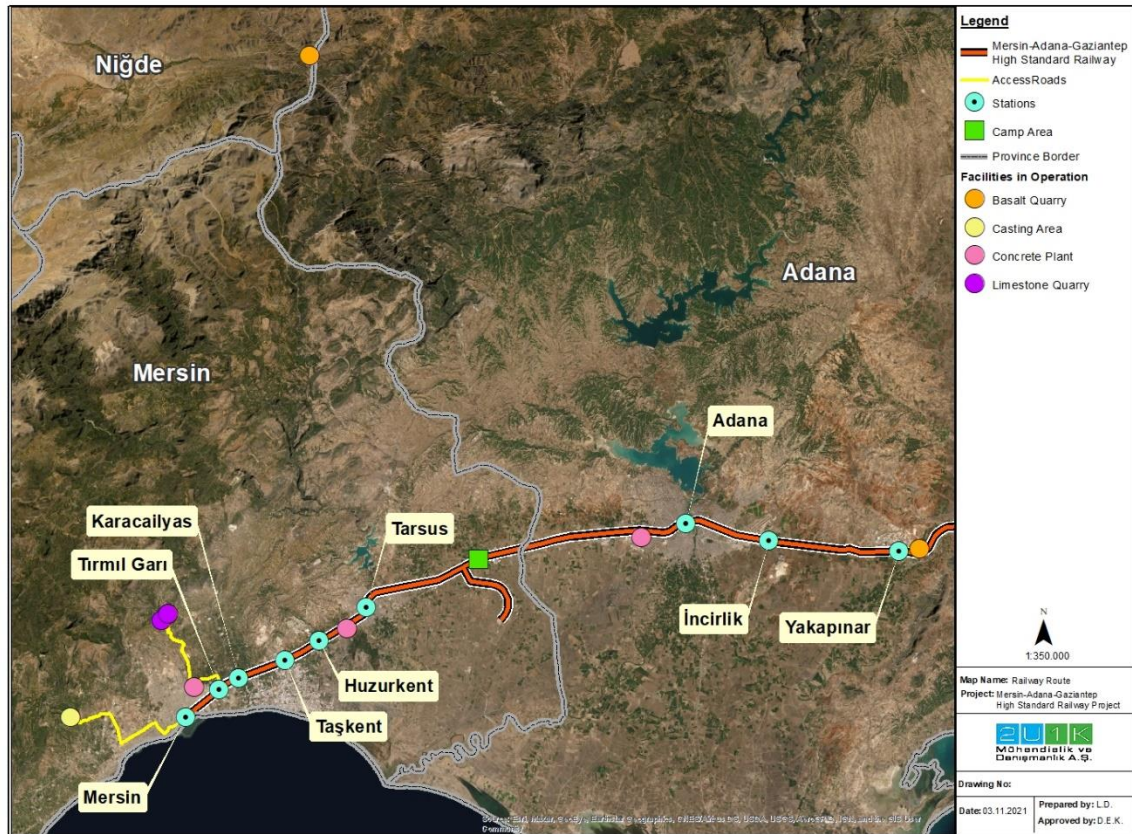


Figure 1-1. MAG Route

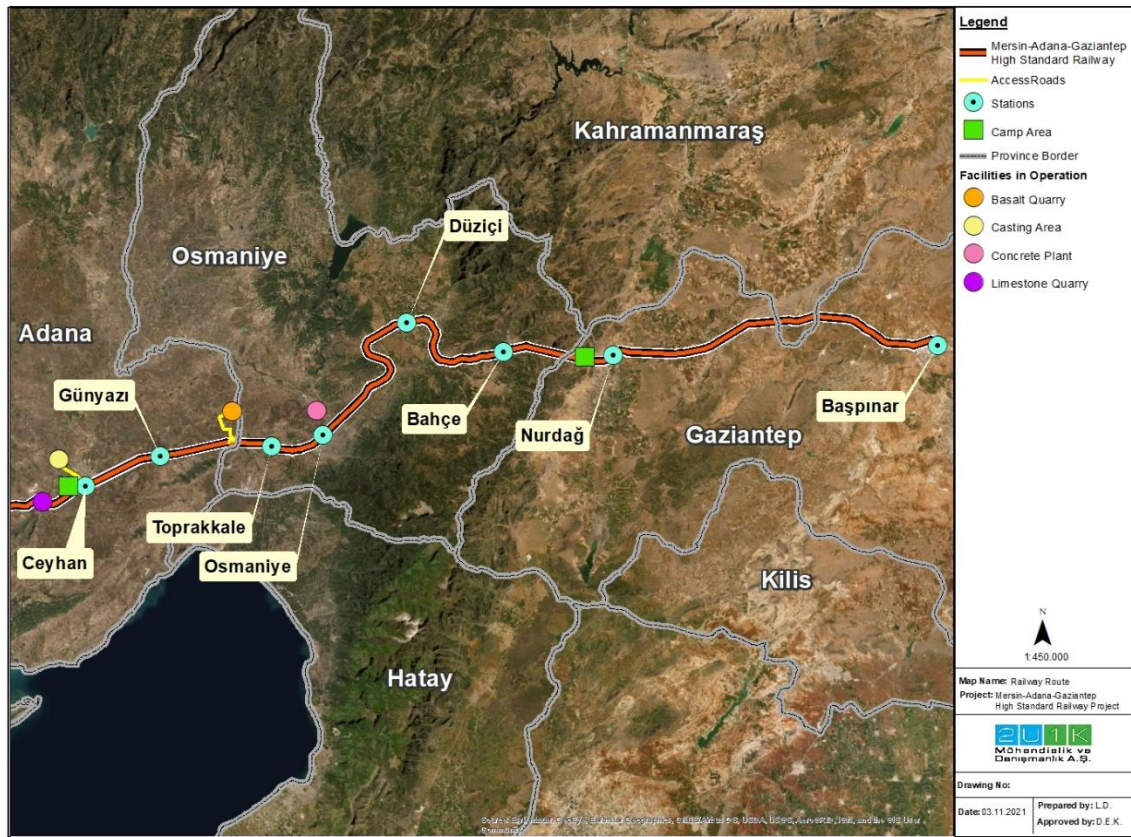


Figure 1-2. MAG Route

Determination of the Project Affected Area

The project impact area has been determined as follows.

The borders of the neighborhoods on both sides of the KMZ expropriation borders were evaluated as the directly affected area boundary. In the example in the section below; The northern borders of Yunusoğlu, Tekeliören, Kanberhöyü villages, and the southern borders of Konaklar, Esenler Villages are considered as areas directly affected by the Project. In addition to this area, the areas around the temporary storage areas, the villages around the quarry, excavation dump site or concrete plants, the lands around the Project access roads where the excavation vehicles pass, and the settlement areas are defined within the Project impact area.

In the project Information section of the MAG ESIA document, the project components and works which are included on the MAG project are shown with a map and given in detail in the Project Affected Neighborhoods table in the *Methodology* section.

Within the scope of the field study, based on the expropriation data, the affected settlements and lands along the route were followed and field work was carried out.

Project-affected settlements were visited along the line from Mersin to Gaziantep as part of the fieldwork. In the regions between Ceyhan-Toprakkale, Bahçe-Nurdağı-Başpınar, where Rönesans does not undertake the construction activities but will carry out the signaling and electrical works, the settlements that will be affected by quarries , cement batching plants and spoil disposal sites were prioritized and visited.

2 METHODOLOGY OF THE RÖNESANS MAG HST PROJECT SOCIAL IMPACT ASSESSMENT ADDENDUM STUDY

Within the scope of the fieldwork, by visiting to the neighborhoods on both sides of the high-speed train line in Mersin-Tarsus-Adana, Adana-Ceyhan, Toprakkale-Bahçe and Başpınar, where Rönesans will carry out the construction activities; observations, mukhtar interviews and field visits were carried out. Within the scope of this line, interviews were held with all the mukhtars who can be reached in the prioritized settlements.

Prioritization was based on the following criteria;

- Area of land affected,
- Land affected by Project components in addition to the rail line such as quarries, borrow pits, cement batching plant sites, dump site,
- Areas with the potential to experience cumulative effects,
- Sites not previously visited or included in the previous ESIA,
- Presence of vulnerable groups.

It has been also taken into account that, selected settlements that can provide the representative sample of all 4 cities on rural and urban issues are visited.

Considering these criteria, one-third of the places on the MAG HST line affected by the project, primarily by construction activities of Rönesans A.Ş., were visited. A total of 44 settlements were visited despite the limitations caused by the duration of the fieldwork and the logistics difficulties caused by the linear nature of the Project. The current and potential socio-economic impacts of the Project on the settlements directly and/or indirectly affected by the Project have been evaluated.

During the site visit studies, the following issues were highlighted.

Discrepancies between the mapped neighborhood boundaries and those on the ground, an issue also noted in the RAP document of the MAG Project.

Changes to the structure of the settlements with some neighborhoods have been divided into multiple neighborhoods. Therefore, as identified in the RAP, some of the neighborhoods included in the information obtained from the expropriation data were outside the area of influence. The neighborhoods established later, instead of these neighborhoods have been the settlements affected by the Project.

The villages included in the list obtained from the expropriation data within the scope of RAP and ESIA and the newly added villages in the ESIA addendum field study are shown in the list below.

The list below also shows the interviews made within the scope of ESIA and visits and interviews made within the scope of Supplementray social baseline and impact studies.

The list given below shows the neighborhoods visited during the field work for the Project addendum study.

Table 2-1. Visited neighborhoods during the site visits of the Project addendum study

Province	District	Neighborhood		Interviews Made Within The Scope Of Esia	Visits And Interviews Made Within The Scope Of Esia Additional Work
MERSİN	AKDENİZ	NUSRATİYE			
MERSİN	AKDENİZ	BEKİRDE			
MERSİN	AKDENİZ	YALINAYAK			
MERSİN	AKDENİZ	KARACAİLYAS**			
MERSİN	AKDENİZ	KARACAİLYAS EMEK**			
MERSİN	AKDENİZ	KÜRKÇÜ			
MERSİN	AKDENİZ	YAKA			
MERSİN	AKDENİZ	TEKKE			
MERSİN	AKDENİZ	SARILBRAHİMLİ			41
MERSİN	AKDENİZ	YENİ	Added in the addendum ESIA study		44
MERSİN	AKDENİZ	EVCİ			
MERSİN	AKDENİZ	NACARLI			1
MERSİN	AKDENİZ	ÖZGÜRLÜK	Added in the addendum ESIA study		2
MERSİN	AKDENİZ	GAZİ	Added in the addendum ESIA study		43
MERSİN	TARSUS	MİTHATPAŞA			3
MERSİN	TARSUS	ŞEHİTİSAK			39
MERSİN	TARSUS	YEŞİLYURT			4
MERSİN	TARSUS	ZORBAZHARK (new name: FATİH)			
MERSİN	TARSUS	KEMALPAŞA			
MERSİN	TARSUS	YUNUSOĞLU			
MERSİN	TARSUS	KONAKLAR			
MERSİN	TARSUS	TEKELİÖREN			
MERSİN	TARSUS	KANBERHÜYÜĞÜ			
MERSİN	TARSUS	TEKFUR (new name: ESENLER)			

Province	District	Neighborhood		Interviews Made Within The Scope Of Esia	Visits And Interviews Made Within The Scope Of Esia Additional Work
MERSİN	TARSUS	YENİCE ATALAR-CONSTRUCTION SITE-			5
MERSİN	TARSUS	ÖĞRETMENLER	Added in the addendum ESIA study		6
MERSİN	TARSUS	ARIKLI	Added in the addendum ESIA study		7
ADANA	SEYHAN	ZEYTİNLİ (DIVIDED)			42
ADANA	SEYHAN	BÜYÜK DİKİLİ			8
ADANA	SEYHAN	MEVKİ	Added in the addendum ESIA study		9
ADANA	SEYHAN	GÜNYURDU (ATGİRMEZ)	Added in the addendum ESIA study		10
ADANA	SEYHAN	SARI HAMZALI (A DIVIDED NEIGHBOURHOOD)			
ADANA	SEYHAN	ZİNCİRLİ BAĞLAR			
ADANA	SEYHAN	ŞAKİRPAŞA			11
ADANA	SEYHAN	CEMAL PAŞA	Added in the addendum ESIA study		12
ADANA	SEYHAN	BAHÇELİEVLER	Added in the addendum ESIA study		13
ADANA	SEYHAN	DÖŞEME			14
ADANA	SEYHAN	İSTİKLAL			
ADANA	SEYHAN	DEMETEVLER (HAS BEEN DIVIDED from ŞAKİRPAŞA)	Added in the addendum ESIA study		15
ADANA	SEYHAN	NARLICA	Added in the addendum ESIA study		40
ADANA	SARIÇAM	İNCİRLİK (new name: YENİMAHALLE)			
ADANA	SARIÇAM	YÜREKLİ			
ADANA	SARIÇAM	MÜMİNLİ (address of the parcels is YÜREKLİ)*			
ADANA	SARIÇAM	DAĞCI			
ADANA	SARIÇAM	SULUCA			16
ADANA	SARIÇAM	MİSİS (new name: YAKAPINAR) 1			17
ADANA	YÜREĞİR	MİSİS (new name: YAKAPINAR) 2			18
ADANA	CEYHAN	ÇAKALDERE		1	19
ADANA	CEYHAN	ALTIKARA			
ADANA	CEYHAN	ÇOKÇAPINAR		5	
ADANA	CEYHAN	SİRKELİ			20

Province	District	Neighborhood		Interviews Made Within The Scope Of Esia	Visits And Interviews Made Within The Scope Of Esia Additional Work
ADANA	CEYHAN	SİRKELİ KALKER OCAĞI	Added in the addendum ESIA study		21
ADANA	CEYHAN	TOKTAMIŞ		3	22
ADANA	CEYHAN	TÜRLÜBAŞ			
ADANA	CEYHAN	GAZİOSMANPAŞA			
ADANA	CEYHAN	MİTHATPAŞA			
ADANA	CEYHAN	MURADIYE			23
ADANA	CEYHAN	HÜRRİYET			24
ADANA	CEYHAN	HAMDİLLİ			
ADANA	CEYHAN	İMRAN			
ADANA	CEYHAN	KUZUCAK		2	
ADANA	CEYHAN	AZİZLİ			
ADANA	CEYHAN	RİFATİYE (new name: MUSTAFABEYLİ)			25
ADANA	CEYHAN	KÜÇÜKBURHANIYE		4	
ADANA	CEYHAN	TATARLI	Added in the addendum ESIA study		26
ADANA	CEYHAN	TATARLI BAZALT OCAĞI	Added in the addendum ESIA study		27
ADANA	CEYHAN	BÜYÜKMANGIT DÖKÜM SAHASI	Added in the addendum ESIA study		28
OSMANİYE	TOPRAKKALE	MAYMUNSUYU (new name: SAZLIK)			
OSMANİYE	TOPRAKKALE	SAYHÜYÜĞÜ			
OSMANİYE	TOPRAKKALE	DAĞISTAN			
OSMANİYE	TOPRAKKALE	KARATAŞ		13	
OSMANİYE	TOPRAKKALE	KUMARLI			
OSMANİYE	TOPRAKKALE	KIŞLA		14	
OSMANİYE	MERKEZ	AKYAR			
OSMANİYE	MERKEZ	YAVERPAŞA/YEŞİLYURT			41
OSMANİYE	MERKEZ	YAVERİYE			
OSMANİYE	MERKEZ	RAUFBEY			
OSMANİYE	MERKEZ	ALİBEYLİ			
OSMANİYE	MERKEZ	ESENEVLER (address of the parcels is ALİBEYLİ)*			
OSMANİYE	MERKEZ	YENİMAHALLE			29
OSMANİYE	MERKEZ	RIZAIYE			
OSMANİYE	MERKEZ	ASLANIYE			30
OSMANİYE	MERKEZ	DERVİŞİYE			31
OSMANİYE	MERKEZ	TEHÇİ			32

Province	District	Neighborhood		Interviews Made Within The Scope Of Esia	Visits And Interviews Made Within The Scope Of Esia Additional Work
OSMANİYE	MERKEZ	ŞEKERDERE			
OSMANİYE	DÜZİÇİ	YAZLAMAZLI		12	
OSMANİYE	DÜZİÇİ	ELLEK-PEÇENEK			
OSMANİYE	DÜZİÇİ	ELLEK-ŞEHİT ALİ GÖKÇE			
OSMANİYE	DÜZİÇİ	ÜZÜMLÜ			
OSMANİYE	DÜZİÇİ	ÇİFTLİK			
OSMANİYE	DÜZİÇİ	ÇAMIÇI		9	
OSMANİYE	DÜZİÇİ	KARACAÖREN			
OSMANİYE	DÜZİÇİ	YARBAŞI			
OSMANİYE	DÜZİÇİ	AKÇAKOYUNLU		10	33
OSMANİYE	DÜZİÇİ	BOSTANLAR		11	
OSMANİYE	BAHÇE	BURGAÇLI		8	
OSMANİYE	BAHÇE	ARIKLIKAŞ			
OSMANİYE	BAHÇE	NOHUT KÖYÜ NOHUTTEPE KÖYÜ VE TAŞ OCAĞI	Added in the addendum ESIA study	7	34
OSMANİYE	BAHÇE	ÇAMLICA			
OSMANİYE	BAHÇE	CUMHURİYET			
OSMANİYE	BAHÇE	İSLAM			
OSMANİYE	BAHÇE	ASLANLI			
OSMANİYE	BAHÇE	AYRANIKIZYENİHARMA N (new name: AŞAĞI ARICAKLI)			
OSMANİYE	BAHÇE	ARICAKLI			
OSMANİYE	BAHÇE	KIZLAÇ			
OSMANİYE	BAHÇE	KAMAN			
OSMANİYE	BAHÇE	SAYRANLI		6	
GAZİANTEP	NURDAĞ	OLUCAK			
GAZİANTEP	NURDAĞ	YENİ			
GAZİANTEP	NURDAĞ	KURUDERE			
GAZİANTEP	NURDAĞ	ASLANLI		15	
GAZİANTEP	NURDAĞ	ÇAKMAK			
GAZİANTEP	NURDAĞ	İÇERİSU (address of the parcels is ÇAKMAK)*			
GAZİANTEP	NURDAĞ	KÖMÜRLER			
GAZİANTEP	NURDAĞ	HİSAR			
GAZİANTEP	NURDAĞ	ŞATIRHÖYÜK		17	
GAZİANTEP	NURDAĞ	SAKÇA GÖZE		16	
GAZİANTEP	ŞEHİTKAMİL	ATALAR			
GAZİANTEP	ŞEHİTKAMİL	BAYATLI			
GAZİANTEP	ŞEHİTKAMİL	SARILAR			
GAZİANTEP	ŞEHİTKAMİL	ESKİŞARKAYA			

Province	District	Neighborhood		Interviews Made Within The Scope Of Esia	Visits And Interviews Made Within The Scope Of Esia Additional Work
GAZİANTEP	ŞEHİTKAMİL	YENİ ŞARKAYA			
GAZİANTEP	ŞEHİTKAMİL	CERİTYENİYAPAN			
GAZİANTEP	ŞEHİTKAMİL	ÜÇGÖZE			35
GAZİANTEP	ŞEHİTKAMİL	AĞAÇLI BOYNO			
GAZİANTEP	ŞEHİTKAMİL	YEŞİLCE			36
GAZİANTEP	ŞEHİTKAMİL	AKTOPRAK			
GAZİANTEP	ŞEHİTKAMİL	NESİMİ (address of the parcels is AKTOPRAK)*			
GAZİANTEP	ŞEHİTKAMİL	BOYNO		19	37
KAHRAMAN MARAŞ	PAZARCIK	EVRI PINARBAŞI**			38
KAHRAMAN MARAŞ	PAZARCIK	EVRI TAŞBIÇME**			

2.1 Impact Assessment Methodology

The project activities that may result in environmental or social impacts during the pre-construction (land acquisition), construction and operation phase of the Project are defined.

2.1.1 Impact Value

The evaluation methodology used to define the significance of the impacts for each Project phase takes account of a number of parameters as described below:

- Duration (D): is the duration of the impact and can vary from short to long according to the following definitions:
 - very short: less than a month;
 - short: between a month and one year;
 - medium: between one and two years;
 - long: between two and five years;
 - very long: over five years.
- Frequency (F): is the frequency of the impact (not the activity causing the impact):
 - single event;
 - infrequent: a few events evenly or randomly distributed over time;
 - recurrent: numerous events evenly or randomly distributed over time;
 - frequent: a high number of events evenly or randomly distributed over time;
 - continuous: no interruption over time.

- Geographic extent (G): area within which the impact occurs:
 - project site: the impact is confined within the facilities owned or exclusively controlled by the project;
 - local: the impact extends to areas or communities around the project site
 - regional: the impact extends to an area beyond the surroundings of the project site and to regional physical (airshed, watershed, etc) or administrative boundaries
 - national: the impact extends throughout several regions or to the entire country
 - international: the impact is transboundary
- Intensity (I): is a measure of the physical, economic or social severity of the impact:
 - negligible: the impact cannot be easily detected or perceived and is unlikely to cause detectable change in environmental or social components;
 - low: the impact can be detected or perceived but the effects are unlikely to cause tangible changes in environmental or social components;
 - medium: the impact are well within legal standards or accepted practices and/or are likely to cause tangible changes in environmental or social components;
 - high: the impact is near the limit of legal standards or accepted practices and/or are likely to cause serious impairment of environmental or social components;
 - very high: the impact may result in exceedances of legal standards or accepted practices and/or is likely to cause very serious to catastrophic damage to environmental or social components.

Each of the parameters listed above can have a value between 1 and 5, and the severity of the impact is determined through an Impact Factor Score which is the sum of the 4 parameters, hence it can assume a value between 5 and 20.

Each environmental and social component in the area of influence of the project has a different sensitivity to the impacts or can pose a different level of risk from the project. The sensitivity of an environmental component is evaluated on the basis of the presence/absence of some features which define both the quality and the susceptibility to change of the component. As examples, for physical components the sensitivity is typically related to the presence of elements that are at the highest or lowest scale of quality, for biodiversity it is related to the presence of threatened, endemic, or protected species or habitats and for social components to the presence of vulnerable elements of the community like poor, elderly, members of ethnic or religious minorities, indigenous people, etc. The Sensitivity Score (S) of the component is defined using component specific-metrics during the baseline and can assume values between 1 and 5.

The calculation of the Preliminary Impact Value is done by multiplying the Impact Factor Score by the Sensitivity Score of the target component,. The result is then adjusted by considering the reversibility of the impact.

The reversibility is possibility that the magnitude of an impact will diminish over time and to eventually recede entirely. The definitions are given below.

- reversible in the short term if the initial condition of the component can be restored within weeks or months after the cessation of the impact source and/or with restoration activities,
- reversible in the short/mid-term if the initial condition of the component can be restored within a few months to one year after cessation of the impact source and/or with restoration activities,
- reversible in the mid-term if the initial condition of the component can be restored within one to five years after cessation of the impact source and/or with restoration activities,
- reversible in the long term if the initial condition of the component can be restored within five to 25 years after cessation of the impact source and/or the restoration activities,
- irreversible, if it is not possible to achieve restoration of the initial conditions.

Reversibility is measured on a scale 1 -5.

The Impact Value (IV) is calculated by multiplying the Impact Factor Score by the Sensitivity Score and by the Reversibility Rank $IV = IFS \times S \times R$.

2.1.2 Residual Impact

The third step consists of assessing the effectiveness of the mitigation measures to reduce or eliminate the negative impact. The mitigation measures should be defined with reference to the mitigation hierarchy and be organized in a logical sequence of measures to:

- Avoid
- Minimize
- Restore
- Compensate

The effectiveness of the mitigation measures defined in the ESIA are assessed using expert judgement and the findings from the previous application of the measures to similar projects. The definitions of the mitigation effectiveness are:

- Low: the measures can reduce the impacts by less than 20% of the expected magnitude
- Medium low. the measures can reduce the impacts by 20% - 40% of the expected magnitude

- Medium: the measures can reduce the impacts by 40% - 60% of the expected magnitude
- Medium high: the measures can reduce the impacts by 60% - 80% of the expected magnitude
- High: the measures can reduce the impacts by more than 80% of the expected magnitude

The Mitigation effectiveness is measured on a scale 1 – 0,2 (1=minimum effectiveness; 0,2=maximum effectiveness).

3 SOCIO-ECONOMIC ADDITIONAL BASELINE

This chapter provides an additional assessment to the ESIA socio-economic baseline study from the point of vulnerable groups in the Project AOI.

No additional baseline has been prepared for this section. ESIA has social baseline informations. Due to time constraints, this section has been progressed by performing a spot check.

Description of the type of lands that will be impacted from the Project have been included in the RAP of the Project. In addition, in the impact assessment section of this addendum report, affected areas are also have been identified.

The urban and rural areas where the high-speed railway passes can be categorized as follows;

Urban:-

- cities and districts,
- central neighborhoods and periphery neighborhoods,
- industrial zones.

Rural:-

- agricultural lands,
- rural settlements,
- close to and/or through pasture areas.
- natural areas e.g. forest, watercourses, grasslands,

3.1 Vulnerable Groups

The demographic structure and socio-economic conditions of the Project affected settlements differ in the areas where the railway passes. Although the population living along the whole route shows different characteristics, there are similar conditions along the route regarding the existence of vulnerable groups. In Adana, Osmaniye, Mersin and Gaziantep, the rural population that migrated to the city after 1990 is high in poor neighborhoods located on the periphery of urban areas.

- Adana; Demetevler (Şakirpaşa), Sakarya, Fevzipaşa, Uçak (Şakirpaşa), Onur (Şakirpaşa), Narlıca, Sakarya, Döşeme, Bahçelievler, Mevki,
- Tarsus; Mithatpaşa, Yeşilyurt,
- Mersin; Çağlayan, Özgürlük, Nacarlı,

- Osmaniye; Yenimahalle, Yeşilyurt are the neighborhoods where poor households live intensely.

The common features of poor households living in these neighborhoods are as follows;

- a low-educated population who have immigrated from rural areas after the 1990's, mostly working in unskilled industries in cities,
- Due to poverty in families, the rate of children continuing education after the primary school is low and accordingly poverty continues into subsequent generations.
- The number of children in the households is high and the rate of child labor is also high.
- Women's participation in economic life mostly takes place through agricultural work and temporary daily work.
- The educational status of women is lower than that of men. The number of illiterates is very low. In the interviews with the headman, it was stated that almost all of the illiterate population were women.
- There is a high proportion of Syrians and there is a high proportion in Project affected settlements.

3.1.1 Status of Immigrant and Minority Communities

Syrian population : In addition to the population assessments made in the ESIA document, it would be beneficial to make an assessment of the current situation of the Syrian population, which has greatly changed the composition of the population of the Provinces of Mersin, Adana, Osmaniye and Gaziantep, especially after 2014, when Syrians migrated to these settlements due to the Syrian war.

As of 2021, 21.99% of the total population of Gaziantep is Syrian. Following this, the Syrian population constitutes 12.78% of the population of Mersin, 11.33% of the population of Adana and 8.47% of the population of Osmaniye¹. This Syrian population also includes the most disadvantaged groups in the Project affected settlements.

- individuals with disabilities,
- female-headed households,
- poor households with many children,
- informal sector workers,
- unemployed young population.
- children working during compulsory education/ child workers

¹ <https://www.goc.gov.tr/gecici-koruma5638>

According to official data², the average age of the Syrian population in Turkey is 22.2 and the youth unemployment rate is high. This data also shows that the proportion of children in the population is high in neighborhoods with a high density of Syrians, especially along the HDT route. The high population of children requires the importance of careful management of project-related community safety risks and the development and implementation of necessary mitigation measures in these settlements.

Romanian population: Another disadvantaged group is the Romanian population, which is often subject to exclusion. There is a migrant population of approximately 150-200 people in the Mustafabeyli neighborhood (Adana/Ceyhan) in the project impact area who have been resident in the neighborhood for a long time. Romanians (about 150 people) are mostly illiterate and, there are school age Romanian children who do not go to school (the community headman stated that although the children can be made to go to school by the police but families generally do not send their children to school).

There are a total of 6 Iraqi Turkmen immigrant families in the Mustafabeyli?? neighborhood, 3 of whom have obtained citizenship. In this neighborhood, there are 250 households who receive financial assistance from the government?, 100 households with landless agricultural workers (all Romanian and Iraqi immigrants), about 10 people living on a bed, 40 people over the age of 65 living alone, and 10 people with physical and mental disabilities.

There is an elderly population over 65 years old living on their own in all neighborhoods along the train line. However, although the exact number is not known due to lack of data, it can be noted that there are project affected people (PAPs) with disabilities living within the project AOI.

3.2 Livelihood Activities in Project Affected Area

The demographic structure and socio-economic conditions of the settlements affected by the project differ in the areas where the railway passes.

In Adana and Mersin, the urban population mostly works in industry, the service sector and commercial activity. The project passes through the industrial zones of Adana, Mersin, Tarsus and Osmaniye Provinces. Generally, low income individuals and families reside in neighborhoods in these industrial zones. The main source of income in these areas is labor and informal labor.

In the section of the route from Osmaniye to Düziçi, Bahçe, Nurdağı and Gaziantep, agricultural activities account for the largest proportion of livelihood activities.

Agricultural activities are intense in the region of Çukurova where lands are operated in different ways.

² <https://multeciler.org.tr/eng/>

1. Some of the main owners of agricultural lands along the route live in Mersin and Adana. These lands are operated by "month-olds", that is, employees with a monthly salary who, maintain and cultivate the land with their families.
2. In rural areas, farming is the main livelihood activity but half of the land owners obtain income by renting their land to tenants who come from outside the area.
3. Low-income crops are mostly planted by farmers coming from outside the region and renting land. In an in-depth interview, the headman of Büyükdikili village stated that the people of Mardin plant potatoes and onions. The reason for this is that, agricultural fertilizer is 8 liras / kg? and 100 kilograms are required per acre. The Mukhtar stated that despite such a high price of agricultural inputs, the products are only sold for 1 lira per kilogram?.
4. Many households who do not own or rent land work as seasonal agricultural workers locally and will also travel to there areas of the country to work. Agricultural work is a livelihood activity carried out by most of the poor households living in the region with all their family members.

In the lands along the route between Adana, Tarsus, Mersin and Ceyhan, citrus fruits, corn, red cabbage, cabbage, broccoli, cauliflower, watermelon, fresh beans and potatoes are planted. Pistachio and almond trees, grapes, walnuts, olives were also frequently found along the line.

Cotton is cultivated in these areas from time to time. Cotton farming increases or decreases according to the purchase prices of that year. Although it is not very common in the lands around the route, fields growing cotton were encountered.

In addition to agricultural activities, livestock rearing is also an intensive activity, especially in the rougher lands in the AOI including the villages of Tehci, Dervişiyi and Aslaniye of Osmaniye; Adana Ceyhan Toktamış, Sirkeli and surrounding villages, Toprakkale, Bahçe, Düziçi.

4 IDENTIFICATION OF RISKS AND IMPACTS

In the scope of this supplementary social impact assessment, it was aimed to focus on the topics related to the findings of the additional baseline survey done in October 2021. Purpose of the additional baseline survey is to visit selected settlements along the route and check the existing conditions and observe the impacts cause by ongoing construction activities of the contractors other than REC which has not started the construction works yet. In this regard, this additional impact assessment is limited and tries to cover some additional evaluation on top of the existing discussions in the ESIA Report.

4.1 Land Acquisition Impacts

Potential resettlement and economic displacement have been already discussed and defined in the RAP document.

Within the scope of data obtained from expropriation, RAP document and field data, it has been determined that the payments of building structures, lands, public lands and/or treasury lands subject to expropriation have been paid or are being paid. For this reason, the studies related to the expropriation process were excluded.

Therefore, within the scope of the impacts of the Project arising from the land acquisition process, the following situations, persons and/or groups affected by the Project are included in this additional study.

1. Rights of shareholders/users whose lands or houses and structures have been taken during the land expropriation process,

- Shareholder users,
- Informal households,

2. PAPs whose homes, lands or commercial business structures have not been expropriated as a result of land acquisition, but whose livelihoods, homes, lands or commercial business structures are affected by construction activities or the passage of heavy vehicles,

- Agricultural lands at the border of the railway after expropriation,
- Businesses remaining on the border of the railway after expropriation.

4.1.1 Project Impacts on Housing and Shelter Rights

4.1.1.1 Construction Phase Impacts

According to the Constitution of the Republic of Turkey, the right to housing is one of the basic human rights. According to IFC Performance Standard 5, the right of residence does not require that the beneficiary be an officially proven owner or partner. All public or unofficial PAPs affected by the project should be considered as beneficiaries.

Within the scope of the project and during the construction phase, involuntary physical resettlement and economic resettlement has been taking place. As part of the Addendum fieldwork, interviews were held with the owners, users and shareholders whose houses were expropriated.

Owners: Compensation for land and other assets was calculated at market value plus transaction costs related to assets reinstatement and paid to owners and/or shareholders for expropriated residences. Within the scope of the negotiations, no complaints were reported by the property owners.

In Osmaniye Yunus Emre neighborhood, women whose houses were on the expropriation border and who were aware of this were interviewed. In the interview, the women stated that they saw expropriation as an opportunity to get rid of their badly conditions and unsafe neighborhoods. Stating that no one in this neighborhood wanted to buy a house and that they could not sell their own houses, the women stated that they wanted to get expropriation money and move to another neighborhood.

Expropriation provides an advantage for women who state that they are the sole owner of their house (as a family).

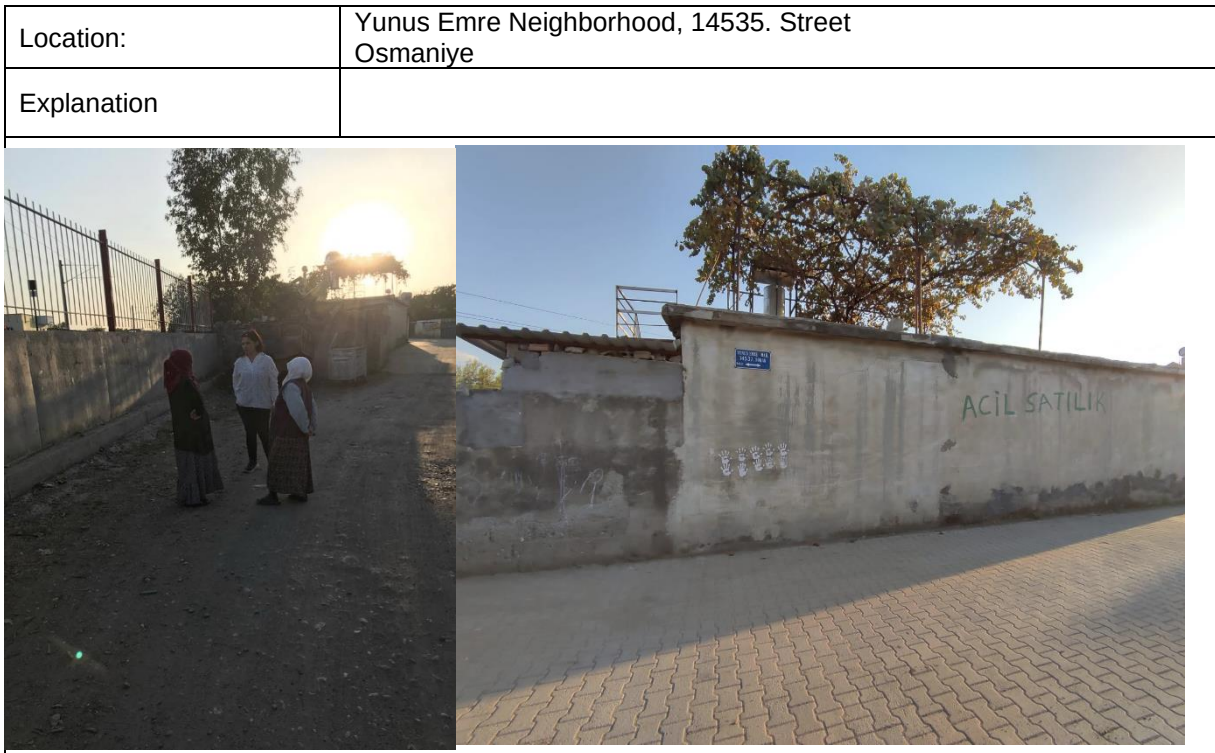


Figure 4-1. Women Users of Houses Covered by Expropriation

Shareholders: An interview was held with the shareholder user whose house was expropriated, located on the border of the level crossing, in Adana-Ceyhan, Toktamış Village, 8017. Street.

Since the expropriated house is a shared title deed, the shareholder user received half of the expropriation price. For this reason, he stated that he was able to build a smaller house than the expropriated house when he was building a new house for himself, and that he could build a new house by borrowing while building a house.

At this point, an important issue should be noted; These effects for the PAPs, who are shareholders and are the real users of the house and have to buy/build a new house after the expropriation, will also be valid for the real users who are the shareholders of the agricultural lands and earn their livelihood from these lands.

Location:	Toktamış Neighborhood Adana/ Ceyhan
Explanation:	Shared title deed residence whose expropriation has been completed
	

Figure 4-2. Expropriated House in Toktamış

Informal users: In addition to the houses whose expropriation has been completed, there are also houses within the expropriation area, whose expropriation process has not started yet, but according to KMZ data, which includes expropriation information. Therefore, information about these houses was obtained from the mukhtars of the neighborhoods. The mukhtars stated that the houses, whose images are below, mostly have shared title deeds and households are mostly informal rentals.

Location:	Özgürlük Neighborhood, 6247. Street Mersin/ Akdeniz
Explanation	According to KMZ data, which includes expropriation information, the residence within the expropriation limit of the high-speed train.
	

Figure 4-3. House In the Expropriation Border Of the Project

Location:	Döşeme Neighborhood, Erdal Acet Street Adana/ Seyhan
Explanation	According to KMZ data, which includes expropriation information, the residence within the expropriation limit of the high-speed train.



Figure 4-4. House In the Expropriation Border Of the Project

Location:	Sakarya Neighborhood, 55031 Street Adana/ Seyhan
Explanation	According to KMZ data, which includes expropriation information, the residence within the expropriation limit of the high-speed train.
	

Figure 4-5. House in the Expropriation Border of the Project

In general, the following findings were obtained regarding the residences on the high-speed train line route and the users of these residences:

- Expropriation is considered advantageous and positive especially for households who are sole owners of houses in neighborhoods with poor physical and social conditions.
- Mostly vulnerable and disadvantaged groups live in Project-affected residences located in old city centers, poor neighborhoods close to organized industry or shantytowns where the train line passes. Poor households and Syrian families live in old and Project-affected residences (Özgürlük neighborhood, Akdeniz, Mersin) that have been evacuated by the owners.
- Poor and disadvantaged vulnerable groups living in the houses that have been expropriated have moved to other similar houses in the neighborhood by their own means.

- Households that have not started the expropriation process yet but are informal users or shareholder users within the expropriation boundary will also be moved to other residences with similar conditions in case of expropriation.
- Expropriation is considered as disadvantageous for the shareholder users of the houses, due to the sharing of the price of the house.

In the interviews with the mukhtars, it was suggested that the following evaluations should be made, especially when the poor and households with children need to leave their homes and move to another house due to the expropriation:

- The majority of the houses in the settlements that are within the scope of expropriation but have not yet started the expropriation process are still occupied.
- It is possible to find multiple family live in the same house. This type of household exists mostly in the neighborhoods where the Syrian population lives.
- Since most of the Syrian families living in the neighborhoods do not have the records of the mukhtars, this determination cannot be made by the mukhtars.
- For this reason, if the house is affected by the expropriation and needs to be moved, one of the two families may be a victim. It is important to make this determination.
- Families who need to move to another house due to expropriation, whether they are owners, tenants or occupiers, may find it difficult for their children to reach school if they cannot find a house close to where they live under the same financial conditions. In poor neighborhoods, children go to school on foot, not by school bus.

IFC PS5 defines the entitlement as following: "Displaced persons may be classified as persons (i) who have formal legal rights to the land or assets they occupy or use; (ii) who do not have formal legal rights to land or assets but have a claim to land that is recognized or recognizable under national law; 19 or (iii) who have no recognizable legal right or claim to the land or assets they occupy or use."

In accordance with the IFC PS5, additional potential affected person or groups have been identified who were not included to the Project's land acquisition process:

- Shareholder users of the acquired houses,
- Informal users of houses,

These groups listed above are considered may not fully compensated despite their livelihoods and housing conditions might be affected.

4.1.1.2 Mitigation Measures

- The Project SEP including the grievance mechanism will be implemented and all grievance related with the expropriation process will be recorded and monitored
- Fair and transparent compensation, which is determined by official institutions, will be provided to the shareholder users and informal users,
- All users/ shareholders will be informed about the aim of expropriation process,
- A Livelihood Restoration Plan (LRP) can be prepared and implemented,
- Informal users and vulnerable shareholder users will be determined and consulted and in case of the livelihood loss necessary assistance will be provided.

4.1.1.3 Residual Impacts

Considering the application of the above-mentioned mitigation measures, the impact of the Project on Housing and Shelter Rights component is depicted in the following table.

It is expected to be negative and medium.

Table 4-1. Impact of the Project on Housing and Shelter Rights component

Impact Factor	Impact Factor Features		Component Sensitivity	Impact Features		Impact Value	Mitigation effectiveness	Residual impact value
Project Impacts on Housing and Shelter Rights	Duration:	Medium	Medium-low	Reversibility:	Short-mid-term	Very High	Medium	Medium
	Frequency:	Moderately frequent						
	Geo. Extent:	Project footprint						
	Intensity:	Low						

4.1.1.4 Operation Phase

No project actions will generate impact on the impact of the Project on Housing and Shelter Rights component during the operation phase, therefore the impact assessment is not performed for the operation phase.

4.1.2 Project Impacts on Buildings or Structures

4.1.2.1 Construction Phase Impacts

PAPs whose homes, lands or commercial business structures have not been expropriated as a result of expropriation, however houses or structures are affected by construction activities is assessed under the Project Impacts on Buildings or Structures title.

The Project impacts in this context are categorized as follows:

- Housing with restricted access roads
- Settlements whose transit route will be closed with the narrowing or expropriation of the streets

Housing with restricted access roads: According to the expropriation data, on the 691512. Street, which is registered in the Nacarli District but actually within the Gazi and Sariibrahimli District; the borders of the school, 11 houses and mosque in the neighborhood are at the high-speed train expropriation border.

The existing street, which is the only entrance and exit side of all houses and the school, will be included in the project since it remains within the borders of TCDD after expropriation. In the meeting with the headman, the entrances and exits of the houses will be blocked after the only street used to enter and exit the houses is eliminated. When the security wall is installed, the access roads of 11 houses will be cut off. In addition, the infrastructure of the houses on this street were also laid next to the railway, from its edge that may cause additional impacts for the PAPs.

Location:	Gazi Neighborhood Sariibrahimli (Nacarli) Neighborhood, 691512. Street Mersin/ Tarsus
Explanation	The expropriation of the street, which is used as a means of transportation, will close the entrance and exit of 11 houses.
	

Figure 4-6. Project Impact on Houses Located in Sariibrahimli and Gazi Neighborhoods

A similar case is also found in Osmaniye Yenimahalle.

According to expropriation KMZ data, Yenimahalle 13001 street appears to be within the expropriation area. The entrances of the houses on this road are adjacent to the road. If the road is taken, both an actively used access road will be closed and the entrances of the houses will have to be changed. The impact of this Project;

- It will cause an extra cost for households;
- It will increase the vehicle traffic in the back streets.

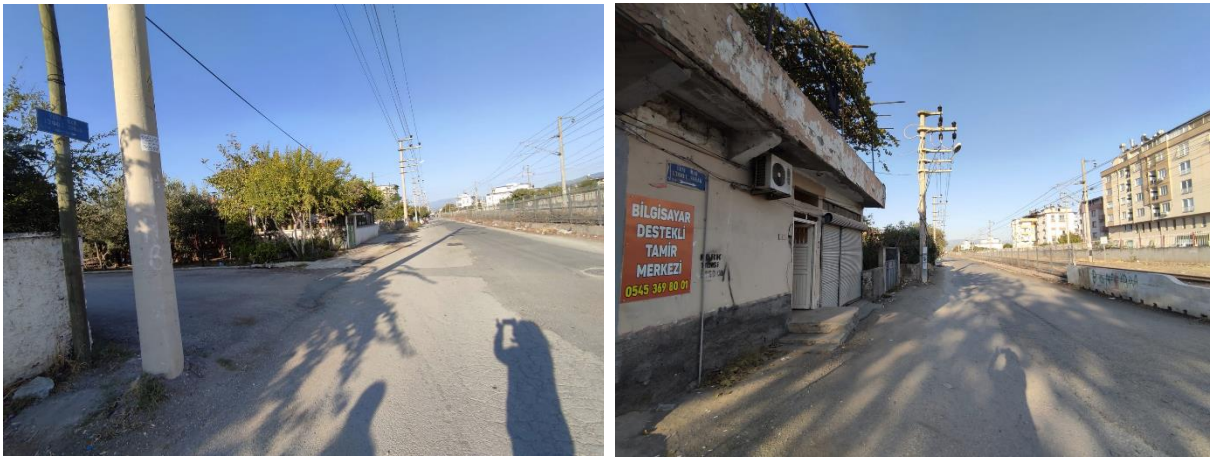
Location:	Yeni Neighborhood, 13001. Street Osmaniye
Explanation	The expropriation of the street, may close the entrance and exit of the houses.
	

Figure 4-7. Project Impact on Houses Located in Yeni Neighborhood

Another Project impact occurs on Ray Street, which runs along the high-speed train line, in Adana's Seyhan District, Bahçelievler, Demetevler, Sakarya neighborhoods.

This street remains within the Project's expropriation boundary and will be eliminated within the scope of the Project. About 15 houses on the side of this street are not subject to expropriation. however, in an area located between the railway construction and the overlapping highway construction, it is exposed to a cumulative effect.

Location:	Bahçelievler Neighborhood, Demetevler Neighborhood Sakarya Neighborhood Ray Street, 55002. Street Adana/ Seyhan
Explanation	Cumulative Impacts on the PAPs and houses
	

Figure 4-8. Cumulative Impact on the Houses Located on Ray Street

4.1.2.4 Operation Phase

No project actions will generate impact on the impact of the Project on Housing and Shelter Rights component during the operation phase, therefore the impact assessment is not performed for the operation phase.

4.2 Project Impacts on Livelihoods

Impacts on livelihoods resulting from the project are considered as impacts on industry, trade and agricultural activities.

- The effect of physical displacement on business was determined in the RAP. Therefore in the Addendum (Supplementary) ESIA study, displacement impacts are considered as out of scope.

Within the scope of the ESIA addendum;

- Agricultural lands at the border of the railway after the expropriation,
- Businesses remaining on the border of the railway after expropriation are considered as the scope of the Project impacts on livelihood.

4.2.1 Impacts on Agricultural Activities

When the potential negative effects on agricultural activities arising from the Project activities are assessed;

- Effects caused by dust formation,
- Effects caused by damage to the irrigation channels,
- Effects due to damage to drainage channels/pipes identified as potential effects.

Impact assessments regarding these potential impacts are given under separate headings.

4.2.1.1.1 Construction Phase Impact Analysis

A significant part of the agricultural lands located on both sides of the expropriation border of high-speed train construction from Mersin to Gaziantep may be exposed to dust due to construction activities.

The assessments on the impact of dust in agricultural lands where irrigated agricultural lands are dense and where a wide variety of crops are cultivated are given below.

During the farmer interview held in Adana Arıklı Village, the following concerns were expressed about the impact of dust on agricultural activities. Eggplant and tangerine are grown in the garden, and if precautions are not taken, there will be product losses due to

dust due to the expropriation of the road in between and the construction works that will come up to the border of the agricultural land.

Even the dust effect, which is caused by the structure of the access road between the land and the railway, and is relatively less than the construction effect, damages the products at the edge of the land. Even now there is red spiders from road dust. This situation will be exacerbated by the increase of dust with the construction and will cause an increase in harmful insects and spider mites in agricultural lands.

Dust effect can cause the following effects on agricultural lands where two crops are planted per year;

- During the pollination periods of garden vegetables, citrus fruits, fruit trees, in spring, it finishes flowering and does not yield any crops (Arıklı Mahallesi),
- Flowering occurs in March in areas with almond trees. For almond, which is a sensitive tree and fruit, dust effect negatively affects fertilization (Çakaldere),
- The orchards in Büyükdikili are affected. As of October, there are citrus and corn in the cultivated irrigated agricultural lands. In February-March, dust prevents pollination, crops do not grow. In this region, pepper paste is an important crop and is planted in May. This product is affected by dust in summer. This is how the lands behind the Seyhan Cement factory were affected, their yields and purchase prices decreased.
- Effects caused by dust reduce prices in citrus fruits. The trader who sees the dusty product wants to buy the product at a lower price. In addition, the cost and amount of spraying increases as the pesticide does not hold due to dust (Günyurdu-Atgirmez).
- The quality of the goods deteriorates and therefore the price decreases. We pay the same expense for a low quality product, but when the quality is bad we are forced to sell it as canned goods for half the price.
- During the interview with the headman of Gaziantep Boynu neighborhood, the following effects were expressed: There is no sprinkler irrigation at the construction site and at vehicle crossings, and the dust raised harms both agriculture and animal husbandry. 15-20 acres of land are affected by dust. Due to dust, products cannot be obtained from cherry and almond trees and vineyards.
- In the interview held in Evri Mahallesi Pazarcık Kahramanmaraş, the following effects were noted: There is not sufficient and regular sprinkler irrigation. Peanuts, olives, grapes and crops are adversely affected due to dusting. The product cannot be sold. Complaints cannot be forwarded and resolved because there is no grievance mechanism.

- Construction activities continue within the scope of the MAG project in Gaziantep Üçgöze District. There are intense complaints about dust, as there is no sprinkler irrigation at the construction site and along the vehicles' passageway. Vineyards, gardens and fields are adversely affected by dust. Depending on the dust, especially pistachio trees dry up, the tree does not produce or the product rots and dies. Therefore, the product cannot be bought, and the purchased product cannot be sold mostly. There is a loss of both productivity and income. The same problem is experienced not only in peanuts but also in other agricultural products.

It has been mentioned in many interviews that dust increases the agricultural spraying and also the cost of the farmers. In the interview held in Arıklı on this subject, the issue was explained more concretely with the following calculation:

A weekly agricultural spraying cost of 34 acres of garden is 5000 liras. If there is no dust, he has to throw away the spray once a week in summer due to the dust caused by the road. If the dust increases with the construction, this spraying can be up to once every three days. In this case, the dust effect can both negatively affect the quality of the product and cause an increase in the farmer's expenses.

Dust impact will occur not only as an impact from construction, but also due to the passage of heavy vehicles if dirt roads near agricultural lands are used as Project access roads. For this reason, it should be considered that the impact area of the dust effect also covers the transportation routes.

4.2.1.1.2 Mitigation Measures

- Residents in nearby communities will be informed about the transport routes to be used and used,
- Landfill irrigation system will be applied to prevent dust formation on the roads,
- Regular and frequent irrigation will be applied especially in the dry period for dust reduction,
- Where there are sensitive products, dust screening measures will be applied,
- The grievance mechanism will be strengthened and operated along the entire line, all complaints will be recorded and resolved in accordance with the GRM procedure,
- In case of complaints, additional measurements will be made and the results will be shared with the complainant,
- Necessary compensation will be fulfilled for PAPs whose products are found to be damaged due to dust,
- Monitoring, evaluation and compensation support will be provided for PAPs who have lost income due to the project,
- Road improvement/rehabilitation will be implemented when necessary.

4.2.1.1.3 Residual Impacts

Considering the application of the above-mentioned mitigation measures, the impact of the Project on Agricultural products due to the Dust is depicted in the following table.

It is expected to be high and low.

Table 4-3. Impact of the Project on Agricultural products due to the Dust

Impact Factor	Impact Factor Features		Component Sensitivity	Impact Features		Impact Value	Mitigation effectiveness	Residual impact value
Project Impacts on Buildings or Structures	Duration:	Long	Medium-high	Reversibility:	Short mid-term	High	Medium-high	Low
	Frequency:	Continuous						
	Geo. Extent:	Regional						
	Intensity:	Very high						

4.2.1.1.4 Operation Phase

No project actions except potential spills due to any accident that may occur will generate impacts on the Agricultural Products during the operation phase, therefore the impact assessment is not performed for the operation phase.

4.2.1.2 Impacts on the Irrigation/Drainage Channels and Pipes

Impacts caused by damage to irrigation channels and drainage channels/pipes are important potential impacts that can cause crop losses and land infertility. Damage to irrigation channels and irrigation pipes should be also considered as a potential risk that will be encountered along the railway and may cause loss of income to farmers.

Due to the linear condition of the railway, it has been seen that drainage and irrigation pipes or canals pass under and next to it in many places.

The findings obtained during the interviews conducted within the scope of the fieldwork are as follows:

Land users and owners whose lands were expropriated in Çakaldere were interviewed. Irrigated agriculture is carried out on the lands with the drainage canal and irrigation pipes passing under the railway. Wheat, sunflower, peanut and corn are planted between January and October. Farmers, who get the water from the Ceyhan River behind the railway, pass these pipes under the railway and the highway and irrigate their lands across the highway.

Water is taken from Ceyhan and passed across by pumps. Damage to irrigation channels and late repairs may result in product loss. In the previous construction, because soil was poured into the mouth of the irrigation canal, the irrigation canal was cut off, resulting in product loss. Worried about the same effect.

Location:	Çakaldere Neighborhood, Ceyhan-Adana Street
Explanation	Garden of almond trees. Drainage and irrigation pipes and canal under the railway track..
	

Figure 4-10. Çakaldere Irrigation and Drainage Channels

In Arıklı Village, horticulture and citrus-dominated agriculture continue along the railway line. The water accumulated here is distributed through the drainage canal, passing under the railway, and the irrigation remains at the construction boundary according to the Expropriation KMZ data.

Location:	Arıklı Village Seyhan-Adana
Explanation	Irrigation and Drainage in Arıklı Village
	

Figure 4-11. Irrigation and Drainage in Arıklı Village

According to the expropriation KMZ data, irrigation well and pipes are located in the border of the high-speed train. Therefore, it was stated that the used water well would have to be closed and a new irrigation source should be found.

Location:	Yunus Emre Neighborhood Osmaniye
Explanation	Irrigation Well
	

Figure 4-12. Irrigation Well Near the Railway

4.2.1.2.1 Mitigation Measures

- During the construction activities, especially considering the agricultural seasons that coincide with the irrigation periods, if the drainage and irrigation canals are damaged, teams will be assigned to immediately repair them,
- The grievance mechanism will be strengthened and operated across the entire line, all grievances will be recorded and resolved in accordance with the GRM procedure,
- In the event of a complaint, additional measurements will be made and the results will be shared with the complainant,
- Necessary compensation will be paid to PAPs whose products are found to be damaged due to project activities,
- Monitoring, evaluation and compensation support will be provided to the PAPs who have lost income due to the project,

4.2.1.2.2 Residual Impacts

Considering the application of the above-mentioned mitigation measures, the impact of the Project on irrigation and drainage channel is depicted in the following table.

It is expected to be negative and Low.

Table 4-4. Impact of the Project on irrigation and drainage channel

Impact Factor	Impact Factor Features		Component Sensitivity	Impact Features		Impact Value	Mitigation effectiveness	Residual impact value
Project Impacts on Irrigation	Duration:	Long	Medium-high	Reversibility:	Short mid-term	High	Medium-high	Low
	Frequency:	Continuous						
	Geo. Extent:	Regional						
	Intensity:	Very high						

4.2.1.2.3 Operation Phase

There will be no additional impact on irrigation and drainage channels during the operation phase of the project..

For this reason, no additional impact assessment was made for the operation period, considering that no additional impact would occur if the effects of the construction period were eliminated.

4.2.2 Impacts on Husbandry Activities

The railway route passes between pastures and villages in many rural areas. Therefore, according to the findings obtained from the field study, it shows that the livestock activity will intersect with the railway construction at many points. Restriction or closure of roads to pasture areas, which may cause adverse effects on livestock, has been evaluated as an important livelihood impact.

The findings regarding the transition to pasture areas, which is observed as a common effect along the route, are summarized below.

In Mustafabeyli Village, farmers have to constantly use the level crossing between the neighborhood and the pasture to take the animals to the pasture to graze. During the construction, an underpass was built at the level crossing for animal crossing. However, due to the narrowness of the passage and the narrow and sharp turns along the passage, cattle were injured and the passage became dysfunctional and unusable. Since the complaint mechanism and consultation process were not operated in this process, the opinions and suggestions of the villagers were not included in the process.

Location:	Mustafabeyl Neighborhood Adana/ Ceyhan
Explanation	Crossing way for husbandry
	

Figure 4-13. Crossing way for husbandry

The animals are transported to the pasture by passing through the level crossing on the train track. This level crossing is the only way to get animals out to pasture. If the gate is closed, the animals' path will be extended by 1 km. There are nearly 2000 cattle and sheep. It is a road used by nearly 350 animals every day. The animals are taken to the pasture every day, especially between January and April.

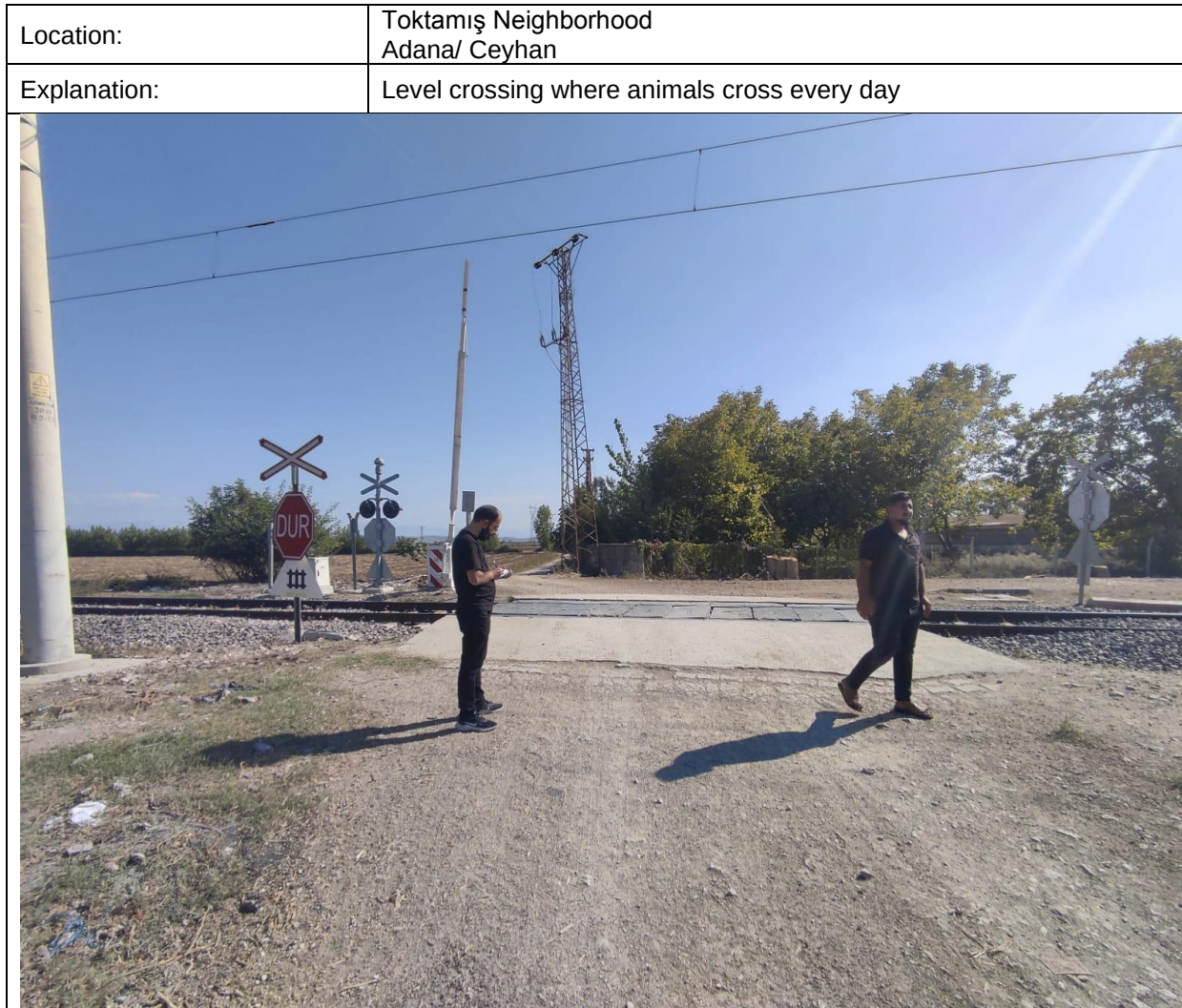


Figure 4-14. The Pasture Road by Passing Through the Level Crossing

In Osmaniye Tehçi Village, the headman, who also does animal husbandry, was interviewed. The pastures used by Tehci, Aslanlı and other villages are on the other side of the railway. Animals reach the pastures by crossing the level crossing intensively in August, September and October. There are over 2000 sheep and goats in the village. In Arslanlı Village, animal husbandry is also carried out intensively.

4.2.2.1 Mitigation Measures

- The level crossings used for livestock breeding and for passing to pasture areas will be determined,
- During the construction period, a passageway will be left at certain intervals for animal passages,
- It will be determined in consultation with the villagers so that the animal crossings do not cause difficulties in their livelihoods and do not lengthen the roads,

- Where necessary, safe and functional passageways or underpasses etc. will be constructed.

4.2.2.2 Residual Impacts

Considering the application of the above-mentioned mitigation measures, the impact of the Project on Agricultural products due to the Dust is depicted in the following table.

It is expected to be negative and medium.

Table 4-5. Impact of the Project on Agricultural products due to the Dust

Impact Factor	Impact Factor Features		Component Sensitivity	Impact Features		Impact Value	Mitigation effectiveness	Residual impact value
Project Impacts on Buildings or Structures	Duration:	Long	Medium-high	Reversibility:	Short mid-term	High	Medium-high	Low
	Frequency:	Continuous						
	Geo. Extent:	Regional						
	Intensity:	Very high						

4.2.2.3 Operation Phase

During the operational phase of the project, there will be no additional impact on animal passages..

For this reason, no additional impact assessment was made for the operation period, considering that no additional impact would occur if the effects of the construction period were eliminated.

4.3 Community Health, Safety and Security Impacts

The project could have impacts on Community Health, Safety and Security Impacts in both urban and rural areas. These impacts were evaluated by dividing them into separate headings in urban and rural areas for the correct determination of mitigation measures.

4.3.1 Impacts in the Urban Area

In field studies conducted in urban areas, findings on Community Health, Safety and Security Impacts were obtained regarding the high-speed train route.

4.3.1.1 Impacts on Education and Health

Due to its linear nature, the project affects many different structures, social, economic and cultural structures. It has been determined that additional measures should be taken for the construction of the high-speed train line that will pass through the borders of the schools in the city centers.

The high-speed train line in Mersin passes very close to the school campuses in Mersin Akdeniz Central, as well as Adana, Tarsus and Osmaniye, and even crosses the border. This situation necessitates the implementation of a series of additional measures in terms of ensuring the safety of students, not affecting the health conditions and sustainability of education.

Sports facilities in some schools and school walls in some schools are located at the border of the Project construction area which are shown below photographs.

Location:	Mersin / Akdeniz
Explanation:	Project Impacted Schools
	

Figure 4-15. Project Impacted Schools

4.3.1.1.1 Mitigation Measures

- In terms of children's health, taking dust-preventing screening measures to prevent dust towards schools, In order to prevent the schools from being affected by dust during the construction process and the security problems that may arise from the construction activities, the existing firewalls and wires should be developed and strengthened with more functional and protective measures.
- Improvement of the firewall so that students are not exposed to a risk from construction,
- Continuous monitoring and reporting of social and environmental impacts around schools,
- Ensuring that the grievance mechanism is known and used effectively by all stakeholders.

4.3.1.1.2 Residual Impacts

Considering the above-mentioned mitigation measures, the impact of the Project on education is depicted in the following table.

It is expected to be negligible

Table 4-6. Impact of the Project on education

Impact Factor	Impact Factor Features		Component Sensitivity	Impact Features		Impact Value	Mitigation effectiveness	Residual impact value
Project Impacts on Buildings or Structures	Duration:	Medium	Very-high	Reversibility:	Short mid-term	Medium	High	Negligible
	Frequency:	Moderately frequent						
	Geo. Extent:	Local						
	Intensity:	High						

4.3.1.1.3 Operation Phase

During the operational phase of the project, there will be no additional impact on education.

4.3.1.2 The Impacts on Traffic Density

In the inner-city neighborhoods of Adana and Mersin, the traffic density, especially in the morning and evening, increases even more at the train Level crossings. Truck and truck traffic is added to the traffic density in the neighborhoods close to the industrial zone. On the Mersin-Adana-Tarsus and Osmaniye route, where industrial zones are concentrated, the restriction of level crossings, even for a short time, may cause both economic and social problems in transportation to workplaces, work, schools and hospitals in cities. Level crossings in inner-city areas where the high-speed train line passes, intersect with the

intersections or streets with the highest traffic in both industrial-dense neighborhoods and residential-dense neighborhoods.

Traffic impact, which will intensify in city centers due to construction, was highlighted as a common problem. In the negotiations on this subject, the mukhtars; They pointed out the importance of completing the highway crossing arrangements that will ease the urban traffic first and then starting the railway construction. Otherwise, it can be stated that access to education, health services and working life will be constantly disrupted in city centers and social-economic life will be interrupted.

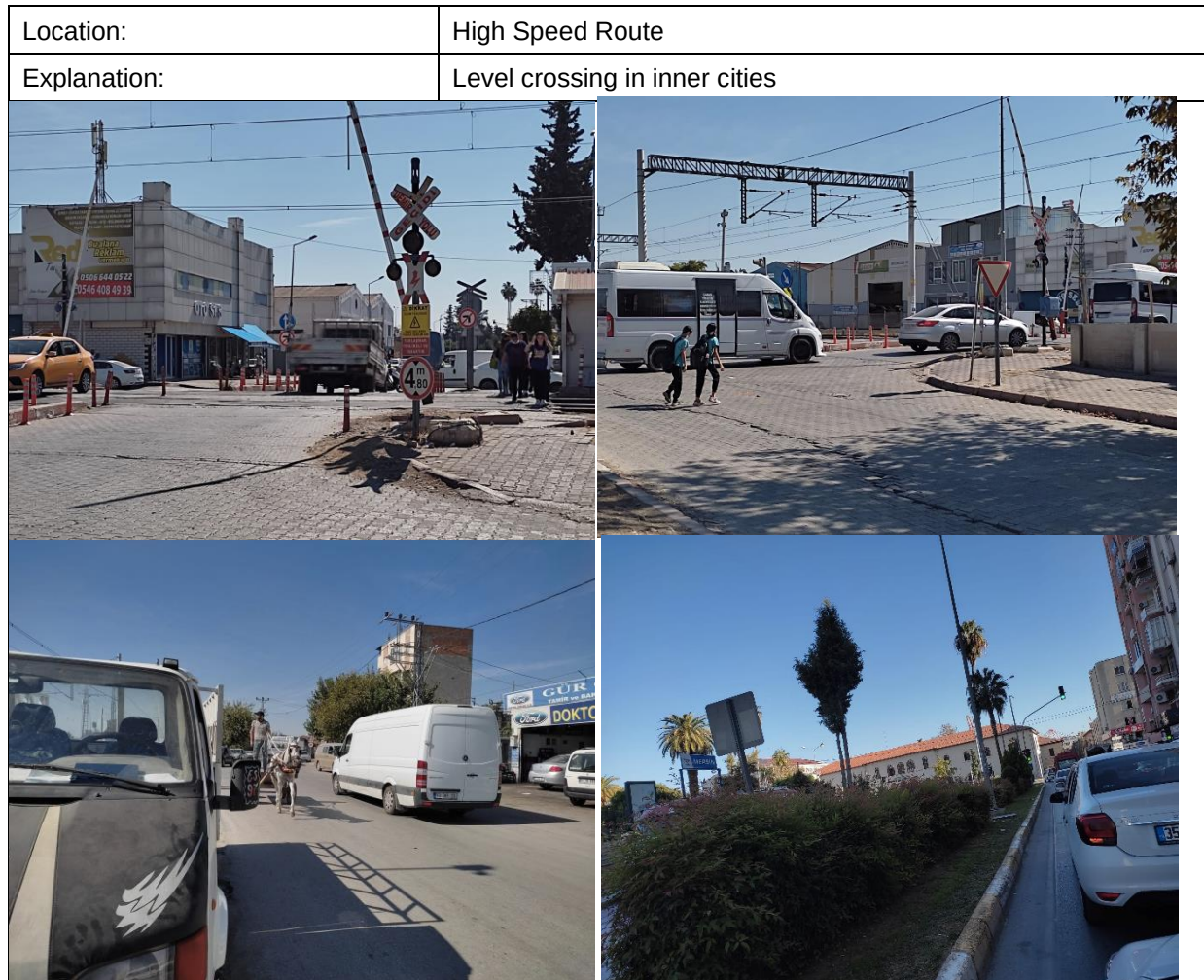


Figure 4-16. Level crossing in inner cities

Cumulative impact on traffic density: On the construction line, which will start from Mersin train station and continue until Gaziantep, the traffic density effect will become even more risky in terms of public health and safety if the excavation trucks and heavy vehicles within the scope of the construction activities of the Project are included.

Concrete batching plants and quarries, which could be potential solution partners of the Project, were also visited to identify and evaluate these risks. As much as possible, the train line and the service route within the train line will be used to transport the received

information, materials, equipment and excavation. However, it will be necessary to use the innercity roads for the points to be transferred to the train line. Managing this impact, which will arise due to the nature of construction, is important for both safety and public health. For this reason, it is important that the precautions to be taken regarding heavy vehicles and the precautions to be taken regarding traffic safety are applied meticulously and carefully.

4.3.1.2.1 Mitigation Measures

- The duration of the traffic density and the peak points will be determined and announced 1 week before the start of the impact,
- Heavy vehicle traffic will be planned in a way that does not conflict with the entrance and exit hours of the schools.
- Intense vehicle traffic will be kept under control and measures such as flags and needles will be tightened in order to prevent risks on days when traffic will increase such as district markets, festivals and events. Heavy vehicle traffic density resulting from the project will be avoided as much as possible these days.
- In order to minimize the impact, necessary measures are taken by informing the headmen, administrative institutions, law enforcement officers and the public about the Project, road closures, road works or heavy vehicle use in advance and on time,
- A Traffic Management Plan (TMP) will be developed by Rönesans as contractor and implemented;
- All contractors will be ensured to comply with this plan,
- School bus drivers will be informed about the busiest hours of project activities,
- Necessary training and awareness training will be given to heavy vehicle drivers,
- A follow-up mechanism will be established to continuously monitor and inspect the speed control of heavy vehicles, the routes they use, and the transportation routes,
- Regulations and laws regarding the transportation of materials and loads by heavy vehicles will be implemented and additional measures will be taken. Tarpaulin, closed transport, load limits, maintenance and measurements of vehicles will be checked, environmental and social security measures will be taken,
- The grievance mechanism will be used effectively, and traffic related complaints will be recorded, evaluated, resolved and managed.
- Before starting the high-speed train construction, traffic regulation road crossing works will be carried out in consultation with the relevant stakeholders.

4.3.1.2.2 Residual Impacts

Considering the application of the above-mentioned mitigation measures, the impact of the Project on Traffic density is depicted in the following table. It is expected to be negative and low after the mitigation measures.

The management of the traffic density that will increase in the inner cities can be kept at a low level with the long-term and strict implementation of the measures to be taken. For this reason, the implementation and monitoring of the mitigation measures described above is of great importance in terms of minimizing this very high impact.

Table 4-7. Impact of the Project on Traffic density

Impact Factor	Impact Factor Features		Component Sensitivity	Impact Features		Impact Value	Mitigation effectiveness	Residual impact value
Traffic density in urban area	Duration:	Long	Very high	Reversibility:	Long term	Very High	High	Low
	Frequency:	Highly frequent						
	Geo. Extent:	Regional						
	Intensity:	High						

4.3.1.2.3 Operation Phase

During the operation phase of the project, there will be no additional impact that will increase the traffic density. Considering that the re-planning of the urban traffic and the construction of the necessary additional roads will be completed during the construction period, no additional impact assessment has been made for the operation period.

4.3.1.3 Impacts on Community Health and Safety

It was aimed to provide a supplementary assessment on risks to community health from the physical safety risks to community members at active work sites, from the spread of disease, including risks arising from water-borne, water-based, water-related, and vector-borne diseases, and from communicable disease risk arising from interaction between community members and Project workers, including COVID-19 in line with the IFC Health Impact Assessment which sets out a framework to guide organising and analysing potential health impacts. Due to the time limitations, assessment of the impacts was bounded with the field observations related to the above mentioned parameters to be considered. In SEP and ESMMP report there are detailed explanations about covid 19 measures.

Ensuring the safety of pedestrians in urban mobility is an important impact management issue within the scope of the Project. This effect becomes more important especially in the neighborhoods where poor households live predominantly in Adana, Mersin, Tarsus and Osmaniye. This is because PAPs living in poor neighborhoods mostly walk to school, workplaces, markets, and shopping. In addition to walking, the use of bicycles, electric bicycles and motorcycles is common in these inner-city neighborhoods.

In the current situation, the conditions that make train level crossings and railways risky have been determined as follows:

- Bicycles, electric bicycles and motorcycles are used by children under the age of 18 in dangerous conditions, without safety precautions, with 2-3 people riding together. This is a common situation in inner city neighborhoods.
- In urban areas where pedestrian transportation is common, walking to school and work, train level crossings are frequently used by pedestrians.
- Since many of the level crossings do not have a designated area for pedestrian, bicycle or motorcycle crossing, these crossings are used with pedestrians, motor vehicles or large vehicles.
- Safety barriers to prevent the passage are insufficient at railway crossings in inner-city neighborhoods. It has been seen in every city that many people living in the neighborhoods on the train line route walk on the rails that should be closed to passage.
- The safety and accessibility of the overpasses built for the passage of railways are insufficient.

It is dangerous for the safety of children that the overpasses built for the use of the public in urban areas are open on both sides. As an example, mukhtar stated that, the people living in Adana Döşeme neighborhood go to the market in the Mithatpaşa neighborhood. Since there is no level crossing or overpass to reach the market, it is necessary to take a long way. Since this road is quite long to go on foot, they jump over the railroad tracks. Therefore, public safety is a serious problem in the neighborhood.

In addition, it has been stated that the existing overpasses will be inadequate and dysfunctional as a result of the fact that the overpasses are not suitable for the access of the disabled and are not accessible.

In the interviews held in the neighborhoods where the train line passes, the headmen stated that many fatal accidents have occurred over time.

Location:	High Speed Route
Explanation:	Community safety in inner cities
	

Figure 4-17. Inner Community Safety in Inner Cities

Cumulative impact on community safety: On the construction line that will start from Mersin train station and continue until Gaziantep, heavy vehicle traffic safety risks may arise for students attending schools on the transit routes of earthmoving trucks and heavy vehicles, and for the public using the same highway route as heavy vehicles.

Within the scope of the project activities, the train line and the service route within the train line will be used as much as possible for the transportation of materials, equipment and excavation. However, when it is necessary to use city roads for the points to be transferred

to the train line, it is important for both safety and public health to manage heavy vehicle traffic by avoiding pedestrian crossings, school routes, crowded crossing points.

According to the KMZ transportation route data, the absence of overpasses, their ineffective use or the absence of bow crossings on the roads that may be affected by heavy vehicle traffic are the issues that make it difficult to manage the heavy vehicle traffic that may occur within the scope of the Project. For this reason, it is important to take and implement security measures on the route to be used by heavy vehicles that will operate during the construction process of the high-speed train project. Sample photos of the roads that heavy vehicle traffic may affect in Mersin and Ceyhan are presented below.

Location:	Potential high vehicle Access road Adana Ceyhan, Mersin Akdeniz
Explanation:	Community safety in inner cities
	

Figure 4-18. Community safety in Inner Cities for Students

4.3.1.3.1 Mitigation Measures

- Underpasses and overpasses that are suitable for public use and that can pass at important points should be planned and implemented,
- The security measures of the passages should be taken at a sufficient level and they should be accessible; it will be built in accordance with the use of children, elderly, disabled and parents with children,
- Considering the pedestrian traffic, the construction will continue without closing the pedestrian crossing routes or by providing alternative crossings,
- A community health and safety management plan will be developed and implemented,
- Heavy vehicle traffic will be planned in such a way that it does not coincide with the entrance and exit times of the schools.
- A Traffic Management Plan (TMP) will be developed and implemented.

- Community Health and Safety Plan (CHSP) will be developed prior to the construction works.
- All contractors will be ensured to comply with this plan,
- School bus drivers will be informed about the busiest hours of project activities,
- Necessary training and awareness training will be given to heavy vehicle drivers,
- A follow-up mechanism will be established for the speed control of heavy vehicles, the routes they use and the continuous monitoring and inspection of transportation routes,
- The grievance mechanism will be used effectively and traffic-related complaints will be recorded, evaluated, resolved and managed.

4.3.1.3.2 Residual Impacts

Considering the application of the above-mentioned mitigation measures, the impact of the Project on community health and safety is depicted in the following table. It is expected to be negative and low after the mitigation measures.

Table 4-8. Impact of the Project on community health and safety

Impact Factor	Impact Factor Features		Component Sensitivity	Impact Features		Impact Value	Mitigation effectiveness	Residual impact value
Community safety	Duration:	Long	Very high	Reversibility:	Mid term	Very High	High	Low
	Frequency:	Highly frequent						
	Geo. Extent:	Regional						
	Intensity:	High						

4.3.1.3.3 Operation Phase

During the operation phase of the project, given that all safety measures covered in the planning and design phase of the Project are implemented on the site, it is not expected that there will be impact related to the community safety. Nevertheless, the entire system should be monitored regularly and public awareness should be raised by the Operator via stakeholder engagement activities. Therefore, no additional impact assessment has been made for the operation period.

4.3.2 Impacts in the Rural Area

4.3.2.1 Impacts On Community Health and Safety

While evaluating Impacts on community health and safety in rural areas, the following points were taken into consideration.

Effects of heavy vehicle traffic in rural areas: The roads in villages and neighborhoods are not suitable for the passage of heavy vehicles and should not be used as a means of transportation. Such a situation can present significant security issues for all PAPs.

Disruption of village and land transportation roads by heavy vehicles may increase the probability of local people to have an accident.

The safety of school bus routes for children going to school in other settlements with transported education from villages is one of the most important issues. In rural areas where the bussed education route continues over the railway level crossing;

- alternative routes that will ensure the continuation of education should be planned first in order to ensure the safety of the transported training service route,
- ensuring that the transportation routes of the heavy vehicles operating within the scope of the project do not overlap with the shuttles, and
- preventing the deterioration of the low-quality roads with heavy vehicles are the issues that must be constantly managed in this process.

During the meeting held in Boyno Neighborhood, the headman stated that heavy vehicles were passing through the neighborhood during the construction.

stated that it coincided with the training route. The headman stated that because of this, the roads deteriorated, and traffic safety decreased.

The passage of heavy vehicles through the village can have consequences such as damage to houses, impacting the health of PAPs due to dust, and impacting the health of animals kept in the village. In the light of the findings obtained in the field, the fact that the construction on the railway in the rural area causes the level crossings of the villages to be closed, will reveal the transportation problem in the villages. This effect may turn out to be an extra cost and a waste of time to the people living in the countryside. Therefore, it is important to provide alternative transitions. In addition, this effect can turn into a significant risk when a health emergency etc. arises.

4.3.2.1.1 Mitigation Measures

- Underpasses and overpasses will be planned that are suitable for villagers',
- The security measures of the passages should be taken at a sufficient level and they should be accessible for all type of vehicle and pedestrian,
- A community health and safety management plan will be developed and implemented,
- Heavy vehicle traffic will not be passed through the villages, alternative Project access roads will be planned when necessary,

- A Traffic Management Plan (TMP) will be developed and implemented;
- All contractors will be ensured to comply with this plan,
- Necessary training and awareness training will be given to heavy vehicle drivers,
- A follow-up mechanism will be established for the speed control of heavy vehicles, the routes they use and the continuous monitoring and inspection of transportation routes,
- The grievance mechanism will be used effectively and traffic-related complaints will be recorded, evaluated, resolved and managed,
- renovation of the deteriorated access roads will be conducted after the completion of the construction works
- Duration of traffic density and dense points etc information will be given to the local people by mukhtars or by holding safety meetings.
- Heavy vehicle traffic will be planned in a way that does not conflict with the entrance and exit hours of the schools.
- Considering that the traffic from villages to districts will increase on the days when the district market is established, heavy vehicle traffic will be kept under control in order to prevent risks these days.
- To minimize the impact, local communities are informed in a timely manner about road closures, roadworks or the use of heavy vehicles.
- Pits, splits and deteriorations that may pose danger will be maintained immediately. Road improvement works to prevent risks arising from weather conditions will be carried out.

4.3.2.1.2 Residual Impacts

Considering the application of the above-mentioned mitigation measures, the impact of the Project on community health and safety on the rural area is depicted in the following table. It is expected to be negative and negligible after the implementation of the mitigation measures.

Table 4-9. Impact of the Project on community health and safety on the rural area

Impact Factor	Impact Factor Features		Component Sensitivity	Impact Features		Impact Value	Mitigation effectiveness	Residual impact value
Community safety	Duration:	Long	Very high	Reversibility:	Short-Mid term	High	High	Negligible
	Frequency:	Highly frequent						
	Geo. Extent:	Local						
	Intensity:	High						

4.3.2.1.3 Operation Phase

During the operation phase of the project, given that all safety measures covered in the planning and design phase of the Project are implemented on the site, it is not expected that there will be impact related to the community safety. Nevertheless, the entire system should be monitored regularly and public awareness should be raised by the Operator via stakeholder engagement activities. Therefore, no additional impact assessment has been made for the operation period.

5 WORKERS ACCOMMODATION AND WORKPLACE ENVIRONMENT

The Project have the responsibility to provide a healthy, safe and suitable working environment for everyone. In this context, the contracts and code of conducts prepared regarding the working conditions of the workers can be considered as the first stage. In addition, the following measures and actions must be taken to maintain and sustain the ideal workplace environment;

- An internal grievance redress mechanism procedure will be established which include that:
- Internal grievance mechanism will provide a system for receiving and managing internal complaints of the workers in all types of the complaints,
- The GRM guarantees confidentiality to makers of complainants and an anonymous reporting mechanism,
- The GRM mechanism has a transparently shared procedure that clearly demonstrates its functioning from beginning to end,
- GRM is obliged to evaluate both the notifications by name and the anonymous notifications by evaluating them within the same principle and method,

In addition to these important regulations and obligations, the following arrangements will be made in the Project work site;

- Environmental arrangements such as toilets that will ensure the hygiene and privacy of women,
- Arrangements that will enable the disabled, women and disadvantaged groups to access and work in the workplace.

During the construction process of the Project, there will be accommodation areas for the workers in the camp established in Yenışehir and the Project camps to be established. Measures will be taken and implemented by the Project so that these areas do not have negative impacts on settlements and do not affect the local social, cultural and economic structure. In this context;

All contractors shall have to conduct an induction training to all their employees and the employees of all their sub-contractors. The induction training will focus but not limit to following items:

- health and safety regulations for on site and workers accommodation
- social aspect – rules and regulations on community relationship and workers' code of conduct

- environmental aspects – rules and regulations related to environmental protection measures
- HR aspects

In addition, through the whole Project, it's mandated for all employees, before each worker starts work on the site, induction packages that include:

- Employment rights and conditions, including non-discrimination and equal opportunity
- The Contractor's responsibility to adopt recruitment, hiring and retention practices that support the employment of women and staff from diverse backgrounds per the contract clause on Engagement of Staff and Labor,
- Using the internal Grievance Mechanism for all complaints,
- Cultural sensitivities, and social norms and practices in each area,
- Contractor's awareness training of responsibilities regarding to respect to the human rights,
- Zero-tolerance policy of the Project

6 HUMAN RIGHTS

A detailed human rights impact assessment report has been prepared. The following topics are covered in the HRIA report.

- Project related human right risks
- Risks relating to human trafficking
- Forced labour
- Risks related to child labor
- Common mitigation measures to be taken against human rights risks
- Risks relating to gender equality and discrimination
- Project opportunities
- Integration of the Grievance Redress Mechanism
- Internal (Worker) Grievance Management Process
- External Grievance Management Process
- Implementation plan

7 PROJECT OPPORTUNITIES

It is possible to categorize the Opportunities that will arise within the scope of the Project under the following headings:

- Developing Local Employment Opportunities and Labor Force
- Increasing Women's Employment and Developing Equal Working Conditions

7.1 Local Employment & Procurement

Job opportunities created by the Project in neighborhoods where the population living in rural areas and working in temporary agriculture and construction works is concentrated is considered as an important opportunity. Regarding to this issue, evaluation of the Zeytinli Mukhtar is important in terms of explaining the general situation. In this regard, the village headman of Zeytinli, whose majority of the village population is temporary agricultural and construction workers, has stated that; if workers are recruited from villages for job opportunities opened in unskilled works, many people will not have to go to temporary, precarious jobs in big cities. Therefore, even if the jobs in the Project are temporary, it will be an important source of income for the poor families living in here.

The following improvement actions will be implemented in order to improve the opportunities emerging within the scope of the Project and to develop the benefits of the Project.

7.1.1 Enhancement actions

Rönesans High-Speed Train Construction Project will improve its activities to increase local employment in the region where it operates.

It will be the primary objective for vulnerable groups and women, especially vulnerable groups affected by the project, to be aware of and access job and procurement opportunities in the project area of influence. Therefore, following enchantment activities will be implemented.

The following actions and measures will be implemented to achieve this goal:

- Job postings will be prepared using an anti-discrimination language, and recruitment processes will be carried out in a transparent and accountable manner.
- Local people and mukhtars affected by the project will be informed about employment opportunities and women will be encouraged to apply for job opportunities.
- Publish vacancies (listing the required qualifications for all categories of employment) within project-affected communities

- Ensure the exchange of information between Contractor and the local population on employment opportunities by visiting the mukhtars in the vicinity of the Project affected area,
- Publish and communicate employment opportunities listing the required qualifications for all categories of employment city-wide, via the related organizations and beyond in region, if the vacancies cannot be filled from local communities,
- Provide such information to the NGOs, organizations or institutions who are working on the labourforce, local human resources, vocational education or vulnerable groups,
- Define and ensure that a staff person responds to questions from the local population regarding employment and procurement opportunities,
- Proactively procure goods and services from local businesses and entrepreneurs in affected settlements and members of targeted disadvantaged groups,
- Publicizing procurements and employment opportunities within the targeted geographical area or targeted group, for example at the District and neighborhood offices and via notice boards, print media (newspapers, etc.), recruitment agencies, or job and career fairs,
- In disseminating information on potential service procurement opportunities, take steps to maximize outreach, using all forms of media that may be appropriate.

7.2 Developing and Strengthening the Labour Force

Developing and strengthening the workforce following the creation of local employment is another important objective within the scope of the Project.

On-the-job training will be implemented as one of the most important tools of the local human resources development process, which is one of the objectives of the Project.

The project will improve the qualifications and equipment of the unskilled or semi-skilled workforce who are employed for a short time or periodically, with on-the-job trainings to be given to the local workers and will enable them to gain an advantage in their participation in economic life in the next period.

In this context, on-the-job training will be given under the supervision and training of trainers who are experts in the project construction works.

Employees' skills in using machinery, equipment, tools and equipment will improve, and their experience and skills in their fields will increase.

In this context, it is aimed that the vulnerable groups, women and disadvantaged groups recruited to improve their skills and abilities while working in short-term unskilled jobs and leave the job empowered and equipped when leaving the job.

Rönesans High-Speed Train Construction Project will provide internship and apprenticeship opportunities to improve the skills of local people as a requirement of contributing to the social and economic development goal.

For this purpose, cooperation will be made with Technical and Vocational Education and Training Centers, employment offices or institutions and professional associations to provide apprenticeship or internship opportunities to graduates of technical and vocational subjects, graduates of related colleges and universities or graduate candidates.