

**CONNECTIVITY AND TRANSPORT SECTOR IMPROVEMENT PROJECT
REHABILITATION OF THE M-41 ROAD IN THE SURKHANDARYA REGION
(SECTION 1525-1622 KM)**

ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA)

CLIENT: THE COMMITTEE FOR ROADS OF THE REPUBLIC OF UZBEKISTAN

Date: February 2026

DOCUMENT INFORMATION

Project Name	Rehabilitation of the M-41 road in the Surkhandarya region (section 1525-1622)
Consultancy services	Consultancy services to prepare Environmental and Social Impact Assessment (ESIA) and Environmental and Social Management Plan (ESMP)
Document Title	Environmental and Social Impact Assessment (ESIA)
Client	Project Implementation Unit Committee for Roads (CAR) under the Ministry of Transport
Client Coordinator	Mr. Jahongir Karimov
Consultant	Al Mar Consulting
Project Manager	Mrs. Julia Alekseeva

ISSUE AND REVISION RECORD

Version	Version Date	Description	Author	Reviewed	Approved
1.0	04 November 2025	Draft ESIA	Various	Julia Alekseeva	Maria Malinovskaya
2.0	05 February 2026	Final ESIA	Various	Julia Alekseeva	Maria Malinovskaya

Disclaimer:

The Environmental and Social Assessment Report (ESIA) has been prepared by Al Mar Consulting. Whilst the information contained in the Report is reflective of the current status, Al Mar make no representation or warranty, express or implied, as to the accuracy of the information set forth in this Report, and accept no liability for any information that may have been misstated or omitted.

This report has been prepared exclusively for the WB, the Committee for Roads (CAR). The WB and CAR makes no representation or warranty, express or implied, as to the accuracy or completeness of the information set forth in this Report. The WB and CAR has not independently verified any of the information contained in this Report and accept no liability whatsoever for any information, misstatement or omission contained therein. The Report remains the WB and CAR's property.

LIST OF ABBREVIATIONS

AOI	Area of Influence
BMP	Biodiversity Management Plan
CAR	Committee for Roads under the Ministry of Transport
CC	Civil Code
CHO	cultural heritage objects
CIS	Commonwealth of Independent States
COM	Cabinet of Ministers of the Republic of Uzbekistan
CSC	Construction Supervision Consultant
E&S	Environmental and Social
EA	Executing Agency
EHS	Environment, Health and Safety
ESCP	Environmental and Social Commitment Plan
ESIA	Environmental and Social Impact Assessment
ESAP	Environmental and Social Action Plan
ESF	Environment and Social Framework
ESIA	Environmental and Social Impact Assessment
ESO	Environment Safety Officer
ESMP	Environmental and Social Management Plan
ESS	Environmental & Social Standards
FS	Feasibility Study
GBV	Gender-Based Violence
GAP	Gender Action Plan
GIIP	Good International Industry Practice
GoU	Government of Uzbekistan
GRM	Grievance Redress Mechanisms
HH	Household
IUCN	International Union for Conservation of Nature
KMK	Construction Norms and Rules
LC	Land Code
LMP	Labor Management Procedures
MEEPCC	Ministry of Ecology, Environmental Protection and Climate Change of the RUz
NEGU	National Electric Grid of Uzbekistan
OHS	Occupational Health and Safety
OHTL	Overhead transmission line
PA	Protected Area
PAP	Project Affected Person

PCM	Public Consultation Meeting
PDM	Public Disclosure Meeting
RAP	Resettlement Action Plans
RoW	Right of Way
RPF	Resettlement Policy Framework
SEA	Sexual Exploitation and Abuse
SEP	Stakeholder Engagement Plan
SH	Sexual Harassment
SoW	Scope of the Work
WBG	World Bank Group

DEFINITIONS OF NATIVE TERMS

Dehkan	Farmer in Uzbekistan
Khokimiyat	Local government authority that interfaces between local communities and the government at the regional and national level. It has ultimate administrative and legal authority over local populations residing within its jurisdiction.
Makhallya	It is a local level community-based organization recognized officially by the Government of Uzbekistan that serves as the interface between state and community and is responsible for facilitating a range of social support facilities and ensuring the internal social and cultural cohesiveness of its members. Mahalla leaders are elected by their local communities.
SanPiN	Abbreviation for Sanitary Regulations in Uzbekistan

Table of Contents

EXECUTIVE SUMMARY	10
1. INTRODUCTION	19
1.1. Background	19
1.2. Salient Project Features	19
1.3. Project proponent	20
1.4. Scope and Objective of ESIA Study	20
1.5. Methodology for ESIA Study	21
1.6. Structure of the ESIA report	22
1.7. Other Project Documentation	23
1.8. Project contact information	23
2. PROJECT DESCRIPTION	25
2.1. Project Rationale	25
2.2. Environmental Setting	27
2.3. Scope of Work	30
2.4. Stages of the project cycle	42
2.4.1. Pre-construction Phase	42
2.4.2. Construction Phase	44
2.4.3. Maintenance and Operation Phase	47
3. POLICY, LEGISLATIVE AND INSTITUTIONAL FRAMEWORK	48
3.1. Uzbekistan Regulatory Context	48
3.2. Environmental Regulator	49
3.3. National EIA Rules and Procedures	52
3.4. Other Relevant Environmental Laws	55
3.5. Key Environmental Laws	60
3.4.1. National EIA Rules and Procedures for tree cutting	62
3.6. Key Social Legislation	67
3.6.1. Land Rights, Acquisition and Resettlement	67
3.6.2. Right of Way (RoW) and Land Acquisition in Uzbekistan	68
3.6.3. Labour and Employment	69
3.6.4. Cultural Heritage	70
3.7. National Norms and Standards for Road Projects	72
3.8. Permits and Licenses	74
3.9. International Conventions and Agreements	76
3.10. Lender requirements	79
3.10.1. WB Policy	79
3.10.2. Applicable EU and Other Requirements	88
3.11. Project Categorization	89
3.11.1. WB Categorization	89
3.11.2. National Categorization	90
4. IMPACT ASSESSMENT METHODOLOGY	91
4.1. Introduction	91
4.1.1. Screening	92
4.1.2. Scoping	93
4.1.3. Baseline Studies and Research	93
4.1.4. Impact Assessment Significance Criteria	94
4.1.5. Management and Monitoring	99
4.1.6. Stateholder Engagement and Public Consultations	100

5. ENVIRONMENTAL AND SOCIAL BASELINE DATA	101
5.1. Defining the AOI	101
5.2. Physical baseline.....	101
5.2.1. Topography	101
5.2.2. Soils	102
5.2.3. Seismicity	103
5.2.4. Air quality	104
5.2.5. Climate	106
5.2.6. Climate Change Implications	108
5.2.7. Noise	109
5.2.8. Hydrology	111
5.3. Biological Baseline	115
5.3.1. Introduction	115
5.3.2. Protected and Designated Area Baseline	117
5.3.3. Habitat Baseline	120
5.3.4. Flora	123
5.3.5. Fauna	124
5.3.6. Critical Habitat Assessment Conclusions.....	127
5.4. Socio-economic baseline	128
5.4.1. Introduction	128
5.4.2. Demographics	129
5.4.3. Education	131
5.4.4. Language and ethnicity	132
5.4.5. Economy, Employment and Livelihoods	133
5.4.6. Land use, agriculture and natural resources	134
5.4.7. Poverty and equity	135
5.4.8. Labour and human rights	135
5.4.9. Community health and safety.....	137
5.4.10. Infrastructure and services.....	137
5.4.11. Cultural Heritage	143
5.4.12. Social infrastructure	146
5.4.13. Vulnerable groups	149
6. ANALYSIS OF ALTERNATIVES	153
6.1. "No-Project" Scenario.....	153
6.2. Project alternatives.....	154
6.3. Alternatives of pavement.....	156
7. ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES	158
7.1. Introduction.....	158
7.2. Impact Phases.....	158
7.3. Type of Impacts.....	159
7.4. Related to Assessment and Management of E&S risk and impact (ESS 1)	159
7.4.1. Cumulative Impact	159
7.5. Relating to Labor and Working Conditions (ESS 2)	160
7.5.1. Occupational Health and Safety.....	160
7.5.2. Labour and Working Accommodation	164
7.5.3. Emergency Response.....	167
7.6. Relating Resource Efficiency and Pollution Prevention and Management (ESS 3)	
169	
7.6.1. Geology & Soils.....	169
7.6.2. Air Quality.....	175
7.6.3. Hydrology	181
7.6.4. Geohazards.....	187

7.6.5.	Noise	189
7.6.6.	Vibration	193
7.7.	Related to Community Health and Safety (ESS 4).....	196
7.7.1.	Community health, safety and security	196
7.7.2.	Road safety	200
7.7.3.	Waste Management	206
7.7.4.	Traffic and transportation	209
7.8.	Related on land & assets (ESS 5).....	212
7.8.1.	Land acquisition and livelihood restoration impacts	212
7.8.2.	Socio-economic and gender aspects	216
7.9.	Relating to Bio-diversity & Living Natural Resources (ESS 6)	220
7.10.	Related on Impacts on Cultural Heritage (ESS 8)	224
7.10.1.	Cultural heritage	224
8.	STAKEHOLDER ENGAGEMENT AND PUBLIC CONSULTATION	227
8.1.	Introduction.....	227
8.2.	SEP objectives	227
8.3.	Mapping of Stakeholders.....	228
8.4.	Consultations at the ESIA stage.....	236
8.5.	Future Engagement Activities	245
8.6.	Field Social Survey and Consultations	Ошибка! Закладка не определена.
9.	GRIEVANCE MECHANISM	249
9.1.	Introduction.....	249
9.2.	Republic of Uzbekistan's Complaint Handling System.....	249
9.3.	Steps in Managing Grievance Mechanism	250
9.3.1.	Publicizing Grievance Management Procedures	250
9.3.2.	Submitting a Grievance	250
9.3.3.	Keeping Track of Grievances.....	250
9.3.4.	Reviewing and Investigating Grievances	251
9.3.5.	Acknowledge Grievance	252
9.3.6.	Assessing the Grievance	252
9.3.7.	Grievance Resolution Options and Response	252
9.3.8.	Sign-off on a Grievance	254
9.4.	Process Flow and Timeline	254
9.5.	GRM Levels.....	255
9.6.	Grievance Mechanism Contact Details	256
9.7.	Project Information Centre	257
10.	ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN.....	258
10.1.	Overview	258
10.2.	ESMP objectives.....	258
10.3.	Management Strategy	258
10.4.	Environmental and Social Monitoring Plan	259
10.5.	Training & Awareness.....	259
10.5.1.	Construction Phase Training.....	259
10.5.2.	Operation Phase	261
11.	CONCLUSIONS	262
11.1.	Stakeholder Engagement	262
11.2.	Key Environmental Issues	262
11.3.	Key Social Issues	263
ANNEX 1:	ESIA SCOPING.....	264
ANNEX 2:	RECORDS ON DISCLOSURE ACTIVITIES	269
ANNEX 2:	CHANCE FINDS PROCEDURES (CULTURAL HERITAGE).....	292

GLOSSARY

Term	Definitions
Area of Influence (AOI)	The area over which the impacts of the Project are likely to be felt including all its related or associated (where applicable) facilities such as the transmission line corridor, water and steam pipelines, access roads, borrow pits, accommodation facilities (where required) as well as any reasonably foreseen unplanned developments induced by the Project or cumulative impacts.
Associated facilities	New facilities or activities that are not funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.
Baseline surveys	Gathering of data to describe the existing physical, biological, and socioeconomic, health, labour, cultural heritage, or any other variable considered relevant before project development.
Biodiversity	Variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are a part; this includes diversity within species, between species, and of ecosystems.
Consultation	Consultation is a two-way process of dialogue between the project company and its stakeholders. Stakeholder consultation is about initiating and sustaining constructive external relationships over time.
Critical habitat	Either modified or natural habitats supporting high biodiversity value (most sensitive biodiversity features), such as habitat required for the survival of critically endangered or endangered species.
Cultural heritage	Defined as resources with which people identify as a reflection and expression of their constantly evolving values, beliefs, knowledge and traditions.
Cumulative impacts	The combination of multiple impacts arising from past, existing and/or anticipated future projects or activities.
Ecosystem	The interacting system of a biological community and its non-living environmental surroundings.
Effluent	Wastewater - treated or untreated- that flows out of a treatment plant, sewer, or industrial outfall.
Emission	Pollution discharged into the atmosphere from smokestacks, other vents, and surface areas of commercial or industrial facilities; from residential chimneys; and from motor vehicle, locomotive, or aircraft exhausts.
Environmental, Health, and Safety Guidelines (ESHG)	The Environmental, Health, and Safety (EHS) Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice (GIIP) and are referred to in the World Bank's Environmental and Social Framework and in IFC's Performance Standards. The General EHS Guidelines contain information on cross-cutting environmental, health, and safety issues potentially applicable to all industry sectors.
Environmental and Social Impact Assessment (ESIA)	A forward-looking instrument that can proactively advise decision-makers on what might happen if a proposed activity is implemented. Impacts are changes that have environmental, political, economic, or social significance to society. Impacts may be positive or negative and may affect the environment, communities, human health and well-being, desired sustainability objectives, or a combination of these.
Environmental and Social Management	Summarises the company's commitments to address and mitigate risks and impacts identified as part of the ESIA, through avoidance, minimization, and compensation/offset, and monitor these mitigation measures.

Plan (ESMP)	
Environmental and social management system (ESMS)	Part of a project's overall management system that includes the organizational structure, responsibilities, practices and resources necessary for implementing the project-specific management program developed through the environmental and social assessment of the project.
Greenhouse gases	The following six gases or class of gases: carbon dioxide (CO ₂), nitrous oxide (N ₂ O), methane (CH ₄), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF ₆).
Grievance mechanism	Procedure provided by a project to receive and facilitate resolution of affected communities' concerns and grievances about the project's environmental and social performance.
Habitat	Terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment.
Hazardous waste	By-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed. Substances classified as hazardous wastes possess at least one of four characteristics-ignitability, corrosivity, reactivity, or toxicity - or appear on special lists.
Information disclosure	Disclosure means making information accessible to interested and affected parties (stakeholders). Communicating information in a manner that is understandable to stakeholders is an important first and ongoing step in the process of stakeholder engagement. Information should be disclosed in advance of all other engagement activities, from consultation and informed participation to negotiation and resolution of grievances. This will make engagement more constructive.
Land acquisition	All methods of obtaining land for project purposes, which may include outright purchase, expropriation of property and acquisition of access rights, such as easements or rights of way.
Occupational health and safety	The range of endeavours aimed at protecting workers from injury or illness associated with exposure to hazards in the workplace or while working.
Project affected people	Individuals, workers, groups or local communities which are or could be affected by the project, directly or indirectly, including through cumulative impacts.
Sensitivity	The sensitivity of a receptor is determined based on the review of the population (including proximity / numbers / vulnerability), presence of biological features of the site and the surrounding area, soil, agricultural suitability, geology and geomorphology, proximity of aquifers and watercourses, existing air quality, presence of any archaeological features etc.
Significance	Significance of impact considers the interaction between the magnitude and sensitivity criteria.
Solid waste	Material with low liquid content, sometimes hazardous. Include municipal garbage, industrial and commercial waste, sewage sludge, wastes resulting from agricultural and animal husbandry operations and other connected activities, demolition wastes and mining residues.
Stakeholders	Stakeholders are persons or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project or the ability to influence its outcome, either positively or negatively.
World Bank Group EHS Guidelines	Technical reference documents for environmental protection and set out industry-specific examples of 'international good practice'. Projects are expected to comply with the levels and measures identified in the General EHS Guidelines where host country requirements are less stringent or do not exist.

In Phase 1, the Project will invest in the Uzbekistan section of the existing highway road M-41 (section 1444-1618 km). M-41 as an integral part of the Uzbek national highway system, forms part of the east-west transport corridor, allowing effective integration into the international transport system in the northern and north-western direction to the CIS countries (Tajikistan, Kyrgyzstan) and Europe, in the southwestern and southern direction - to the ports of the Persian Gulf and the Black Sea.

Legal and technical basis for ESIA: For legal aspects, the work during reconstruction and operation must follow the Uzbekistan laws and the World Bank's Environment and Social Framework (ESF).

The objective of environmental and social safeguards is to prevent and mitigate undue harm to people and their environment in the development process. ESF ESSs are the corner-stone of assistance provided to developing countries by their development partners. The policies provide guidelines for donors and borrowers in the identification, preparation, and implementation of programs and projects. The following safeguards requirements were considered during implementation of the ESIA.

For legal aspects, the work during reconstruction and operation will follow the Uzbekistan laws and the World Bank's Environment and Social Framework 2018 (ESF). According to both Uzbek Environmental Protection laws and regulations and the World Bank's *ESS1: Assessment and Management of Environmental and Social Risks and Impacts*, the proposed project is rated as "Substantial," with both environmental and social risks individually rated as substantial. This classification is justified by the widening and extensive new ("greenfield") road sections planned under the project. Also the alignment will run through a variety of areas with safeguards implications that warrant careful investigation and analysis, including that of alternatives: (i) in zones of intense agricultural use existing irrigation systems will have to be preserved, (ii) where the road would cross rangeland under use for animal husbandry animal underpasses will have to be planned to guarantee the safety of drivers and animals, (iii) some sections were routed to avoid protected areas and minimizing the impact on trees, (iv) routing and design was optimized to minimize disruptions and alterations of the surface water network.

The environmental and social standards (ESS) applied to the project are as follows: ESS 1: Assess and manage environmental and social risks and impacts; ESS10: Participation of stakeholders and information disclosure; ESS2: Labor and working conditions; ESS3: Effective use of resources and pollution prevention and management; ESS4: Health and community safety; ESS5: Land acquisition, restrictions on land use and involuntary resettlement; ESS6: Conservation of biodiversity and sustainable management of living natural resources; ESS8: Cultural heritage and ESS 10: Stakeholder Engagement. The Environmental and Social Impact Assessment (ESIA) document is prepared according to ESF.

To satisfy the statutory requirements of the Republic of Uzbekistan, a separate national Environmental Impact Assessment (OVOS) report was developed concurrently with the international ESIA report. The ZVOS has been prepared by Design Institute O'zyo'lloyiha and a positive Conclusion of the State Environmental Expertise of the Republic of Uzbekistan No. 01-02/01-4388 dated 15 May, 2025 was obtained.

Social and Environmental Bases: The baseline environmental and social data were collected through research, field visits and public consultations.

The baseline conditions allow assessment of the project impacts and their significance by comparing the existing situation with the predicted situation (affected by the project impacts).

The baseline data includes: climate, surface and groundwater quality, soil, topography, noise and vibration levels, air quality, traffic, biodiversity, socio-economic characteristics, cultural properties.

The highway crosses the bed of the Surkhandarya River and several large tributaries, as well as numerous artificial irrigation and drainage collectors, and at the intersections with them it is planned to replace or lengthen pipes, and upgrade portals of water culverts. The Surkhandarya River valley is actively developed, therefore the road passes by irrigated lands where grain, oilseeds, technical crops are cultivated, orchards and vineyards are not rare, crosses numerous settlements and urban development. The road runs through the territory of about 24 settlements, including the district centers, the cities of Termez, Kumkurgan and Dzarkurgan.

Frequent alternation of settlements and agricultural lands along the road with a dense distribution network of irrigation ditches and collectors, which requires regulation of speed limits and safe crossings.

Demolition of buildings and structures along the entire length of the road will be carried out in the projected amount of 42 units, including 7 units of residential buildings and 35 units of non-residential buildings.

Consultations with organisations in charge of cultural and archaeological heritage did not reveal any archaeological sites between project districts that has national as well as local importance.

The air quality in the project area is good. There are no significant sources of air pollution other than traffic emissions. The hourly noise levels do not exceed 55 dB. The groundwater level is 50-75m deep and it is brackish. Clearing of the RoW would imply removal of topsoil as well as cutting of shrubs and trees. Natural hazards do not pose a key risk in the project area.

The entire project corridor shows anthropogenic impact in forms of animal husbandry, agriculture, settlements or infrastructure and transport corridors. There will be no significant conversion of pristine, untouched habitats under the project. There will be no conversion of pristine, untouched habitats under the project. However, settlements close to the alignment may require installation of noise protection screens.

Environmental and Social Impacts and Risks:

Assessment and Management of Environmental and Social Risks and Impacts (ESS -1):

The extension and improvement works of project road will be majorly carried out within the existing ROW. There will be land acquisition mainly for construction site establishments and road widening works which will lead to physical and economic displacement of titleholders as well as non-titleholders (encroachers/ informal settlers) along the RoW. Tree cutting and habitat disturbance are assessed to have substantial to high risks and impacts that are largely construction related and short-term. Other impacts during construction include increased traffic flow and traffic-related accidents and social issues related to increased labor influx, gender-based violence and child labor, blockage of natural drainage, runoff water, siltation, pollution of water resources and soil.

Construction works are planned to be carried out in two project sections (Lot 1 – 1570-1622 km and Lot – 1252-1570 km). At each reconstruction site, separate construction teams and construction bases will be organized with storage facilities for construction materials, a garage and a fueling area for road equipment and machinery. The works will be carried out

progressively, first on the right and then - on the left side of the road to keep the traffic on the free side. Temporary bypasses will be required if necessary.

Borrow pits will be operated by the Contractors only at locations that have been pre-identified before project implementation and for which both operational and environmental permits have been obtained. No borrow pit will be operated without a construction ESMP that will contain a plan for its closure, remediation and recultivation that will be approved by the local environmental authorities (as required under Uzbek regulations) as well as the supervising engineer (who will ensure that international good practice is followed).

The improvements of project road is also assessed to have no significant cumulative impacts as works are mainly confined within the existing ROW and in an area that has already been altered, fragmented and highly disturbed for many decades as a result of human population growth, encroachment and establishment of new settlements along the highway, land transformation, agriculture development and other associated development.

Labour and Working Conditions (ESS-2):

This project will employ direct, contracted and primary supply workers who might be exposed to risks such as inadequate accommodation; non-payment of wages; non-payment of benefits, discrimination at employment, child labour, forced labour, human trafficking, Occupational Health and Safety (OHS) issues including workplace accident and work related diseases, communicable diseases including Sexually Transmitted Infections (STIs), grievances related to workers and GBV. The contracted workers are more susceptible to such risks.

Resource Efficiency and Pollution Prevention Management (ESS-3):

ESS-3 covers 6 generic risks and impacts such as landscape aesthetic, air and noise pollution, potential hazards and solid waste management, and pollution of water sources. The project's impacts and risk would be of significance on sensitive receptors due muck disposal; slope stability and erosion; blocking or filling of irrigation/drainage canals and seasonal streams; construction water demand; increase in GHGs emission due to felling of trees; stressing water sources used by community; emission from construction vehicles, equipment and plants; dust from earth works, hill cutting, stack yard, transportation of materials, noise pollution and settlements along road; damage to structure vibration from movement of machine and equipment (structure on embankment); handling of hazardous and non-hazardous wastes and impacts from quarrying and borrowing activities.

Noise and exhaust emissions will be minimized by the requirement for Contractors to use modern equipment and machinery complying with modern emission standards, and to maintain the equipment in good working order throughout the project. This will be prescribed in the equipment specifications in the tender documents. Nuisance to the public will moreover be minimized by limiting work hours and not allowing nighttime works. Where works are carried out in close vicinity to residential areas additional measures, such as noise barriers or the installation of insulating windows will be implemented in accordance with good practice and in consultation with the community.

Most impacts during the construction period will be mitigated by good construction practices and record keeping measures. There will be standard procedures for the control and mitigation of emissions, such as dust, noise, exhaust fumes and liquid discharges and the road platform. Groundwater is not expected to be impacted by the project, as no deep excavations or major cuts are expected. Water for the construction activities will be extracted in relatively small quantities from existing canals or the public supply system. Generally water availability is unconstrained in the project area.

All these impacts are more prominent during construction stage and can be managed through specific measures described in the mitigation chapter according to national standards for air, noise and water quality as well as through best practices applicable to road construction projects. All these impacts are prominent during construction stage of road upgrading.

Community Health and Safety (ESS-4):

From the socio-economic perspective, both the construction and maintenance phases are expected to have positive impacts on the communities living near the area. Transportation will be significantly enhanced which will facilitate movement of local agricultural production to markets. Additionally, the anticipated increase in through-traffic resulting from reconstruction of existing M-41 road will create new business and vending opportunities for local residents, improving livelihood opportunities.

Transporting construction materials will cause nuisance to community. The project activities such as hill cutting, road excavation, and use of vibratory equipment might result in dust pollution. The stockpiling of construction materials, debris generated during construction will disturb the landscape and cultivated lands and contaminate the water bodies. Impact upon existing traffic is likely with the construction activities and plying of construction vehicle, storage of construction materials close to the existing highway. Traffic congestion, idling of vehicles and emission from vehicular movement during construction time may cause disturbance to nearby schools, health centres/hospitals and nearby communities. Due to the migrant workers; there is risk in labor influx, spread in communicable diseases and HIV/AIDs. There may be high chance on competition on resources (public utilities and social service facilities), distress to local people and can result conflict between community and outsiders. Due to the continuous movement of outsiders at the project area, there may be increase in gender-based violence.

Land Acquisition, Restrictions of Land Use and Involuntary Resettlement (ESS 5):

M41 road upgrading works will involve land acquisition related to road widening and physical and economic displacement along the RoW due to some encroachments that have taken place and increased over the years. There will be impacts on public and private structures within the RoW. Land acquisition requirements and risks and impacts related to it will be assessed in greater detail during the RAP preparation based on detailed design of M41 road.

The proposed project entails land acquisition and associated impacts, as is to be expected significant in a highway project with 97-km of road alignment. Total permanent land acquisition with road side infrastructure for the road rehabilitation and 4 laning will be about 54,94 ha in Kumkurgan, Dzarkurgan, Termez districts.

There are no natural forest lands along the entire RoW. There are, however, trees along existing roads which intersect the RoW. A program for essential tree cutting to implement the Project should be developed with and approved by the Surkhandarya MEEPCC regional office. A total of 3 303 trees will be impacted. Compensation (in some cases replanting, where possible) for the commercial value of the trees cut should be paid. Preliminary inventory was done by Design Institute. Total quantity of low valuable trees is 226 and valuable trees - 3077.

Table 1: Preliminary resettlement impacts

District	Tree cutting (pcs)		Demolition of buildings			Land	
	Low-value	Valuable	Residential	Non-residential	Business	Agricultural land, (HA)	Non-agricultural land, (HA)
Termez	32	575	-	-	1	0	0,01

District	Tree cutting (pcs)		Demolition of buildings			Land	
	Low-value	Valuable	Residential	Non-residential	Business	Agricultural land, (HA)	Non-agricultural land, (HA)
Djharkurgan	175	2379	4	2	26	53,29	0,63
Kumkurgan	19	123		1	9	0	0,07
TOTAL	226	3077	4	3	36	53,29	0,71

Due to loss of private property and assets (land and housing structures including trade structures), individuals, households (HHs) and businesses are likely to be economically displaced requiring compensation and restoration of livelihoods. Likewise, numbers of micro and small business entrepreneurs along the M-41 road alignment are also likely to be economically displaced losing livelihoods through upgrading works. Both title and non tile holders will receive compensation.

Impacts on land and assets arising pre-construction stage activities will require to be addressing and mitigated through a mix of measures of compensation, assistance and relocation arrangements. For this purpose, a Resettlement Action Plan (RAP) will be developed that will contain details of such mitigation provisions. All losses (private and public assets) will be compensated at replacement costs as per RAP.

Biodiversity Conservation and Sustainable Management of Living Natural Resources (ESS-6):

The habitat in the ROW and in surrounding areas of the M41 road is already fragmented and anthropogenic pressure on the area is very much prevalent. A critical habitat screening conducted as part of the ESIA indicated that there are no critical habitats within the ROW and within the Direct Impact Area (DIA) of the project. Although vegetation clearing along RoW and bridges upgrading will impact on aquatic habitats, however the impact is expected to be moderate only. Significant removal of 3 303 trees within RoW will be required. There are no protected areas, wildlife corridors and other environmentally-sensitive habitats needing protection within the ROW and in DIA. However, the project will apply measures such as speed limit, especially at night time. The impact on wildlife and other living resources may occur during construction period, disturbance and poaching of wild animals by the project workers.

Indigenous People (ESS-7):

This ESS will identify the measures to minimize disruption of the livelihoods due to the project development. Currently no Indigenous person has been identified.

Cultural Heritage (ESS-8):

There are no any impact and risk on tangible and intangible heritage by project intervention. The alignment of project road does not have any ancient monuments and tangible religious, cultural, historical and archaeological sites. Similarly, the cultural heritages, such as religious and cultural practices, languages, religions, values and norms of IPs community will not be affected. Consultations with organisations in charge of cultural and archaeological heritage didn't reveal any archaeological sites in project districts that has national as well as local importance. No internationally recognised or legally protected cultural heritage areas have been identified. However, one cemetery was observed along the Project site, which will need for land acquisition. According to FS, the road will be widened right up to the cemetery fence. The fence will need to be moved several meters. It will not require reburial of graves located on impacted land. Chance find procedures will be incorporated in the ESMP, and chance

find clauses will also be incorporated in work contracts requiring contractors to stop construction.

Financial Intermediary (ESS 9):

Since no financial intermediary is involved in this project, ESS 9 is not applicable.

Stakeholder engagement and Information Disclosure (ESS 10):

The Bank policies require that broad and open public consultations be held with PAPs on the project. Ideally, these consultations would commence prior to the launch of project so project affected peoples (PAPs) are provided with the opportunity to engage in the planning process, to raise questions and receive input and responses to their concerns, and so any PAPs likely to be adversely affected by project activities are informed in advance of their rights to mitigation and/or compensation.

Public consultation/meetings/hearings were held in October 2025. The objectives of the Disclosure Period are to solicit the feedback from the Project stakeholders (including the PAPs) on the Project impacts and proposed mitigation measures provided in the ESIA as well as the overall approach of the process to secure the land. Where required, necessary changes will be made to the Draft ESIA and to related documents during their finalization to reflect the comments received during the disclosure. The issues raised during the consultations were land acquisition and compensation, loss of private and public structure, safety measure throughout the alignment, impact on public utilities, construction of embankment, river training and drainage management.

Additional public hearings and consultation of stakeholder will be conducted in 30-31 October 2025 on the ESIA/ESMP inviting the affected people and local communities along the road section during detailed RAP preparation. Hence, upon completion of the update of the ESIA/EMP (and after Bank clearance), the document (ESIA/EMP) will have to be disclosed and public consultations organized. More informal consultation and disclosure will be done during implementation through:

- ❖ The preparation and dissemination of a brochure in Uzbek and Russian, explaining the project , works required and anticipated timing of the works; and
- ❖ Setting up a formal grievance redress committee with a representation from the affected people. The Project Supervision Consultant in association with the Contractor will be responsible for managing the effective grievance redress program.

Mitigation measures: The required mitigation measures for each of the environmental impacts and any adverse socio-economic impacts that arise have been considered. Furthermore, a complete monitoring and auditing system were suggested for each environmental parameter in order to sustain the environmental situation in the area of the projects. These measures should significantly reduce the identified potential minor impacts.

The mitigation measures address the environmental and social impacts of the project. They include:

- ❖ Avoid noisy operations at the night;
 - ❖ Apply road watering during reconstruction works and after heavy movements;
 - ❖ Maintain vehicles and machinery in good condition to minimize gas emissions and noise;
 - ❖ Avoid bitumen melting activities in open spaces;
 - ❖ Ensure that reconstruction preparations are located away from populated areas;
 - ❖ Clear and clean underpasses for animal crossings;
 - ❖ Minimize waste generation;
 - ❖ General and construction waste must be stored in areas agreed with local communities and disposed of in the approved disposal sites;
-

- ❖ Refuse containers must be located at each worksite, and
- ❖ Establishment and operation of a citizens' Grievance Redress Mechanism (GRM). Any emerging adverse socio-economic impacts of the project can be channeled by the public to this GRM for discussion, resolution and, if appropriate, mitigation.

The main environmental impact from the point of view of Project Developer is the impact on trees and shrubs (deforestation caused by the project). The proper mitigation measures were identified and explained, and the coordination was made with the official partners and stakeholders for safe and proper management and disposal of these items.

The proposed mitigation measures are affordable and practical. They will ensure a minimum impact on the environment as it was recorded in the field visits to the sites and meetings with the local population. The proposed measures reflect the expectations of the local communities obtained during the public consultation process.

Environmental and Social Management Plan (ESMP): An Environmental and Social Management Plan (ESMP) applying the mitigation hierarchy has been prepared to manage Project's environmental and social risks and impacts. It includes mitigation measures, monitoring plan, capacity building, responsibilities and reporting system and environmental and social costs. In addition, the ESMP provides measures to address GBV issue at project level.

A detailed Environmental and Social Management Plan (ESMP) addressing all issues identified in the ESIA (i) organizes all measures to mitigate environmental impacts during the construction and operation; and (ii) establishes an organizational structure, procedures, institutional responsibilities for implementation, and a budget and source of financing for each activity. Main components of the ESMP are:

- ❖ **Environmental protection measures in design stage:** mitigation measures have been incorporated in project design: alignment selection, slope stabilization, noise reduction, landscaping, and special attention to protect irrigating system.
- ❖ **Environmental protection measures during construction:** these include: additional surveys and test excavations for cultural resources, environmental specifications for construction, camp management, restoration of affected areas, access roads and borrow pits, and environmental supervision of construction.
- ❖ **Environmental protection measures during operation:** mainly monitoring programs.

Comprehensive environmental monitoring programs have been designed for both construction and operation phases. Monitoring includes water quality, noise, construction dust and noise, as well as soil erosion and vegetation restoration. The PIU will be in charge of environmental monitoring during the construction and the operation phase.

The estimated cost for environment management covers both the capital cost and recurring cost, including monitoring costs. Most mitigation measures have been included in project design and hence are part of Bill of Quantities. This estimate does not include the cost of all mitigation measures that are included in project design, the management of construction activities (camp, disposal sites, dust, traffic control, etc.), and the restoration of construction affected areas.

Finding, Recommendation and Conclusions: The project will have a number of important environmental impacts during reconstruction and operation periods. With appropriate mitigation, particularly during the construction phase of the project, none of the impacts referred to in this report will be significant.

It should be pointed out that the road will bring numerous social and economic benefits to the communities within the area. A fast, safe and all weather road will allow the efficient and rapid movement of goods in the northern and north-western direction to the CIS countries (Tajikistan, Kyrgyzstan) and Europe, in the southwestern and southern direction - to the ports of the Persian Gulf and the Black Sea. Agricultural produce from the area, which is a major employment sector and a significant part of the local economy can be transported rapidly to a wider market. On a regional basis the larger communities along the alignment Kumkurgan, Dzarkurgan, Termez districts and the city of Termez, Surkhandarya region will benefit from faster travel times between the towns and to other urban centers in southeast of Uzbekistan.

The following recommendations result from the ESIA:

- ❖ The original design of the rehabilitated road should not deviate from the existing road alignment other than the improvement of the existing road alignment as and where applicable;
- ❖ Design documents for construction should make full provisions for the incorporation of the various mitigation measures and budget as described;
- ❖ Contract documentation shall include appropriate clauses to cover all of the environmental protection requirements as listed in Chapter 7. Construction material (gravel and sand) should only be taken from licensed borrow pits. Surplus or spoil materials should be disposed in an environmental friendly way.

1. INTRODUCTION

1.1. BACKGROUND

The Connectivity and Transport Sector Improvement Project is closely aligned with the World Bank Group's Country Partnership Framework (CPF) for Uzbekistan for FY22-26. The Project aims to enhance existing road infrastructure and create conditions for further transport sector reforms. Subcomponent 1.1. M-41 Regional Road Corridor Reconstruction and Supervision will finance the reconstruction of 97km of the M-41 Bishkek-Dushanbe-Termez corridor (section 1525-1622) road into a four-lane, climate-resilient highway, including enhanced drainage, pavement, and embankment protection. Also supports construction of parking facilities with charging stations and other amenities. Half of the corridor will be maintained under a multi-year performance-based contract (PBC).

The objectives of the Project are multiple and include improving the resilience of the local road network to climate change (by actively pursuing climate change mitigation, climate change adaptation and other environmental benefits), optimising opportunities to provide positive impacts on the local economy and communities (by improving connectivity - reducing travel times, lowering road user costs, enabling increased domestic trade and contributing to job creation in the region), optimising opportunities to improve road safety for all users and adhering to technical standards including Presidential Decrees of Uzbekistan.

The Committee for Roads under the Ministry of Transport (CAR) has appointed Al Mar Consulting Ltd. (Al Mar) to perform Environmental and Social Impact Assessment (ESIA) for the Phase-1, section km 1525-1622 (Lot 1 – 1570-1622km and Lot 2 – 1525 – 1570km) following World Bank's Environment and Social Framework 2018. The Project has already been subject to a separate national Environmental Impact Assessment (Stage 1 national EIA) in accordance with Uzbekistan legal and permitting requirements.

1.2. SALIENT PROJECT FEATURES

M-41 is the Bishkek-Dushanbe-Termez highway, passing through Central Asia in mountainous areas through the territory of Uzbekistan, Tajikistan and Kyrgyzstan. The road connects the cities of Termez, Dushanbe, Khorog, Osh, passes through the Pamir and includes the Pamir tract. M-41 road serves as an important trade route connecting the eastern part of Central Asia (Kyrgyzstan, Tajikistan and one part of Uzbekistan) with Afghanistan, Pakistani ports and Turkmenistan.

The section 1525 and 1622 km of the M-41 road crosses five roads and adjoins 236 roads, 15 of which are national roads. Specifically, the highway connects with 4P100, 4P103, 4P101, M39 roads, and others and leads to Termez International Airport. At 1608 km, the road intersects with the M39A road and reaches the Hairaton Bridge over the Amu Darya River with access to Afghanistan and further to the ports of Pakistan and Iran.

Within the Project M-41 Regional Road Corridor Reconstruction (Section 1525-1622 km), it is planned to expand the M-41 road on the section km 1525-1622 into a four-lane highway by reconstructing the existing two traffic lanes and constructing two additional lanes of the highway with the installation of a cement concrete pavement.

More than half of the Project Road passes through settlements, with the remaining part passing through rural areas. The major interventions and activities proposed to be taken up under the project is as below:



- ❖ Construction and reconstruction of 90.218 km long Category 1-6 road with a cement concrete pavement (reduction of the length of the section from 97 km (design section according to the FS) to 90.218 km is explained by the fact that the road is reduced by about 3 km as a result of the arrangement of the road bypassing Djharkurgan city, as well as the fact that about 4 km of the road have already been reconstructed as part of another project);
- ❖ Construction of 4 bridges and reconstruction of 12 bridges;
- ❖ Construction of 6 overpasses;
- ❖ Construction of 14 elevated pedestrian crossings;
- ❖ Construction of 163 culverts;
- ❖ Construction of 6 interchanges;
- ❖ Construction of 236 ramps (junctions);
- ❖ Construction of 2 railway crossings;
- ❖ Installation of 106 bus stops;
- ❖ Installation of 60 traffic lights;
- ❖ Installation of 2,981 road signs, road markings, etc.

1.3. PROJECT PROPONENT

The project initiator is the Committee for Roads (CAR) under the Ministry of Transport of the Republic of Uzbekistan. The sources of financing for the project include funds from the World Bank (WB) and funds from the state budget of the Republic of Uzbekistan.

The M-41 road reconstruction will be coordinated by the Committee for Roads. CAR will act as the Project Implementation Union (PIU) in charge of the day-to-day project implementation. The current PIU has experience managing a World Bank financed project and is staffed by a director, component coordinators, and procurement and financial management specialists among others.

1.4. SCOPE AND OBJECTIVE OF ESIA STUDY

The scope of the ESIA was determined initially by the Terms of Reference (ToR) for the ESIA (prepared by WB) and then crystalized by a scoping exercise undertaken during the Project scoping phase. The main objective of ESIA is to identify and assess both Environmental and Social (E&S) risks and impacts of the proposed road upgrading and prepare risks and impacts management plans to be applied throughout the project life cycle in accordance with the national and World Bank's Environment and Social Framework 2018 requirements.

The E&S Scoping matrix (see Annex 1 **Ошибка! Источник ссылки не найден.**) provides the initial project level scoping to identify the key significant project impacts resulting from the various project aspects based on the requirements of the ToR / Scoping and lessons learned.

This Environmental and Social Impact Assessment (ESIA) is part of the process of compliance with the World Bank's Environment and Social Framework in relation to the Project.

The ESIA is prepared to:

- ❖ Assess the baseline condition of the project area;
 - ❖ Identify the likely key environmental and social impacts associated with project implementaion;
 - ❖ Describe the methodology and approach to be used in assessing impacts;
 - ❖ Document legislative requirements of Uzbekistan for this type of project.
 - ❖ Suggest mitigation measures to address the identified impacts;
-

- ❖ Developing an Environmental and Social Management Plan (ESMP) to implement suggested mitigation measures to minimise adverse impacts through effective management systems including formulation of monitoring and reporting requirements.

Major tasks to be taken up as part of ESIA study is as below:

- ❖ **Task 1** – Prepare Environmental and Social Impact Assessment (ESIA);
- ❖ **Task 2** – Prepare Environment and Social Management Plan (ESMP);
- ❖ **Task 3** – Prepare Labor Management Procedures (LMP);
- ❖ **Task 4** – Prepare a Stakeholder Engagement Plan (SEP);
- ❖ **Task 5** – Prepare a Resettlement Policy Framework (RPF) / Resettlement Action Plan (RAP);
- ❖ **Task 6** – Prepare a Gender Action Plan (GAP).

1.5. METHODOLOGY FOR ESIA STUDY

The overarching ESIA methodology is based on the requirements of the WB ESSs and the joint experience of the environmental and social consultants involved in the ESIA.

Background data and information was obtained from published and unpublished sources, e.g., on climate, topography, geology and soils, natural resources, agriculture, and socio-economic data.

Several site inspections were conducted by the Project team during 2025. The existing road was driven along, and areas of potential environmental and social risks assessed carefully. Further, existing documents relating to the project have been reviewed, e.g., feasibility study to help understand the project context.

In preparation of this ESIA, the existing and forecasted environmental conditions in the area of excavation and concrete works were analyzed along 97 km of roadway.

In order to achieve the objective, the current state of the environment was analyzed, existing priority problem areas along the route were identified from the point of view of road construction - the nature and degree of disturbance of the roadside along the roadbed. The existing condition of soil and biocenoses, which will experience major disturbance of structure and integrity during construction, was assessed.

In order to identify the types of impacts, the design solutions of the prospective traffic flow structure, types and morphometric indicators of the roadway, types and number of engineering structures, overpasses, bridges, culverts and drainage pipes that will act as sources of impacts were analyzed. Based on the analysis of their technical characteristics, the types of physical and chemical impact on the elements of the environment were identified, and the vertical and horizontal boundaries of impact in individual elements of the environment were determined.

Socio-economic data was collected through key informant interviews, direct observation and collection of primary sources of data. Formal discussions were held with a number of stakeholders (see Section 8) in order to determine their perceptions of the level of impact from road works. Data and information obtained have been included where appropriate in the ESIA Report, and also as Appendices to this report.

Road construction will have both, negative (such as dust, noise, loss of livelihood, land acquisition etc.) and positive impact (temporary employment, supporting small businesses) from social point of view. Impacts during construction will be limited to duration of construction works, mainly reversible and local.

In this context resettlement and land acquisition issues shall be considered separately. Issues related to the involuntary resettlement, including land acquisition, will be covered under the Resettlement Action Plan (RAP). Resettlement action plan will be submitted as a separate document. Brief summary of results will be included in the final version of the ESIA document (Section 7.8).

A Socio-economic profile of the AOI were developed through the conduction of a sample socio-economic survey of households in the AOI communities in October 2025 during detailed RAP preparation. Socio-economic profile of the AOI were incorporated in ESIA after socio-economic survey.

To determine the predicted state of the environment along the highway, the nature of impacts was analyzed to identify the scale, intensity and extent of changes in the environmental elements of the surrounding landscapes, especially vulnerable during construction and operation of the highway.

The impact assessment took into account the engineering and geological conditions of the territory, the scope of construction works, which causes temporary air pollution, soil disturbance and construction waste generation.

An analysis of the accident rate of the route was carried out at certain sections of the route, in particular at the intersection of floodplain and riverbed landscapes, along the route of residential settlements, in the central part of urban development, taking into account the frequency of intersection with transport and other communications.

The results of hydrological and engineering-geological surveys provided by the customer were analyzed to assess the impact on the soils and cross-section of the collector.

Formal discussions were held with numerous stakeholders (see Chapter 8) to determine their perceptions of the level of impact from road works. Data and information obtained have been included where appropriate in the ESIA Report, and as Appendices to this report. A full description of the ESIA methodology is included in Chapter 4 of this report.

1.6. STRUCTURE OF THE ESIA REPORT

The report is organized as follows:

Chapter 1: Introduction - The section in hand provides the introductory information.

Chapter 2: Project Description - Chapter 2 describes the Category of the Project, the Project need, and its environmental and social setting. A summary scope of works is also provided indicating the type of engineering works required.

Chapter 3: Policy, Legislative and Institutional Framework - This section presents an overview of the policy/legislative framework as well as the environmental standards of Uzbekistan that apply to the proposed project. The section also identifies relevant WB ESSs.

Chapter 4: Impact Assessment Methodology - This section of the report provides an outline of the methodology used to complete the report including the impact assessment methodology, i.e., the method to define the significance of impacts.

Chapter 5: Environmental and Social Baseline Data - This section of the report discusses the regional and local environmental and social baseline conditions. This section is divided into subsections relating to physical environment, biological environment, and socioeconomic conditions.



Chapter 6: Environmental and Social Impacts and Mitigation Measures - Chapter 6 outlines likely impacts caused on various environmental and social parameters by activities proposed during pre-construction, construction and operation stage of the project corridor were recorded for which suitable mitigation & enhancement measures were suggested to overcome the project direct or indirect impact and restore the existing environmental condition to the prevalent natural level. For the identified Environmental Impacts, suitable management/ mitigation measures are provided to minimise the impacts.

Chapter 7: Analysis of Alternatives - Depicts the possible alternate options adopted in minimising the Environmental and Social Impacts for the project implementation.

Chapter 8: Stakeholder Engagement and Public Consultation - Chapter 8 provides a summary of all the stakeholder consultation activities undertaken.

Chapter 9: Grievance Mechanism - This section of the report provides description of Grievance Redress Mechanism (GRM).

Chapter 10: Environmental and Social Management Plan - This section provides the ESMP for the design, construction, and operational phases of the Project.

Chapter 11: Conclusions and Recommendations - The final section of the report provides the report conclusions and recommendations.

1.7. OTHER PROJECT DOCUMENTATION

The ESIA is part of a package of documentation, which includes:

- ❖ Environmental and Social Impact Assessment (ESIA) (this report);
- ❖ Environmental and Social Management Plan (ESMP)
- ❖ Labor Management Procedures (LMP);
- ❖ Biodiversity Management Plan (BMP);
- ❖ Resettlement Policy Framework (RPF) / Resettlement Action Plans (RAP);
- ❖ Stakeholder Engagement Plan (SEP);
- ❖ Gender Action Plan (GAP);
- ❖ Environmental and Social Commitment Plan (ESCP).

To satisfy the statutory requirements of the Republic of Uzbekistan, a separate national Environmental Impact Assessment (OVOS) report was developed concurrently with the international ESIA report. The ZVOS has been prepared by Design Institute O'zyo'lloyiha and a positive Conclusion of the State Environmental Expertise of the Republic of Uzbekistan No. 01-02/01-4388 dated 15 May, 2025 was obtained.

1.8. PROJECT CONTACT INFORMATION

Project contact information for copies of the ESIA documentation is indicated in Table 2.

Table 2: Project ESIA contact information

Al Mar Consulting	Client
Name: Julia Alekseeva, Environmental Expert Address: Katta Mirobod str, Blind Alley 2, House 2 Tashkent, 100015, Uzbekistan Email: alekseeva@almarconsulting.org Phone: +998 (78) 150 8887, +998 (78) 150 8886	Name: Mr. Jahongir Karimov PIU Director M-41 Regional Road Corridor Reconstruction Project The Avtoylinvest Agency of the Committee for Roads (CAR)

AI Mar Consulting	Client
	Address: 6 floor, Room #605, 607 68a, Mustakillik Avenue, Tashkent 100000, Republic of Uzbekistan Email: ctsi.project.uzb@gmail.com Phone: (99871) 286-11-74, (99871) 286-11-84

2. PROJECT DESCRIPTION

This section of the report describes the proposed project including its location, scope, and activities associated with its design, construction, and operation. This section will also consider alternatives associated with the Project. Accordingly, this chapter is arranged as follows:

- ❖ Project Rationale, including category of project and project need and location;
- ❖ Environmental Setting, providing an overview of the socio-environmental conditions within the Project Corridor; and
- ❖ Scope of Works, summarizing the works activities to be undertaken as part of the Project.
- ❖ Assessment of Alternatives, including the 'no project' scenario.

2.1. PROJECT RATIONALE

2.1.1. Project Need

The project aim is to reconstruct the highway road M-41, section 1525-1622 km (97 km) in Surkhandarya region of the Republic of Uzbekistan. The existing road would be upgraded from 2-lane road into 4-lane highway, replacement of existing road infrastructure in accordance with modern standards, incorporation mitigation measures along the road ensuring natural processes and responding to socio-economic needs, and construction the new bridges instead of outdated old. The project road will comply with international standards, suitable for a 20-year service life.

According to initial preliminary calculations of the Feasibility Study (FS), the reconstruction of of the project road from 1444 to 1622 km will require more than 524 million USD, cutting down more than 70 thousand trees and the demolition of approximately 700 residential and non-residential buildings. Taking into account the significant amount of financial and material costs, the significant socio-economic impact and the minimization of cutting trees and demolition, a decision was made to implement the project in two phases. The Feasibility Study was amended to significantly reduce tree cutting trees and demolition of buildings. Thus, the reconstruction of the M41 highway is divided into the following two phases:

- ❖ Phase 1: section 1525-1622 km (97 km) with a implementation period of 2025-2030;
- ❖ Phase 2: section 1444-1525 km (81 km) (implementation period to be defined).

This Environmental and Social Impact Assessment (ESIA) was conducted for the Phase-1, section km 1525-1622 (Lot 1 – 1570-1622km and Lot 2 – 1525 – 1570km) following World Bank's Environment and Social Framework 2018.

The road is located in Surkhandarya region of Uzbekistan and traverses through three districts, namely Kumkurgan, Dzarkurgan, Termez districts. The Project road passes through urban (23km) and semi-urban areas (18km), the majority of which is agricultural. About 55km is dominated by cropland and irrigated agricultural land. The road connects the 4P 100, 4P 103, 4P101 and M39 motorways, which are part of international transport corridors. It is therefore important in improving the speed and efficiency of transport between border and improving access to the Surkhandarya region.

The regional road network, essential for internal mobility and regional development, was built in the 1950-60s and requires rehabilitation due to insufficient periodic maintenance and increased traffic flow. In addition, the area faces increased risks due to climate change; high

temperatures have been identified as risks to the Surkhandarya Region's road network. These climate risks, combined with the poor road condition, could increase the likelihood of weather-related damage and disruption to the road network's assets and operations.

The need to reconstruct the road in this section is caused by the following reasons:

- ❖ to improve and increase its capacity, reduce the cost of vehicle operation, travel time in domestic, regional and transit traffic;
- ❖ improving operational reliability and road safety, increasing traffic intensity;
- ❖ increasing the load on a single axle of the vehicle;
- ❖ reducing the accident rate by reducing the number of turns on the highway and increasing their radii;
- ❖ bringing the cross section of the highway to parameters meeting the normative requirements for 1b category highways.

In order to improve transportation services, a decision was made to reconstruct the M41 road with replacement of the road embankment and construction of reinforced concrete pavement in accordance with the new requirements for 1st category highways. The feasibility study developed a set of solutions for replacement of the road embankment base, its expansion and construction of a new roadbed, arrangement of the road drainage system and organized drainage of storm water runoff, rearrangement of culverts under the road, reconstruction and construction of new engineering structures. Strengthening of the roadbed will allow to increase safe operation of the road, which is expected to be used by increasing freight and passenger car traffic.

The investment program will result in the reconstruction of the M-41 road on the section km 1525 -1622, increasing the stability of the road sector.

2.1.2. Alignment with National Strategies and Plans

A Strategy for the Development of the Transport System of the Republic of Uzbekistan for the period up to 2035 is being developed, which involves strategies for creating conditions for a sharp increase in the volume and quality of passenger and freight traffic.

The Project is in line with the above-mentioned transport strategies as well as with Development Strategy of the New Uzbekistan for 2022-2026, namely, Objective 36: *“Development of a unified transport system in conjunction with all types of transport, creating conditions for the possibility of conducting daily trips via transport routes between major cities”*.

The improvement and widening of road were also recommended by the government for the social and economic development of Surkhandarya region, the references of recommendations are as below:

- ❖ Minutes of meeting #17 (13.05.2019.10317-xx) of the President of the Republic of Uzbekistan during the visit on April 30 and May 1 in Surkhandarya region according to the instructions and assigned tasks at the extraordinary session of the region;
 - ❖ Decree of the President of the Republic of Uzbekistan dated 05.03.2019 № PP-4224 "On measures to further expand and deepen partnership with the Islamic Development Bank Group and the funds of the Arab Coordination Group";
 - ❖ Minutes No. 30 of the meeting of the Head of the Presidential Executive Office of the Republic of Uzbekistan No. 02-3181 dated November 10, 2020;
 - ❖ Minutes of meeting No. 30 of the President of the Republic of Uzbekistan during his visit to the Surkhandarya region on June 1-2 in accordance with the instructions and tasks assigned at the extraordinary session of the region No. 02-RA 1-9900;
-

- ❖ Decree of the President of the Republic of Uzbekistan No. PP-330 of October 10, 2023 "On measures to further improve the road sector";
- ❖ Technical specifications for the Project development, approved by the Chairman of the Joint Scientific and Technical Council under the Ministry of Transport of the Republic of Uzbekistan;
- ❖ Decree of the Cabinet of Ministers No. 53 dated 31.01.2025 "On measures to implement the Investment Appendix to the Resolution of the President of the Republic of Uzbekistan No. PP-51 dated February 11, 2025 "On additional measures to improve the mechanisms for the preparation and implementation of projects with the participation of international financial institutions and foreign government financial organizations"Program of the Republic of Uzbekistan for 2025".

2.2. ENVIRONMENTAL SETTING

2.2.1. Project Location

M-41 - the main highway Bishkek-Dushanbe-Termez, passing in Central Asia in mountainous terrain through the territory of Uzbekistan, Tajikistan and Kyrgyzstan. The road connects the cities of Termez, Dushanbe, Khorog, Osh, and passes through the Pamirs and includes the Pamir Highway.

The existing road was built according to the standards corresponding to motorways of categories I–III with a roadbed width from 12.0 to 25.1 m, carriageway widths of 2x3.50, 2x3.75 and 2x7.5 m. The project section from 1525 to 1622 km is a 2-lane road, widening in 3 sites to a 4-lane road, with a total length of 97 km, of which approximately 91.1 km (~94%) are 2-lane sections and approximately 5.9 km (~6%) are 4-lane sections.

The Government of Uzbekistan (RoU) approached the World Bank (WB or Bank) with the request to provide a sovereign guaranteed loan to the CAR (the Client) for the urgent reconstruction of the 97 km section of M-41 road.

The highway of international importance M-41 road for 97 km crosses the territory of Surkhandarya region from the north-east, from the border with Tajikistan, to the south-west, to the border with Afghanistan. The planned character of the route coincides with the axis of the Surkhandarya river valley, including, in the north from the beginning of the road and up to 25 km - the road is laid through the valleys of the right-bank tributaries of the Surkhandarya, the central part of the route from 25 to 110 km, runs along the right-bank part of the valley almost parallel to the wide floodplain of the river, and in the south - from 110 km to Termez the road crosses the floodplain and terraces of the river twice.

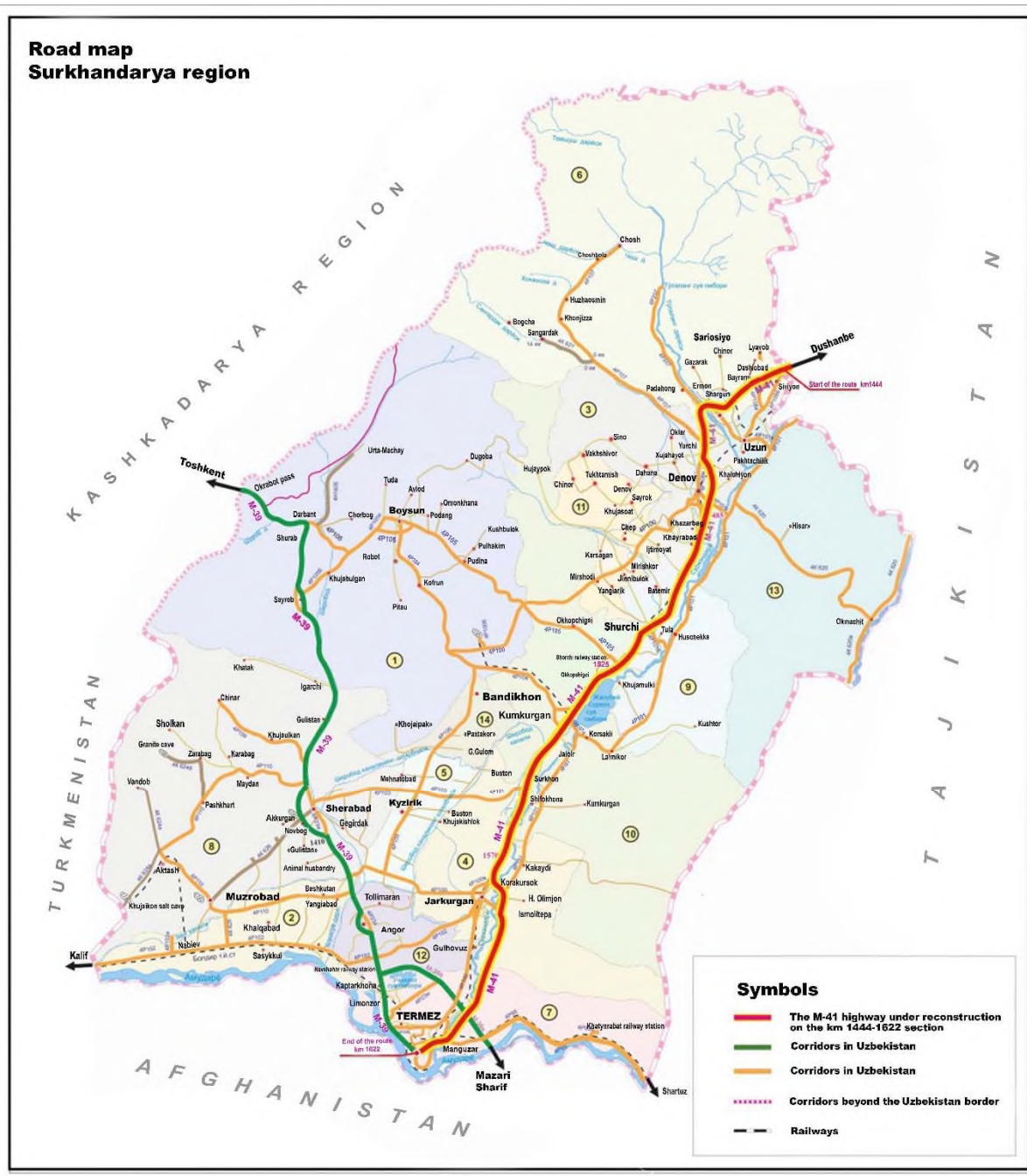
The roadbed of the highway is laid through irrigated lands and settlements, including passing both along the outskirts and through the development of district centers of Kumkurgan, Dzarkurgan and Termez districts.

Table 3: Road sections within district boundaries

District	KM	Distance (km)	Settlements
Kumkurgan district	23 km	1525 -1548 km	10 mahallas – Hurriyat, Munchoktepa, Elabad, Jiydali, Besh Kahraman, Jarkishlak, Gultepa, Navbakhor, Mehrobad, Surkhan-sakhili.
Dzarkurgan district	58 km	1548 -1606 km	9 mahalla – Oltintepa, Surkhon sohili, Obi hayot, Ismoil tepa, Dostlik, Istiklol, Nurli diyor, Oktepa, Gur gur.
Termez district	16 km	1606-1622 km	5 mahallas - Korahon, Amir Temur, Sharof Rashidov, Kuyoshli yurt, Termiz

Between towns the road passes along the suburbs or through the development of 24 settlements, but the bulk of the length of the highway crosses agricultural land.

Figure 1: The map of designed road alignment



It is envisaged to reconstruct the road at the section 1525-1622 km for 4-lane traffic with cement concrete pavement. Implementation of the project will contribute to ensuring efficient and safe internal and regional connectivity, sustainable economic growth of domestic and foreign trade, allow to ensure the passage of ever-increasing volumes of road transportation, reduce the time of cargo and passenger delivery, as well as improve road safety and environmental situation in the region.

Road construction work will include:

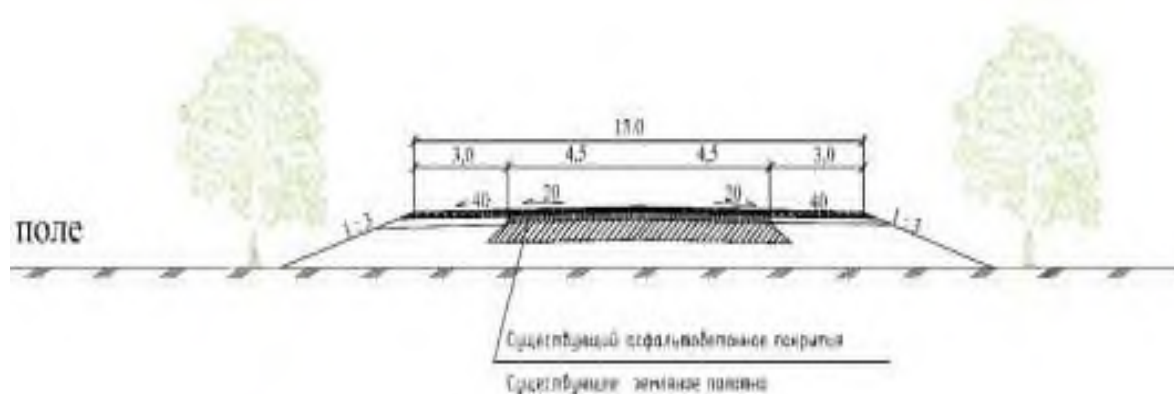
- ❖ Construction and reconstruction of 90.218 km long Category 1-6 road with a cement concrete pavement (reduction of the length of the section from 97 km (design section according to the FS) to 90.218 km is explained by the fact that the road is reduced by about 3 km as a result of the arrangement of the road bypassing Djharkurgan city, as well as the fact that about 4 km of the road have already been reconstructed as part of another project);
- ❖ Construction of 4 bridges and reconstruction of 12 bridges;
- ❖ Construction of 6 overpasses;
- ❖ Construction of 14 elevated pedestrian crossings;
- ❖ Construction of 163 culverts;
- ❖ Construction of 6 interchanges;
- ❖ Construction of 236 ramps (junctions);
- ❖ Construction of 2 railway crossings;
- ❖ Installation of 106 bus stops;
- ❖ Installation of 60 traffic lights;
- ❖ Installation of 2,981 road signs, road markings, etc.

2.2.2. General Layout

Pavement

Along the entire alignment, the existing pavement structure consists of an asphalt concrete mix road surface with a thickness ranging from 5.3 cm to 20.3 cm and a gravel-sand mix base with a thickness ranging from 22.7 cm to 81.7 cm. The existing pavement has many longitudinal and transverse cracks, pits and potholes, crack grids, ruts, subsidence, waves, breaks, flaking, potholes and shear are very common. It should be noted that during the operation of the road on some sections, up to 200 m long, repair works were carried out to restore the asphalt concrete surface, but still the percentage of disturbed road surface within the boundaries of each district reaches 75 - 85%.

Figure 2: Existing cross-section of the road outside settlements



Source: Road reconstruction M-41 Project Feasibility Study E&S Baseline and Scoping Report

According to the FS and observed by the Team during site inspections, the pavement surfacing is noted as being in poor condition. The existing surfacing is hindering the safe and efficient movement of vehicles and will limit. Existing drainage provision is “off the edge of the carriageway” and drainage channels or a piped system are not provided.

Photo 1 illustrate the condition of the Project Road at certain locations on the alignment.

Photo 1: Existing pavement cracking and rutting in project districts*Pavement cracking and rutting in Kumkurgan district**Pavement cracking in Termez district*

Safety Aspects

Footpaths are not always provided in urban locations and in some cases where they are provided, they are in poor condition. Only on some road sections, mainly in urban areas - Dzarkurgan, Kumkurgan there are three - four elements: dividing lane, markings, signal posts, curbs. Bus stop infrastructure is not always linked to footpaths, providing poor access to board and disembark buses. Pedestrian crossing facilities are not frequently provided. Pedestrians do not always use a crossing facility even when in close proximity to one. Road markings are not always provided and when they are, they are often in poor condition.

Transportation infrastructure facilities

Among the transport infrastructure facilities it should be noted that there are no - two-level interchanges, as well as insufficient stops. Almost all intersections of the M41 road with state and district roads are made at one level, the intersections are regulated. Only in Kumkurgan city the intersection of the district road 4P104 with the M41 road is made by an overpass.

2.3. SCOPE OF WORK

Road Category

Roads in Uzbekistan are divided into five categories as defined in SHNK 2.05.02-07. Table 4 summarises an extract from this standard, including the associated estimated traffic intensity and traffic importance corresponding to each road category. The M-41 road is a four-lane highway currently categorized as a category Ib road by local. Its route is of significant importance for Surkhandarya region as it connects several districts, namely, Kumkurgan, Dzarkurgan and Termez districts.

Table 4: Categorization of roads in Uzbekistan

Economic importance of the road	Road category	Estimated traffic intensity, pref. units / day
International and state importance roads	Ia (motorway)	over 14000
	Ib (highway)	over 14000
	II	6000 - 14000
	III	2000 - 6000
Local importance roads	IV	200 - 2000
	V	up to 200

Source: Road reconstruction M-41 Project Feasibility Study

Dimensions of the technical parameters of the road were taken in accordance with ShNK 2.05.02-23, ShNK 2.07.06-24 and ShNK 2.07.06-24 standards (Table 5).

Table 5: Main parameters of the road M-41 under the reconstruction to category I-B

Name of a parameter	Unit	Value
Category of the highway	-	I-B
Design speed	km/h	90/70
Load on the most heavily loaded single axle of the vehicle	kN/ts	130/13
Number of traffic lanes within populated areas	pcs	4/6
Number of traffic lanes outside populated areas	pcs	4
Lane width within populated areas	m	3,5/3,75
Carriageway width within populated areas	m	15/23
Carriageway width outside populated areas	m	15/18,5
Width of the central median with a barrier along the road axis	m	1,60/2,6
Width of the safety edge strip adjacent to the central median	m	0,5x2 / 1x2
Width of the barrier along the road axis	m	0,6
Width of the safety edge strip along the curb on the road axis within populated areas	m	0,5x2 / 1x2
Shoulder width	m	0,75-3,0
Width of the edge strip along the shoulder	m	0,5 / 0,75
Width of the reinforced part of the shoulder	m	0,75-3,0
Width of the roadbed within populated areas	m	16,6-23,6 -19,6
Width of the roadbed outside populated areas	m	16,5-25,1
Width of bicycle paths	m	1,0
Width of sidewalks	m	1,5/2,25
Maximum longitudinal gradients	%	50
Minimum stopping sight distances	m	250
Minimum horizontal curve radii	m	150
Minimum vertical curve radii: convex concave	m	2600
	m	800
Minimum vertical curve lengths: convex concave	m	200
	m	100
Cross slope of the carriageway	%	15
Cross slope of the shoulders	%	40
Type of pavement structure	-	capital
Type of surface covering	-	cement concrete

Source: Road reconstruction M-41 Project Feasibility Study

Photo 2: Current project road infrastructure



The existing bridge over the Urta Arik canal



Traffic lights



Urban setting



OHTL towers next to the road



Bus stop



Stella dividing districts

Traffic Forecasts

The average daily traffic intensity on the projected section is 17 289 aut/day for Lot 1 (1570-1622 km) and 14 657 aut/day for Lot 2 (1525-1570 km km). The calculated intensity with a perspective for 20 years with an increase of 28% by 2050 will be 61 473 aut/day for Lot 1 (1570-1622 km) and of 28% by 2050 will be 52 119 aut/day for for Lot 2 (1525-1570 km km).

The classified traffic count data, obtained from the survey results, on the average number of daily traffic flows on the project road sections are given in the table below. The M-41 highway is dominated by passenger cars (about 80%).

Further calculations to determine the prospective average daily traffic intensity of motor vehicles are designed for a 25-year period from 2025 to 2050.

Table 6: The average annual average daily traffic intensity, reduced to passenger vehicles, for the future from 2025 to 2050

NAME	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037
Lot 1													
Average daily traffic, vehicles/day	18 153	19 061	20 014	21 014	22 065	23 168	24 327	25 543	26 820	28 161	29 569	31 048	32 600
Lot 2													
Average daily traffic, vehicles/day	15 390	16 160	16 968	17 816	18 707	19 643	20 625	21 656	22 739	23 876	25 070	26 323	27 639

NAME	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Lot 1													
Average daily traffic, vehicles/day	34 230	35 942	37 739	39 626	41 607	43 688	45 872	48 166	50 574	53 103	55 758	58 546	61 473
Lot 2													
Average daily traffic, vehicles/day	29 021	30 472	31 996	33 596	35 276	37 040	38 892	40 836	42 878	45 022	47 273	49 637	52 119

Source: Road reconstruction M-41 Project Feasibility Study

Road Elevation

Foundation of the road is designed considering the geological, hydrological and topographic conditions of the area, the height of the embankments, the depth of excavations, engineering and geological conditions, soil properties, ensuring the stability of the subgrade, using the existing subgrade with minimal environmental impact.

To ensure the stability and strength of the upper part of the foundation and pavement, elevation of the pavement surface above the design level are taken in accordance with requirements of SHNK 2.05.02-23. Guiding marks are assigned in accordance with requirements of SHNK 2.05.02-23 depending on the type of underlying soil, considering the relief and transverse subgrade slopes.

It is expected that for the reconstruction, the entire existing pavement will be removed to the existing foundation, on top of which a new pavement will be laid. As a result, the current road elevation will remain almost unchanged. In accordance with requirements for I-b category roads, the foundation in a compacted state will be at least 10 cm high, while the pavement will make up approximately 76 cm. Accordingly, only a small increase over the existing pavement height is planned and therefore the requirement to consider landscape impacts in this ESIA is no longer required.

Road Types

It is expected that different designs will be applied for three conditional divisions of the road proposed by the FS. Based on this division, three types of cross-sectional design (Type I and Type II) were designated to each segment as indicated Table below:

Table 7: Types of cross-sectional design on Project sites M-41 (1525-1622km)

Districts	Site, km	Length (km)	Coverage type, km	Technical Category	
				I	II
Kumkurgan district	0-23	23	Asphalt concrete	3,4 km	19,6 km
Jarkurgan district	23-81	58	Asphalt concrete	1 km	57 km
Termez district	81-97	16	Asphalt concrete	1,5 km	14,5 km
TOTAL		97			

In urban areas the carriageway will be supplemented by pedestrian and cycle lanes on each side, as well as a new local access road either on one or on each side of the carriageway depending on the availability of space. Additionally, the road will be equipped with street lighting. In remaining areas outside the settlements, the carriageway will be complemented only by a hard shoulder on each side. A drainage system will be provided along the edge of the carriageway for both urban and rural areas. The figures below provide detailed depiction of the road's proposed cross sections.

Figure 3: Type 2 – Designed cross-section of the road outside settlements (with installation of a metal fence on the dividing strip)

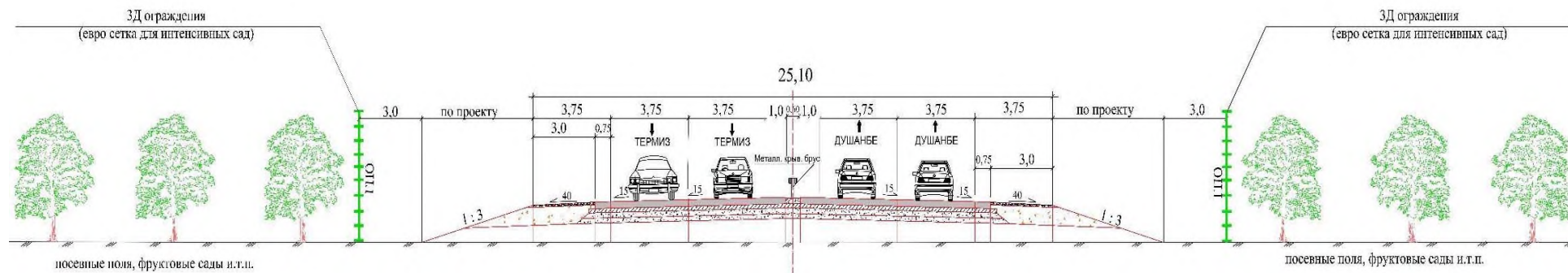


Figure 4: TYPE-2, Option-1 Designed cross-section of the road outside settlements (with installation of a metal fence on the dividing strip)

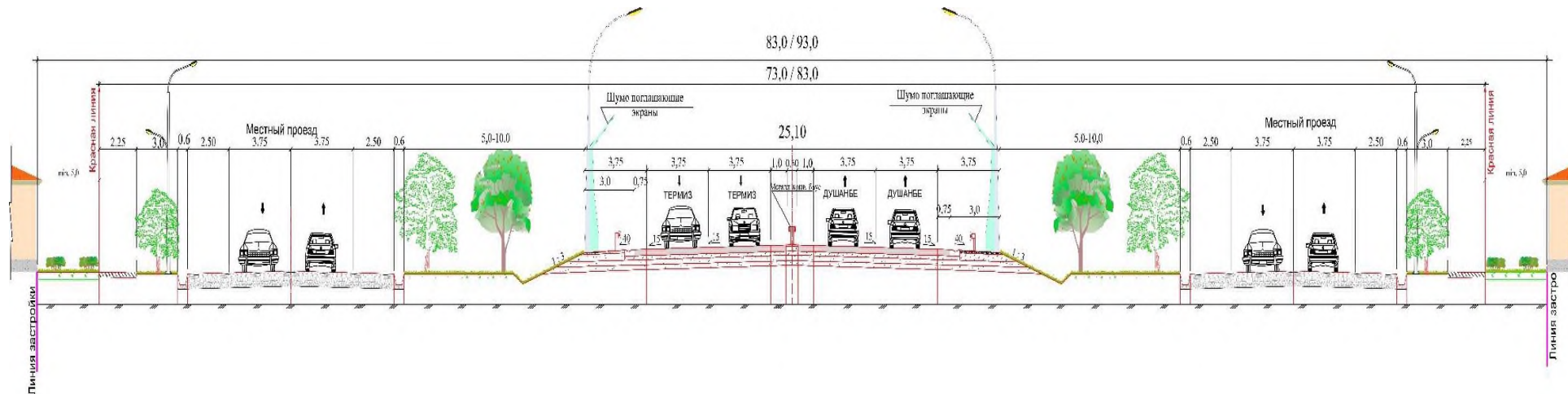
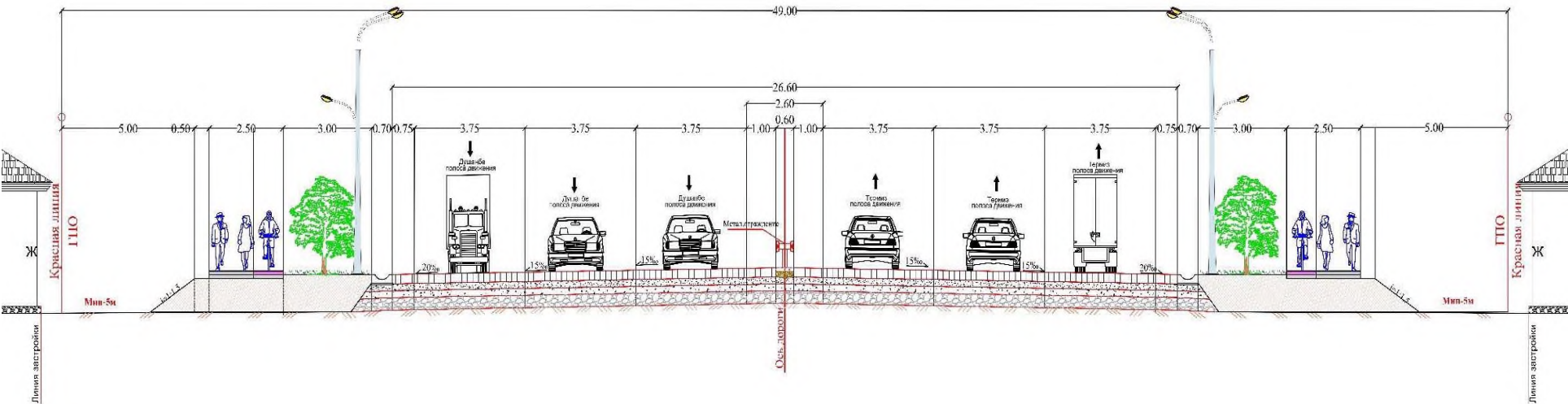


Figure 5: Type 2 Option-2 Designed cross-section of the road in the settlement with local driveways and pedestrian sidewalks (in cramped conditions)



Pavement

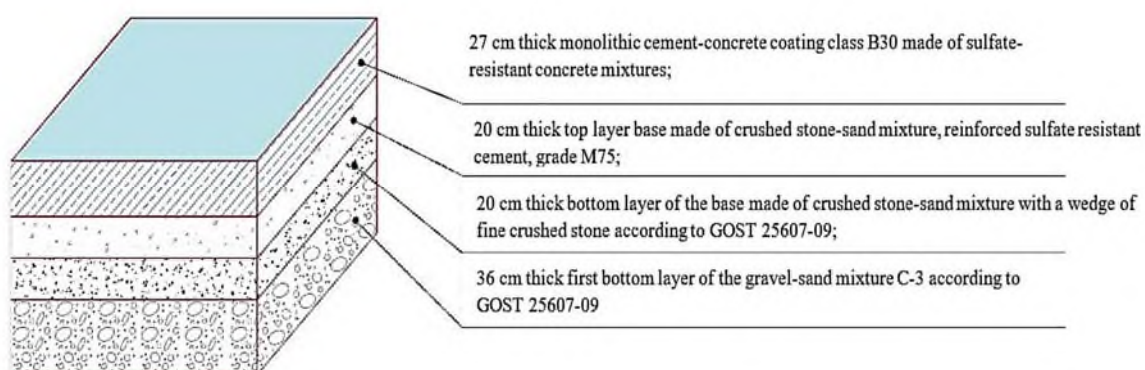
The roadbed is designed in accordance with the requirements of SHNK 2.05.02-07, taking into account the geological, hydrological and topographic conditions of the terrain, the height of the embankments, the depth of excavations, engineering and geological conditions, soil properties, ensuring the stability of the roadbed, the use of the existing roadbed with minimal impact of the environment.

The preliminary pavement design takes into account purpose of the road, traffic intensity and composition of the traffic flow, reliability and efficiency, availability of local construction materials, maximum use of existing pavement materials and a range of other factors. Given this, layer composition of the road surfacing will be as follows:

- ❖ 27 cm thick monolithic cement-concrete coating class B30 made of sulfate-resistant concrete mixtures according to GOST 26633-2012;
- ❖ 20 cm thick top layer base made of crushed stone-sand mixture, reinforced sulfate resistant cement, grade M75 according to GOST 23558-94;
- ❖ 20 cm thick bottom layer of the base made of crushed stone-sand mixture with a wedge of fine crushed stone according to GOST 25607-09;
- ❖ 36 cm thick first bottom layer of the gravel-sand mixture C-3 according to GOST 25607-09
- ❖ existing road foundation.

Construction layers of road pavement are shown in Figure 6.

Figure 6: Construction layers of road pavement



Concrete is a durable material when laid correctly and is less maintenance than other materials such as asphalt. It is also more durable under high temperatures, which is preferable as an adaptation to the changing climate to enhance the resilience of the road.

Pedestrian footways and cycle ways will have asphalt concrete surfacing.

Drainage

It is planned to design drainage in urban and rural areas via a concrete trays LK-6, an improvement from the existing 'off the edge' drainage is expected because the water flow will be better attenuated and controlled. Design drainage system should reduce risk of drainage infrastructure being blocked with debris. Strengthened structures with improved capacity (e.g. larger diameter culverts) will reduce the risk of flood related damage and disruption and minimise the further degradation of identified defects such as concrete spalling. In total, 163 culverts will be extended and replaced.

Bridges

Mudflow hazard of mountain rivers overlooking the foothill plain and terraces of the Surkhandarya river, on which the highway M41 passes, dictates important attention to bridge crossings over the rivers Obizarang, Tupolang, Sangardak, Kyzylsuv, Khojapayk, Surkhandarya river, as well as important canals - Kumkrugan, Surkhan, Zang, over which concrete bridges are built. 14 existing bridges/ overbridges and 1 overpass over the road M41 will be reconstructed under the Project. The total length of bridges with overpasses is 691.0 m. The shortest bridge is 6.5 m long, the longest is 169 m. It should be noted that all bridges are in satisfactory condition, provided with all elements of road improvement. The width of the bridges varies from 10 to 25.5 meters. Two-way traffic is maintained on them. Of the 14 existing bridges on the project site, 12 bridges will be reconstructed, 2 will be removed (due to inactive waterways), and the 4 new bridges will be newly constructed.

Minimal bridge width (25.4 meters) was determined in accordance with “GOST 33391-2015 Roads for public use. Bridge structures. Approximation dimensions of structures for Ib category roads. Brief description of the existing bridges/overbridges and corresponding type of construction activities under the Project are listed in the table below (Table 8):

Table 8: List of the existing bridges/overbridges and planned work under the Project

No.	PK position	Names of waterways and roads	Design solutions
1	25 + 51.26	Existing bridge over the collector	Reconstruction
2	67+91,15	Overpass at a traffic intersection, on 1576,79 km	Construction
3	89 + 14.5	Construction of a new bridge over the collector, on km 1578.914	Construction
4	107 + 22.1	Construction of a new bridge over the collector, on km 1580km	Construction
5	149 + 30	Construction of a new bridge over the collector, on km 1584.93	Construction
6	348 + 46.50	Reconstruction of the bridge over the canal at km 1604.85	Reconstruction
7	357 + 10	Reconstruction of the canal bridge at km 1605.71	Reconstruction
8	360 + 72	Reconstruction of the bridge over the canal at km 1606,072	Reconstruction
9	445 + 96	Reconstruction of Surkhandarya River Bridge, at km 1644.596	Reconstruction
10		Construction of a new overpass at the interchange at km 1556.84	Construction
11	3+10 (1525+250)	Reconstruction of the bridge over Karasuv at km 1525 + 250	Reconstruction
12	335+37	Reconstruction of bridge over the Kumkurgon canal at km 1529	Reconstruction
13	44+70 (1529+170)	Reconstruction of reinforced concrete bridge across the sai at km 1529	Reconstruction
14	205+30	Reinforced concrete bridge over the Sherabad canal at km 1545	Reconstruction
15	218+90 (1546+500)	Bridge over the Irrigation canal at km 1546	Reconstruction
16	221+45 (1546+750)	Reinforced concrete bridge over the collector	Reconstruction
17	227+59 (1547+400)	Reinforced concrete bridge over Bandykhan sai at km 1547	Reconstruction



Photo 3: The existing road bridge over Surkhan river, Termez district



Photo 4: The existing road bridge over Urta arik canal, Termez district

As for the existing bridges, apart from extension, they will undergo the following repairs:

- ❖ dismantling of railings, sidewalk blocks and wheel breakers;
- ❖ removing the existing pavement from the surface of bridges;
- ❖ construction of transition plates on the approaches to the bridge;
- ❖ repair, plastering, restoration of damaged elements of bridges;
- ❖ installation / replacement of railings, paving blocks and wheel breakers.

The main bridge projects were developed based on the results of the diagnostic conclusion of the Dorproektexpertiza Unitary Enterprise and in accordance with the following standards and rules for bridge design:

- ❖ ShNK. 2.07.01-03 – “Main highways of citywide importance.”
- ❖ ShNK. 2.05.02-07- “Highways”.
- ❖ ShNK. 2.05.03-12 – “Bridges and pipes”.
- ❖ SNiP II-7-81 - “Construction in seismic areas.”
- ❖ KMK. 3.06.04-97 – “Bridges and pipes. Rules for production and acceptance of work.”

Overpasses & Crossings

The project provides for 14 overground pedestrian crossings. All existing pedestrian crossings are being rehabilitated with new road markings. Footpaths have been proposed adjacent to settlements along the route. Central barrier is proposed for the entire length of the new road.

No.	PK position	Location, km
Lot 1, km 1570-1622		
1	29+00	1572,9
2	160+00	1586
3	237+00	1593,7
4	330+00	1603
5	376+00	1607,6
6	398+00	1609,8

No.	PK position	Location, km
7	417+00	1611,7
Lot 2, km 1525-1570		
1	39+00	1528,9
2	86+00	1533,6
3	165+00	1541,5
4	195+00	1544,5
5	295+00	1554,5
6	324+00	1557,4
7	423+00	1567,3

Road devices and furniture

Safety and traffic management measures are developed in accordance with the requirements of ShNK 2.05.02-23, GOST 52289, MSN 25-2005, GOST 10807, GOST 23457 and others. Renovation it is also planned to restore road devices and furniture such as barrier fences BDO-5, sidewalks, bicycle paths, etc. Road devices are designed in accordance with the requirements of SNK 2.05.02-23 "Automobile Roads". The project provides for the installation of barrier fences made of steel on metal racks, on dividing line, on road shoulders, on local passageways. In order to encourage safe walking and cycling, footways and cycle ways have been provided in all urban locations where schemes are proposed. To ensure the visibility at night and during unfavorable meteorological conditions, reflective posts will be installed along road shoulders. The construction of bicycle paths is also planned.

Road signs and markings will be provided for traffic control. Installation of road signs is provided in accordance with GOST standard 10807-78 for "Road Signs" and GOST standard 23457-86 for "Technical Means of Traffic Management". In combination with road signs, the marking of the road will be in accordance with GOST 23457-86.

On the axis of the dividing strip of the road, there will be two-sided single-level road group fences with a shock absorber console

Street lighting

As stated in Financial and Economic report of the Project FS, it is planned to install traffic lights and electric lighting with lamps, including those powered by solar panels. To ensure visibility of the outer edge of the shoulders at night and in adverse meteorological conditions, it is planned to install guiding devices in the form of free-standing signal posts SS-160.16. Street lighting has been proposed adjacent to settlements along the route, while the lights are not envisaged in rural parts of the road. New street lighting assumed to have foundations designed to an appropriate standard basic technical requirement for motorways ShNK2.05.02-23 "Highways".

Landscaping

The reduction of the negative impact of vehicles on agricultural land and the population, protection of the route from water and wind erosion, and improvement of the architectural landscape and aesthetic condition of the road are achieved by creating protective forest plantings.

The placement of roadside plantings depends on their purpose, planting material, and the presence and nature of natural vegetation.

The Project provides green areas on both sides of the roads. In addition, rows of green lanes are provided on road sections in settlements. A variety of tree seedlings will be adopted taking into account climatic and soil conditions of the region.

During the reconstruction of the project roads, tree replanting is possible..

According to Decree No. 46 of the President of the Republic of Uzbekistan dated December 30, 2021, tree felling is prohibited during the reconstruction of project roads. Permission to replant these trees can be obtained during the seasonal period from the Surkhandarya Regional Department of MEEPCC. Tree transplantation is carried out on the basis of contracts concluded with specialized organizations and the requirements of the Surkhandarya Regional Department of MEEPCC.

The volume of replanting and compensation for tree felling will be determined in subsequent design stages

Engineering communication

According to the FS, the following measures are envisaged for engineering communications:

- ❖ Reconstruction of existing power lines;
- ❖ Reconstruction of existing communication lines;
- ❖ Reconstruction of existing gas pipelines.

The reconstruction of existing medium-sized gas pipelines along the project site is (1065 m + 4617 m) 5.682 km. The reconstruction of water pipelines along the project road is (4246 m + 5820 m) 11.066 km.

Volumes and types of remaining engineering communications (including underground) as well as relevant technical specifications will be received at subsequent design stages.

Road safety

The preliminary design for the road has been developed fully in accordance with the national standards (ShNK 2.05.02-07) and associated Presidential Decrees. According to the national standards, the road is designed with a load capacity of 13 tonnes under a Category Ib.

The following elements will be provided for traffic control and security on road:

- ❖ Road signs and indicators;
- ❖ Fences;
- ❖ Signal posts;
- ❖ Traffic markings;
- ❖ Lighting;
- ❖ Traffic lights;
- ❖ U-turns;
- ❖ Space for short time stops for vehicles;
- ❖ Sidewalks;
- ❖ Bus stops.

The main road safety benefits the project will deliver are the following:



- ❖ Reduced risk of vehicles leaving their lane to avoid potholes and surface deformations;
- ❖ Improved sight distances;
- ❖ Better separation between pedestrians and vehicles; and
- ❖ Better night driving conditions due to wider carriageway and improved pavement centerline markings.

Some of these advantages could be partially offset by the higher speeds that may lead to accidents.

Recommendations for inclusion of international road safety standards during the detailed design is provided in the impacts and mitigation section of the report.

2.4. STAGES OF THE PROJECT CYCLE

There are four main stages of the project cycle, pre-construction, construction, operation and maintenance.

2.4.1. Pre-construction Phase

During the pre-construction phase the following activities will be undertaken:

Land Acquisition

Under the terms of the Loan of the WB, before the commencement of the construction works, the CAR must prepare the Resettlement Action Plan (the RAP), obtain the approval of WB and then, the PIU will implement the plan by disbursing the compensation for loss of assets and R&R assistance as per RPF and acquire the land before the commencement of the construction works at any part of the site.

Establishing the RoW

The paved RoW for the proposed project was considered 25m wide depending on the nature of areas, viz., rural or urban. M41 road is now considering total clear width for urban areas approximately 18m and in rural areas 15m. This will require land acquisition in some places as the existing RoW is between 15 to 25 m depending on locations. Major construction works will generally remain confined within the RoW. All the infrastructure and commercial activities within the existing or proposed RoW need to be relocated as they will have direct impact of the project.

A RoW is determined in various legal acts in force in Uzbekistan. Land Code (Article 30) serves as a basis for obtaining RoW. RoW is specified in local regulation under the term of “servitude”. ROW size is dictated by different Uzbekistan standards¹. The distance from the edge of the carriageway of the main street, high-speed roads and railways to groups of residential buildings and places of quiet rest should be set at average 25-100 m.

Current SHNK also specifies that requirements of international standards/norms can be applicable if the Project Roads are constructed based on international agreements.

¹ ROW size is governed by various Laws and standards such as: 1) SanPiN 0339-16 Sanitary rules and norms for planning and development of populated areas of Uzbekistan; 2) SHNK 2.10.09-10. Norms of land allocation for the roads and road service facilities; 3) GOST 33062-2014 Public roads. Requirements for the placement of road and roadside service facilities; 4) Law of the Republic of Uzbekistan "On Highways" No. ZRU-117 of 02.10.2007

The state owns all land in Uzbekistan. Procedures for obtaining the use of a ROW in Uzbekistan are well defined. Calculation and compensation of losses to those with and without official land rights will be performed following the Project Resettlement Action Plan (RAP) which follows national regulations and WB ESF 2018 ESS5, thus ensuring landowners, land users, and lessees are liable to be fully refunded (including the lost profit) in the case of limitation of their rights from the construction or operation of the Project. Land law relating to servitude in Uzbekistan also protects the owner/user and does not deprive the owner of their parcel's possession, use, and disposition rights.

The land acquisition process is described in Section 3.6.1 and the Resettlement Action Plan (RAP) and will be fully before any mobilisation of any construction works within the RoW. It is expected that all works connected with the road reconstruction and operation will take place within the RoW.

Construction Environmental & Social Management Plan (CESMP)

Ensure that the CESMP is submitted by the Contractor to the CAR Project Management Unit (PIU) for review at least 60 days before taking possession of any work site. No access to the site will be allowed until the CESMP is reviewed and approved by the PIU.

Site Clearing Works

The works include the following site clearing works within or adjacent to the RoW (within the Project buffer²) of the Project Road, in accordance with the Drawings or instructions of the PIU.

- ❖ Clearing and grubbing.
- ❖ Removal and disposal of traffic signs, sign posts and their foundations.
- ❖ Demolition, removal and disposal of existing bridges including foundations, riverbank and waterway protection works.
- ❖ Demolition, removal and disposal of existing culverts, inlet and outlet structures, headwalls, concrete drains, channel lining, and erosion protection works.
- ❖ Removal of and any other natural or artificial objects within the RoW.
- ❖ Removal and disposal of all vegetation and debris within the designated limits of the Right-of-Way

Relocation of Existing Services

The Works include the relocation of all services affecting the construction of the Project Road within the Right-of-Way. The services include the following:

- ❖ water mains
- ❖ overhead electric supply lines
- ❖ gas and oil pipelines
- ❖ underground telephone cables

Construction Camp

² Buffer refers to the land that is required for the construction and operation of the road. The buffer, in its entirety will be the property of the GoU and as such all properties, or land not belonging to the GoU must be procured as part of the RAP before works can commence in this area.

All skilled labour from outside the province or country is expected to be accommodated in existing suitable accommodation in the region or in temporary accommodation located in the construction camp.

It is expected that two temporary construction camps will be established along the M41: one camp for Lot 1 will be located at approximately at 1600 km, another camp for Lot 2 will be located at approximately at 1545 km. Each camp will mobilize around 200 workers and 100 units of major equipment (excavators, graders, dump trucks, rollers, concrete batching plants, pavers, etc.). If both lots are awarded to a single Contractor, it is expected to be established near 1,580th km, ensuring efficient logistics and coordination between lots.

Each construction camp will occupy an area of about 1.0 ha and be equipped with trailers for rest, shower rooms, and bathrooms. About 0.5 ha of each construction camp will be allocated for a laydown area for vehicles and special equipment, as well as a refuelling site.

Appropriate measure need to be drawn to ensure that immigrant workers find separate accommodation and have the necessary amenities. Company will specify the standards of facilities for worker accommodation in line with the WB Worker Accommodation Guidelines. With the influx of workers in the project area, there would be a probability of conflict with the local communities. Necessary measures will be required in place to address such issues. The Contractor will provide the following basic facilities in the construction sites, maintenance yards and storage facilities:

- ❖ Safe and reliable water supply.
- ❖ Hygienic sanitary facilities and sewerage system.
- ❖ Separate toilet facilities for women and men workers
- ❖ Restroom and room for lunch for the workers
- ❖ Treatment facilities for sewerage of toilet and domestic wastes
- ❖ Sickbay and first aid facilities

The Contractor will provide the transfer of the workers to the construction site and will perform a Traffic and Logistics Study to assess roads and determine access requirements via other modes of transport. It is foreseen that the existing M-41 main road will be adequate during the construction activities and no additional access road will be opened to reach the project site.

The maintenance yards and storage facilities will be selected keeping in view the availability of an adequate area for its establishing, including parking areas for machinery, stores and workshops, access to communication and local markets, and an appropriate distance from sensitive areas in the vicinity. The final locations of the maintenance yards and storage facilities will be selected by the Contractor after the approval from the CAR and the PIU Engineer.

Temporary storage areas will be required for certain activities, such as the storage of sand and gravels and construction equipment. These storage areas may range in size from anything between 50 m² to more than a hectare. The precise locations of these temporary facilities are not known at this stage. The final locations of the storage areas will be selected by the Contractor after the approval from the CAR and the PIU Engineer.

2.4.2. Construction Phase

The main construction phase aspects are described in detail below.



Earthworks

The Works include the following types of earthworks necessary for the construction of the Project Road and all associated works:

- ❖ Removal of topsoil.
- ❖ Construction of embankments.
- ❖ Construction of subgrade.
- ❖ Removal and replacement of unsuitable materials.
- ❖ Structural excavation.
- ❖ Excavation for the construction of side drainage and cross-drainage works.
- ❖ Excavation for the removal and relocation of the existing utilities.
- ❖ All backfilling necessary for the construction of retaining walls or other earth retaining structures, cross drainage structures and associated works, side drains and erosion protection work.
- ❖ Preparation of beddings and filters for all structural, cross drainage, side drains or pavement works.
- ❖ Excavation, filling or backfilling necessary for the execution of any other incidental works.

Culverts

Project works include the construction of culverts, including inlet and outlet structures and associated works in accordance with the Specification. The scope of the cross drainage works includes:

- ❖ Complete replacement of existing culverts which are old, structurally deficient or undersized;
- ❖ Extension of existing culverts which are of adequate design and in good condition;
- ❖ Construction of new culverts at locations where no cross-drainage structure existed before;
- ❖ Cleaning of existing culverts which are partially or completely silted;
- ❖ Miscellaneous repair of the existing culvert joints, headwalls, wing walls, and scour and erosion protection works;
- ❖ Construction of new scour protection and channel lining works.

Other Drainage Structures

Surface runoff from the carriageway and all other pavements, and any cut and embankment slopes must be discharged through longitudinal drains designed for adequate cross section, bed slopes, invert levels and the outfalls. The Works include construction of the drainage system components according to the types, dimensions, classes and material requirements for this work.

Pavement

Once the sub-base has been prepared the pavement will be laid, including the following steps:

- ❖ Placing steel forms and fixing them with stakes (the forms are oiled before placing concrete in them)
 - ❖ Watering the prepared sub-grade or sub-base (the sub-grade should be sprinkled with as much quantity of water as it can absorb) or alternatively insulating layer of water-pooof layer
-

- ❖ Batching of properly proportioned ingredients for the concrete mix and mixing it with water so that the desired water/cement ratio is obtained
- ❖ Transporting of concrete to the site in wheel burrows
- ❖ Placing of concrete over the entire width of bay in successive batches about 10 mm higher than the actual profile for further tamping
- ❖ Compaction of cement by heavy screed or tamper
- ❖ Floating longitudinally with a wooden float board to provide an even surface free from corrugations
- ❖ Brooming at right angles to the centre line of road from edge to edge just before the concrete becomes non-plastic (optional)
- ❖ Edging of the slab with an edging tool before the concrete is finally set (optional)
- ❖ Curing (keeping the fresh concrete slab moist during hardening period)
- ❖ Fillings of joints with a suitable sealing compound
- ❖ Opening to traffic when it attains the required strength (after about 20 days of curing)

Once these activities are completed the PIU will undertake quality control of the pavement to ensure compliance with technical specifications.

Material Supply

Delivery of the construction materials to the construction sites will be conducted by the railway transport and heavy trucks. As specified in the FS, materials for construction works are expected to be delivered from the nearest quarries and suppliers, as detailed below:

- ❖ Asphalt concrete (hot, cold) will be provided from the Asphalt Concrete Plant Uchkizil in Termez district;
- ❖ Crushed stone-sand mixture for upper and lower levels of the pavement and for strengthening of roadsides will be provided from the quarries of Sarasia district;
- ❖ Bitumen will be provided from JV Djhankurgan;
- ❖ Fractional crushed stone will be mined in Tupalang and Kizilsuv rivers;
- ❖ Reinforced concrete products will be provided from the Surkhon metallurgical plant (in Kumkurgan district); bridge structures - from the plant in Tashkent;
- ❖ The supply of cement will be provided from the Sherabad cement plant, fittings and metal barrier fences - from the Surkhon metallurgical plant (in Kumkurgan district), and road signs - from Republican Department of Uzyulbutlash Road Configuration;
- ❖ Crushed stone for pavement is expected to be delivered from local quarries. Delivered material will be levelled by motor graders, crushed stone compaction will be carried out with various vibratory rollers up to the required compression ratio;
- ❖ Cement will be brought by cement carriers and stored in a cement silo installed at a mixing station. Ready-mixed concrete is carried by concrete mixer trucks to the construction site.
- ❖ It is then unloaded into the receiving hopper of the concrete paver, which in turn, places the solution in accordance with designed thickness and width.

All suppliers engaged in the Project will be required to meet the Project E&S standards via back-to-back contractual obligations. All suppliers will be required to demonstrate credentials relating to the prohibition of forced and child labour in their supply chain and demonstrate health and safety standards that align with WBG Environmental, Health, and Safety Guidelines (ESHG) and robust labour management policies (further information on this is described in subsequent sections).

Water Supply



Project implementation will require significant quantities of water. Exact requirements are still to be determined. The main water uses include:

- a) Manufacturing of concrete;
- b) Curing of concrete;
- c) Compaction of the road layers;
- d) Suppression of the dust;
- e) Sanitary and hygiene;
- f) Drinking and cooking of food.

It is expected that the Contractor obtain water supplies from the side rivers and irrigation channels. It is considered unlikely that rates of uptake affect the flow rates of the rivers. However, the contractor should take care not to gain water from tributaries or rivers with low flows. The Contractor will need in particular to ensure that no adverse impacts are imposed on village water supplies, or other water users.

Drinking water at the work sites will be via bottled water or small tankers for daily use. At least 4.5 litres per person per day will be available at each work site, during hot weather. Plastic bottles will be removed from site and recycled via third party contractors in line with the project waste management plan.

Disposal of Spoil Material

The materials of the existing asphalt concrete pavement will be milled and added to the base of the pavement, the materials of the dismantled remaining layers of road pavement will be reused where technically possible, otherwise disposed on at approved spoil disposal areas. Due to the relatively flat nature of the road, generation of significant volumes of spoil material is not anticipated. However, this ESIA includes specific measures relating to establishing spoil disposal areas in the event that large volumes of spoil material are generated.

2.4.3. Maintenance and Operation Phase

The new road sections, bridges and interchanges will have a design life of a minimum of 50 years, during which time they should require no major repair or refurbishment, beyond routine maintenance, to be carried out by CAR, and which will include:

- ❖ Monitoring of road pavement, bridges and interchanges, checking for stability and integrity and allowing remedial action if required;
- ❖ Small scale ad hoc repairs of surface damage caused by traffic use or accidents;
- ❖ Repairs and replacement of damaged safety barriers and signs;
- ❖ Periodic (5-7 yrs) assessment and maintenance work; and
- ❖ Unblocking / clearing of culverts and drainage ditches, etc.

If maintenance is not properly carried out within the required timeframes, the road, bridges and interchanges can be expected to deteriorate, and the life of the infrastructure may be reduced to 20 years or even less in extreme cases.

3. POLICY, LEGISLATIVE AND INSTITUTIONAL FRAMEWORK

This chapter includes the overarching regulatory framework in Uzbekistan and lenders requirements. Specific standards and regulatory requirements relating to different environmental and social elements are provided in ESMP.

3.1. UZBEKISTAN REGULATORY CONTEXT

Constitution of the Republic of Uzbekistan

The Constitution and legislative norms and rules of the Republic of Uzbekistan determine the legislative, state and executive authority's environmental and social responsibilities, and also the responsibilities of private developers. The Preamble of the Constitution recognises the "priority of the generally accepted norms of the international law"³. It is therefore considered that international conventions and ratifications will prevail over national legislation whenever the former are more stringent.

The Constitution of Uzbekistan has the following provisions relating to environmental and social aspects:

- ❖ *Article 49:* It is the duty of citizens to protect the historical, spiritual and cultural heritage of the people of Uzbekistan. Cultural monuments shall be protected by the state;
- ❖ *Article 50:* All citizens shall protect the environment;
- ❖ *Article 53:* All forms of ownership of citizens is under protection of state;
- ❖ *Article 54:* No property shall inflict harm to the environment.
- ❖ *Article 55:* Land, subsoils, flora, fauna, and other natural resources are protected by the state and considered as resources of national wealth subject to sustainable use.

Civil Code of the Republic of Uzbekistan (1997, as amended in 2022)

The Civil Code (CC) protects legal Uzbek citizens in relation to ownership of all types of property (material, intellectual etc). The CC determines following provisions the main provisions/general rules for valuation of property, cases of confiscation of property, and rights for compensation:

- ❖ *Article 14:* Cases of violation of right of the citizen of Uzbekistan, all losses should be fully compensated, unless the law or the contract does not provide compensation for losses (Article 14).
- ❖ *Article 83:* Land plots, subsoils, building/structures, perinatal plants are defined as an immovable property (real estate). Immovable property includes objects whose displacement without disproportionate damage to their purpose is impossible.
- ❖ *Article 84:* All real estate property should be legally registered. As a result, all property without registration is not required to be compensated.

³ Constitution of the Republic of Uzbekistan <http://constitution.uz/en/clause/index> (20/02/2020)

Land Code of the Republic of Uzbekistan (1998, as amended in 2022)

The Land Code (LC) covers all land issues, including land acquisition, land allocation, transfer and sales of land plots, and determines types of land ownership.

- ❖ *Article 16:* Land is a national wealth, subject to rational use and protected by the state.
- ❖ *Article 36, Clause 4:* Termination of the right of permanent and temporary land use is made by the decisions of local administration representatives. In case of disagreement landowners have the right to appeal to the court.
- ❖ *Article 37:* Withdrawal of land plots or their parts belonging to individuals and legal entities for public needs with compensation shall be carried out in the manner prescribed by law.
- ❖ *Article 371, Clause 2:* Redemption of a land plot for public needs owned by foreign legal entities and individuals, together with an object of trade and the service sector or residential premises and another building or part of a building, is carried out by local administration representatives.
- ❖ *Article 39 Clause 7:* In case of land acquisition, the landowner, land leaseholder and house owners have the right to be refunded for their losses (including lost profit) or compensation costs for voluntary renunciation of land.
- ❖ *Article 41, Clause 3:* losses caused by violation of the rights of land lease, tenants and landowners (including lost profits), shall be reimbursed in full.
- ❖ *Article 41, Clause 4:* Full compensation of losses including lost profits may be provided to a land user or tenant before acquisition of the land to the State or for public need.
- ❖ *Article 86, Clause 1:* specifies the cases where losses to land users must be compensated in full including loss of profits:
 - Acquisition, redemption or temporary occupation of land.
 - Limitation of their rights due to the establishment of environmental protection zones, cultural heritage objects, roads, pipelines, communication and transmission lines, etc.
 - Worsening of the quality of land as a result of the negative impacts by construction and exploitation of objects exuding harmful substances for agricultural crops and plantations, and other negative actions of legal entities and individuals.
- ❖ *Article 87, Clause 1:* Losses of agricultural and forestry production caused by the acquisition of agricultural and forest land used by individuals for purposes not related to agriculture and forestry, restrictions on the rights of land leaseholders, or deterioration of land caused by impacts of the activity of enterprises, institutions and organizations shall be additionally compensated to the compensation stipulated before.

3.2. ENVIRONMENTAL REGULATOR

The Supreme Executive body responsible for nature protection in the Uzbekistan is the State Committee of the Republic of Uzbekistan on Ecology and Environmental Protection (SCEEP)⁴. It defines state policy, takes legislative acts, coordinates and manages the activity of ministries and agencies regarding E&S issues. The Cabinet of Ministers is the Executive body responsible for the implementation of state nature protection policy, coordinate development and realization of state programs of socio-economic development. The Cabinet controls their execution and is responsible for registration and evaluation of nature resources.

⁴ From February 2023 was transformed to the Ministry of ecology, environmental protection and climate change of the Republic of Uzbekistan (MEEPCC). All responsibilities remain the same as it was for SCEEP

Obligations of regions regarding environmental protection are put to the Soviets of National Deputies, headed by the Leader of administration (khokims). Regional and local government are responsible for registering and evaluating the condition of nature resources, ecologically harmful facilities and are responsible for control, nature protection and usage of nature resources.

Execution of nature protective measures, control function and responsibility regarding nature protection rests on a number of ministries and agencies. Responsibilities of these bodies include provision of stable system of state service, development and realization of specialized programs, strategies and plans of actions and sustainable nature management. Regional departments and agencies are generally lower executive bodies of the MEEPCC and other responsible ministries on regional and district levels. Organizations at the regional level have the same structure as the republican level.

Public meetings (makhalla) are an independent mechanism of self-government, which carries out general initiatives and measures, including those connected with ecology, directly in villages, regions, districts and cities.

The Cabinet of Ministers (CoM) of the Republic of Uzbekistan governs the executive body in the Republic of Uzbekistan following the Constitution of the Republic of Uzbekistan (Article 98), and the Law of the Republic of Uzbekistan “On the Cabinet of Ministers of the Republic of Uzbekistan” (new edition of 2019). The CoM exercises the following main functions:

- ❖ Implements measures on rational use and protection of natural resources;
- ❖ Coordinates the work of state bodies on joint conducting of natural protection events;
- ❖ Implements a large-scale ecological program of national and international importance; and
- ❖ Takes measures to eliminate the consequences of accidents and disasters as well as natural disasters.

The Ministry of Ecology, Environmental Protection and Climate Change of the RUz (MEEPCC) is the main regulating body of state administration on environmental protection issues. The primary responsibilities of the MEEPCC include ensuring the implementation of a unified state policy on environmental safety, environmental protection, and the use and reproduction of natural resources; and enforcing state control over the compliance of ministries, state committees, departments, enterprises, institutions, and organisations, as well as individuals, with respect to the use and protection of land, mineral resources, water, forests, flora and fauna, and atmospheric resources. Structurally, the MEEPCC consists of the central unit (located in Tashkent), regional units (oblast) and local (district) units.

The Center for State Ecological Expertise: The Center for State Ecological Expertise's activities are directly related to the evaluation of materials for EIA and the issuance of documents determining compliance with environmental requirements for planned or executed business and other activities, as well as determining the admissibility of the implementation of the object of environmental expertise.

Due to the cross-cutting nature of sustainable development and the environment, virtually all other state bodies have some responsibility towards them. Other stakeholders that are relevant to the Project are listed below:

- ❖ Ministry of Investments and Foreign Trade of the Republic of Uzbekistan;
 - ❖ Ministry of Transportation;
 - ❖ The Committee for roads under the Ministry of transport of the Republic of Uzbekistan;
-

- ❖ Agency of cultural heritage under the Ministry of tourism and cultural heritage of the Republic of Uzbekistan
- ❖ The Ministry for development of information technologies and communications of the Republic of Uzbekistan;
- ❖ The Ministry of Construction of Republic of Uzbekistan;
- ❖ The Inspection for quality control of road building works under the Ministry of transport of the Republic of Uzbekistan («Uzroadinspection»);
- ❖ The Ministry of Energy of the Republic of Uzbekistan;
- ❖ The Ministry for Emergency Situations of the Republic of Uzbekistan;
- ❖ The Ministry of Health of the Republic of Uzbekistan;
- ❖ The Ministry of Employment and Labour Relations of the Republic of Uzbekistan;
- ❖ The Ministry of Water Resources of the Republic of Uzbekistan;
- ❖ The Ministry of Agriculture of the Republic of Uzbekistan;
- ❖ The Cadastre Agency under the State Tax Committee of the Republic of Uzbekistan;
- ❖ The State Committee of the Republic of Uzbekistan on Geology and Mineral Resources;
- ❖ The State Committee on Forestry of the Republic of Uzbekistan;
- ❖ The Centre for Hydrometeorological Services under the Cabinet of Ministers of the Republic of Uzbekistan (Uzhydromet);
- ❖ The State Committee for Industrial Safety of Uzbekistan; and
- ❖ The Ministry of Internal Affairs of the Republic of Uzbekistan

State control of environmental protection is carried out by public authorities and regulatory bodies and departments/agencies specifically responsible for nature protection. Authorized departments responsible for nature protection are indicated in Table 9.

Table 9: Ministries and departments for industry monitoring

Authority	Type of monitoring
MEEPCC	Monitoring of sources of pollution (emission) of atmospheric air, surface water and soil, as well as monitoring of flora and fauna in protected natural areas administered by the Ministry of Ecology, Environmental Protection and Climate Change.
Uzhydromet	Monitoring of air pollution, pollution of surface (natural watercourses) waters, soils, background monitoring; Monitoring climate change and environmental pollution in the Republic of Uzbekistan (according to PP 4896 dated November 17, 2020, paragraph 2)
Ministry of Water Resources	Monitoring the qualitative composition of collector-drainage waters of main collectors and reclamation wells
State Committee for Geology	Monitoring of groundwater pollution and hazardous geological processes
Ministry of Health	Sanitary and hygienic monitoring of the natural environment
Ministry of Emergency Situations	Monitoring of radiation and biological emergencies throughout the territory
Goskomles	Monitoring of land degradation and desertification and in terms of monitoring flora and fauna on forest lands, as well as other objects administered by the State Forestry Committee
Ministry of Agriculture	Monitoring of agricultural lands, as well as monitoring of vegetation of natural pastures

Payments for special nature management and pollution of environment consists of taxes and also, compensation payments for pollution of the environment (emissions, discharge of contaminants and wastes disposal), payments for protection and restoration of nature resources.

3.3. NATIONAL EIA RULES AND PROCEDURES

The national EIA will be performed by another entity, the process for this is described below. Compliance with national requirements and a positive Environmental Approval are prerequisites to compliance with the World Bank's Environment and Social Framework 2018. For this reason, the process is described below for information.

There are specific requirements as to the content, development procedure and examination of Environment Impact Assessment (EIA) documents. These are governed by the following legislative acts of the RUz:

- ❖ Law "On Nature Protection" No. 754-XII dated December 9, 1992 (as amended on November 15 2019).
- ❖ Law No. ZRU-1036 dated "On Environmental Expertise, Environmental Impact Assessment and Strategic Environmental Assessment"
- ❖ Regulation "On the further improvement of the environmental impact assessment mechanism", approved by the Decree of the Cabinet of Ministers of the RUz No. 541 dated September 07, 2020. The regulation defines the legal requirements for EIA in Uzbekistan (referred to as OVOS).
- ❖ Regulation "On approval of the regulations on the order of design and approval of draft environmental standards", approved by the Decree of the Cabinet of Ministers of the RUz No 14 dated January 21, 2014.

The main regulatory body for national EIA in Uzbekistan is Ministry of Ecology, Environmental Protection and Climate Change of the Republic of Uzbekistan (MEEPCC).

The MEEPCC performs its activities on the basis of the following legal acts:

- ❖ Decree of the President of the Republic of Uzbekistan "On measures to implement administrative reforms of New Uzbekistan" DP-269 dated December 24, 2022;
- ❖ Resolution of the President of the Republic of Uzbekistan "On measures for the effective organization of the activities of the Ministry of ecology, environmental protection and climate change" RP-171 dated May 31, 2023;
- ❖ Decree of the President of the Republic of Uzbekistan "On measures to transform the sphere of ecology and environmental protection and the organization of the activities of the authorized state body" DP-81 dated May 31, 2023;
- ❖ Decree of the President of the Republic of Uzbekistan "On improving the system of public administration in the field of ecology and environmental protection" DP-5024 dated April 21, 2017;
- ❖ Resolution of the President of the Republic of Uzbekistan of April 21, 2017 No. PP-2915 "On measures to ensure the organization of the activities of the State Committee of the Republic of Uzbekistan on Ecology and Environmental Protection";
- ❖ Resolution of the Cabinet of Ministers of the Republic of Uzbekistan dated January 15, 2019 No. 29 "On Approving the Provision on the State Committee of the Republic of Uzbekistan on Ecology and Environmental Protection";

- ❖ Resolution of the President of the Republic of Uzbekistan dated October 3, 2018 No. PP-3956 “On measures to ensure the organization of the activities of the State Committee of the Republic of Uzbekistan on Ecology and Environmental Protection”;
- ❖ Decree of the President of the Republic of Uzbekistan, dated 30.12.2021, No -76 “On measures for environmental protection and organization of activities of state bodies in the field of environmental control”;
- ❖ Resolution of the Cabinet of Ministries of the Republic of Uzbekistan dated September 7, 2020. No.541 “On measures for the further improvement of environmental impact assessment”; and
- ❖ other laws and by-laws related to nature protection.

The requirements of the environmental impact assessment process in Uzbekistan are specified by the Regulation about the SEE approved by the Decree of the Cabinet of Ministers No.949 dated from 22 November 2018.

The Decree of the Cabinet of Ministers No.949 dated on 22 November 2018. The law establishes the Republic of Uzbekistan’s environmental impact assessment system requiring to reviews environmental impact reports. The review of environmental assessment is based on: i) compliance of projected economic and other activities with environmental requirements in the stages preceding decision making on its implementation; ii) level of ecological danger planned or carried out business and other activities, which may have or had a negative impact on the condition of the environment and public health; and iii) adequacy and reasonableness of the measures provided for the protection of the environment and rational use of natural resources.

The Decree specifies the legal requirements for EIA in Uzbekistan. According to the Decree, the State Environmental Expertise (SEE) is a type of environmental examination carried out by specialized expert divisions to set up the compliance of the planned activities with the environmental requirements and determination of the permissibility of the environmental examination object implementation.

Decree of the CM No.541 dated September 07, 2020 «On further improvement of the environmental impact assessment mechanism». According to the Decree of the CM No.541 dated September 07, 2020, all types of activities are classified into one of four categories ranging from Category I (High Risk) to Category IV (Local Impact):

- ❖ **Category I** is “high risks” of environmental impact (SEE is conducted by the “Centre of State Environmental Expertise” within 20 days, all stages of the EIA are required);
- ❖ **Category II** is “medium risks” of environmental impact (SEE is conducted by “Centre of State Environmental Expertise” within 15 days, all stages of the EIA are required);
- ❖ **Category III** is “low risk of impact” (SEE is conducted by the regional offices of the “Centre of State Environmental Examination” within 10 days, all stages of the EIA are required); and
- ❖ **Category IV** is “minor risk of environmental impact, local impact” SEE is conducted by regional offices of the “Centre of State Environmental Examination” within 5 days, only the first phase of the EIA process needs to be completed (Draft Statement on Environmental Impact).

Category I –Corresponds to WB category High;

Category II –Corresponds to WB category Substantial;

Category III –Corresponds to WB category Substantial or Moderate; and

Category IV - Corresponds to WB category Low.

The SEE Regulation describes the procedure for arranging the SEE and the procedure undertaken by the Centre of the State Environmental Expertise. The three EIA stages and their required deliverables are summarized in below Table 10 as per the regulation.

Table 10: Stages of EIA process

Stage of EIA/OVOS Process	Required Deliverables
Stage-I Preliminary Statement of the Environmental Impact (PSEI) (‘PZVOS’ is the national acronym)	To be conducted at the planning stage of the proposed project prior to development funds being allocated. Public hearing is needed only for this stage. PZVOS is valid until the end of construction. PZVOS will not be valid for the commissioning time
Stage-II Statement of the Environmental Impact (SEI) (‘ZVOS’ is the national acronym)	To be completed where it was identified by the Center for State Environmental Expertise/Regional Center for State Environmental Expertise at Stage-I that additional investigations or analyses were necessary. The Statement shall be submitted to the Center for State Environmental Expertise/Regional Center for State Environmental Expertise prior to the beginning of construction. <i>Usually this stage is skipped.</i>
Stage-III Statement on Environmental Consequences (SEC) (‘ZEP’ is the national acronym)	The final stage of the SEE process and is to be performed before the project is commissioned. The report details the modifications to the project design that have been made from the Center for State Environmental Expertise/Regional Center for State Environmental Expertise review at the first two stages of the EIA process. The comments received during the public consultation, the environmental standards applicable to the project and environmental monitoring requirements associated with the project and principal conclusions

State ecological expertise approval: The State Committee on Ecology and Environmental Protection provides their opinion at Stage I and II is a typically a mandatory document for project financing by Uzbek banks, other Lenders and for Project commissioning at Stage III. The conclusion of the State Committee is typically valid for three years from the date of its issuance. If the project is not implemented within three years from the date of issue of the conclusion, the EIA report needs to be revised and re-submitted for approval.

The Resolution specifies the legal requirements for EIA in Uzbekistan. According to the Resolution, the State Environmental Expertise (SEE) is a type of environmental examination carried out by specialized expert divisions to set up the compliance of the planned activities with the environmental requirements and determination of the permissibility of the environmental examination object implementation.

The conclusion of the SEE is valid for three years from the date of issue. If the project is not implemented within three years from the date of issue of the Conclusion, the EIA report needs to be revised and re-submitted to the Center for environmental expertise for revision and approval. In case of expansion, reconstruction, technical re-equipment or changes in the technological process of existing facilities, affecting the quantitative and qualitative characteristics of emissions, discharges and waste, changes in legislative requirements, as well as by decision of the relevant authorities exercising state control in the field of environmental protection, environmental standards are subject to revised as part of an EIA

with a subsequent three-year period. After three years of facility commissioning, it is obligatory to design the ecology normative.

Drafting note: Positive conclusion from MEEPCC should be obtained for Stage I/II to be able to start construction, whereas positive conclusion for Stage III is needed for project operation.

3.4. OTHER RELEVANT ENVIRONMENTAL LAWS

A system of laws and by-laws has been developed and adopted around the Law on Nature Protection. This system is aimed at regulating environmental protection, promoting the rational use of natural resources, and protecting people from unfavorable changes in the environment. Currently, over 40 legislative acts and approximately 70 by-laws are enforced in Uzbekistan in the area of environmental protection and utilization of natural resources. The brief review of the main pieces of relevant regulations is in Table 11.

Table 11: Major Legislation for Environmental Protection of the Republic of Uzbekistan

Legislation	Year Passed (Amended)	Purpose / Content
Constitution of the Republic of Uzbekistan	December 8, 1992, amended in accordance with the Law of Uzbekistan dated 28.12.1993, No. 989-XII, and the Law of Uzbekistan dated 24.04.2003 No. 470-II	Land, subsoil, air waters, forest, wildlife and other natural resources shall be utilized and, at same time, protection shall be give
Law on the Nature Protection	No. 754-XII dated December 9, 1992	The general legal framework for comprehensive environmental protection and for the use of them, including environmental standards setting, legal regime of specially protected area, rules and procedures for the use etc
On the State sanitary epidemiological supervision in the Republic of Uzbekistan	3 July 1992 (amended on 3 Sep 2010)	Regulates social relations on sanitary-epidemiological wellbeing and radiation safety, the right of persons to a healthy environment and other associated with it, the rights and guarantees of their implementation.
Law on protection and usage of flora	No. 543-I dt. December 26, 1997 (last revision was made by Law of Uzbekistan No. 82-II dt. 26.05.2000)	Regulates relations in the field of protection and use of flora (plants) growing in natural conditions, as well as wild plants grown for their restoration and genetic preservation
Law on protection and usage of fauna	No. 545-I dt. December 26, 1997 (last revision was made by Law of Uzbekistan No.59 dt. 10.10.2006)	Regulates relations in the field of protection and use of wild animals living in a state of natural freedom on land, in water, atmosphere and soil, permanently or temporarily inhabiting the territory of the Republic of Uzbekistan, as well as kept in semi-free conditions or artificially created environment for scientific or environmental goals.

Legislation	Year Passed (Amended)	Purpose / Content
Law on the Land cadaster	No. 666-I dt. August 28, 1998 (last revision was made by Law of Uzbekistan No. 621-II dt. 30.04.2004)	Contains the basic rules and regulations of land use and provides for land rights
Law on protection of atmospheric air	No. 353-I dt. December 27, 1996 (last revision was made by Law of Uzbekistan No.59 dt. 10.10.2006)	Defines the preservation of the natural atmospheric pool; legal regulation of the activities of state bodies, enterprises, institutions, organizations, public associations and citizens in the field of atmospheric air protection. Specified standards, quality and deleterious effect norms, requirements on fuels and lubricants, production and operation of vehicles and other transport means and equipment, ozone layer protection requirements, obligations of enterprises, institutions and organizations toward atmospheric protection, and compensations for damages from atmospheric pollutions.
Law on water and water use	No. 837-XII dt May 6, 1993 (last revision was made by Law of Uzbekistan No. 240 dt 25.12.2009)	Provides for rational water use, protection of water resources, prevention, and mitigation of negative consequences and compliance with national legislation. Regulates the rational use of water and protects waters from pollution and depletion, prevention and liquidation of harmful effects of water, improvement of water bodies, and the protection of the rights of enterprises and institutions, organizations and dehqan farms for adequate and clean water.
Law on Environmental Control	27 Dec 2013	Regulates relations in the field of environmental protection. The main objectives of environmental control are prevention, detection, and suppression of violations of environmental legislation; monitoring environmental situation and factors, which can lead to pollution of the environment, irrational use of natural resources, endangering life and health of citizens.
Law about Environmental Audit No. ZRU-678, 2021	March 15, 2021 (as amended on 16.01.2024 No. ZRU-896)	Regulates environmental audits in the field of environmental protection and rational use of natural resources, including voluntary or mandatory environmental audits
Law on Health Safety and Environment	May 6, 1993	Occupational Health and Safety
Law on Waste	No. 362-II dt. April 5, 2002	Treats waste management, with the exception of emissions and air and water pollution, and provides MoNR with power, related to inspection, coordination, environmental assessment and setting specific parameters for the places where waste can be disposed of.
Law about subsoils	No.444-II dt. 13.12.2002 (as amended on 12-10-2021)	Regulate the relations arising from the possession, use and disposal of subsoil (mining relationships), in order to ensure rational, integrated use of mineral resources to meet the needs for mineral raw materials, groundwater and other needs, protection of the earth's interior, environment and safety works in the use of subsoil, protection of the

Legislation	Year Passed (Amended)	Purpose / Content
		interests of the state and citizens, as well as protection of the rights of users of subsoil resources.
Law on protected nature territories	No. 710-II dt. December 3, 2004	Establishes legal, economic and organizational fundamentals for the preservation of conditions of natural environment and rational use of natural resources.

Apart from above mentioned legal acts, the following Decrees and resolutions are relevant to the Project:

The Decrees of the President of the RUz are:

- ❖ “On Approval of the Concept on Environmental Protection in the RUz until 2030” No. 5863 dated October 30, 2019 (as amended on March 17, 2021);
- ❖ “On Improving the Public Administration System in the Field of Ecology and Environmental Protection” No. 5024 dated April 21, 2017;
- ❖ “On Additional Measures to Improve the Public Governance System in the Ecology and Environmental Protection” No. 3956 dated October 03, 2018;
- ❖ “On Measures for Cardinal Improvement and Development of the Waste Management System” No. 2916 dated April 21, 2017; and
- ❖ “On Approval of the Strategy on Solid Waste Management in the RUz for the Period 2019-2028” No. 4291 dated April 17, 2019.

The Resolutions of the Cabinet of Ministers are:

- ❖ “On the Improvement of the System of Environmental Monitoring in the RUz” No. 737 dated September 05, 2019;
- ❖ “On Approval of the Regulations on the Order of Establishment of Water Protection Zones and Sanitary Protection Zones of Water Bodies in the Territory of the RUz” No. 981 dated December 11, 2019;
- ❖ “On Approval of the Regulation on the Procedure for Exercising State Environmental Control” No. 216 dated August 05, 2014;
- ❖ Resolution No.14, “On Approval of the Regulations on the Procedure for the Development and Coordination of Proposed Environmental Standards”, 2014;
- ❖ “On Approval of Regulatory Legal Acts in the Field of Environmental Control” No. 286 dated October 08, 2015;
- ❖ “On the Further Improvement of the Environmental Impact Assessment Mechanism No. 541 dated September 07, 2020;
- ❖ “On Measures to Further Improve the Regulation of imports into the RUz and exports from the RUz of Ozone-depleting Substances and Products Containing Them” No. 17 dated January 09, 2018;
- ❖ “On Measures to Organize the Preparation, Publication and Maintenance of the Red Book of the RUz” No. 1034 dated December 19, 2018;
- ❖ “On Approval of Regulatory Acts Aimed at Implementing the Provisions of the Law of the RUz on Protected Natural Territories” No. 339 dated May 04, 2018;
- ❖ “On Improving the Monitoring System of the Natural Environment in the RUz” No. 737 dated September 05, 2019;
- ❖ “On Measures to Further Improve the Economic Mechanisms for the Protection of Nature” No.820 dated October 11, 2018;

- ❖ “On the Further Improvement of the Economic mechanisms of Environmental Protection in the Territory of the RUz” No. 202 dated April 12, 2021;
- ❖ “On Approval of the Strategy for the Conservation of Biological Diversity in the RUz for the period, 2019–2028” No. 484 dated June 11, 2019;
- ❖ “On Measures to Implement the National Sustainable Development Goals and Targets for the Period Until 2030” No. 841 dated October 20, 2018.

In a framework of consultations with stakeholders it was revealed number of other legal acts applicable for Project. The table below describes other applicable legislation that should be followed while carrying out constructional works near public infrastructure.

Table 12: Other Applicable Legislation

Legal act	Application to the Project
Archaeological and cultural heritage	
Law of the Republic of Uzbekistan, dated August 30, 2001, No. 269-II. Law “On the Protection and Use of Cultural Heritage Objects” adopted on August 20, 2001. In 2009, changes were made that protect, along with the tangible cultural heritage, the intangible cultural heritage	Paragraph 33 of Annex 9 specifies following buffer zones for objects of cultural and archaeological heritage: ❖ Up to 300 meters for objects of international importance included in the UNESCO World Heritage List; ❖ Up to 200 meters for objects of historical importance; ❖ Up to 100 meters for objects of national importance. Buffer zones can be with less size, depending on the type and importance. Cultural heritage Agency is in charge for reviewing and establishing buffer zones depending on type and location of cultural/archaeological object.
The Law of Republic of Uzbekistan No276 “On Burial” dated 27.12.2010	Article 14 - gardening, cultivating agricultural crops as well as livestock grazing in cemeteries are prohibited Article 15 - Environmental control and sanitary and epidemiological supervision over the maintenance of burial sites are carried out by the State Committee of the Republic of Uzbekistan on Ecology and Environmental Protection and the Ministry of Health of the Republic of Uzbekistan in the manner prescribed by law. Article 16 - Before planning any other activities in the cemeteries, relevant state bodies should conduct the required land plot of cemetery.
Resolution of Cabinet of Ministries No101 “On measures to implement the law of the republic of Uzbekistan on Burial and funeral ceremonies”	Paragraph 6 - Local administration/governing bodies are responsible for maintenance of cemeteries in regions and districts. Paragraph 18 - Cemeteries are not subject to demolition and can be moved in the prescribed manner only by decision of the state authorities of the district (city) in the event of a threat of constant flooding, landslides and other natural disasters. Paragraph 19 - The closing of the cemetery is carried out by the decision of the khokim of the district (city) after the allotment of a new land plot for a new cemetery in accordance with the established procedure, if there is no other functioning cemetery of the corresponding religious denomination in this settlement.

Legal act	Application to the Project
	Paragraph 23 - The use of territories where cemeteries were previously located is permitted after 20 (twenty) years from the date of their transfer. In this case, these territories can only be used for planting decorative green spaces. The construction of buildings and structures in these territories is prohibited. Paragraph 39 - Reburial of the remains of the dead is allowed no earlier than one year from the moment of burial in sandy and slightly clayey soils, and no earlier than three years from the moment of burial in damp soils, where the processes of decomposition and mineralization are slowed down. The sanitary and epidemiological service issue a conclusion on the possibility of extracting the remains and transporting them to another place of burial upon presentation of a certificate from a medical institution on the cause of death, taking into account the epidemiological and epizootic situation in the area.
Overhead transmission lines	
Decree of the Cabinet of Ministers of the Republic of Uzbekistan, dated December 26, 2018 No. 1050. "On approval of the rules for the protection of electric grid facilities"	Sanitary protection zone for existing OHTL depends on its rating and applies as follows: ❖ 35 kV - 15 meters; ❖ 110 kV - 20 meters; ❖ 220 kV - 25 meters; ❖ 500 kV - 30 meters.
Irrigation and drainage water canals	
Resolution of Cabinet of Ministries No 981 "On approval of sanitary protection zones for water bodies in Uzbekistan" dated on 12.12.2019	Size of sanitary protection zone for of canals used for household and drinking and medical and recreational purposes, is established taking into account geomorphological, hydrogeological conditions, the nature of the use of adjacent lands and is taken in the following sizes from the normal water level: a) for canals with a capacity of 50 to 100 cubic meters. meters of water per second - 50 - 70 meters; b) for canals with a capacity of 100 to 150 cubic meters. meters of water per second - 70 - 100 meters; c) for canals with a capacity of more than 150 cubic meters. Meters of water per second - 100 - 150 meters. The minimum distance to canals used for irrigation and drainage purposes size of sanitary protection should be as follows: a) for irrigation networks with a total depth of 0.75 - 2 meters, serving two or more farms and other agricultural organizations along the normal water level - 5 meters; b) for canals and collector-drainage networks with a total depth of 2 - 5 meters along the normal water level - 6.5 - 9 meters; c) for canals and collector-drainage networks with a total depth of 5 - 10 meters along the normal water level - 9.5 - 12 meters.
Water / wastewater pipelines	
KMK 2.04.02-19	Paragraph 10.12 prescribes: - o 30 meters of buffer zones for well protected source of ground water (boreholes, wells etc); and - o 50 meters of buffer zones for poor protected sources of ground water (boreholes, wells)

Legal act	Application to the Project
	Paragraph 10.20 prescribes 20 meters of buffer zone from both sides of main water pipelines with a diameter of 1000mm.
Telecommunication	
The Law of the Republic of Uzbekistan “On telecommunications”	Article 16 - affected assets that belong to communication (cables, optic fibre cables) are subject to the compensation at the cost of Project developer, including the costs for relocation of assets, if needed.
Resolution of Cabinet of Ministries No210 “On approval of rules for safety of telecommunication lines” dated on 15.05.1998	Article 10 specifies buffer zones for different types of communication lines: - o for overhead and ground cables - 2 metres from each side; - o when crossing rivers, lakes, reservoirs, canals - 100 meters on each side, and for marine cable lines - 0.25 miles; - o for ground and underground cables unattended amplifying and regeneration points on communication lines - 3 meters.
Gas pipelines	
SHNK 2.04.08-13	Requirements indicated in paragraphs 4.56 - 4.60 should be followed while construction and operation of gas pipelines along the railways and automobile roads. There requirements are for relocation/construction of new pipelines.

3.5. KEY ENVIRONMENTAL LAWS

Within the limits of established state policy under the direction of the President and Cabinet of Ministers (CM) in the Uzbekistan, attention is paid to the execution of accepted ecological obligations. Nature conservation policy of Uzbekistan and implemented measures related to environmental protection and nature management are based on the following principles:

- ❖ Integration of economic and ecological policy for conservation and rehabilitation of the environment as a necessary condition for increasing the population’s standard of living;
- ❖ Transition from protection of some individual environmental elements to a more general and complex protection of ecosystems;
- ❖ Placing a responsibility on all members of society for environmental protection, conservation of biodiversity and improvement of the conditions of the general population.

Protection of the environment of the Republic of Uzbekistan is performed in accordance with certain interactions between society and nature. These interactions are based on two principles: rational use of natural. The priority of protecting human life and health is central among these principles. The Constitution of the Republic of Uzbekistan and environmental legislation enshrine the right of citizens to a favorable environment for life and health and establish guarantees for its provision.

Legislation provides for a number of other environmental rights and duties of citizens of the Republic of Uzbekistan, which can be implemented through individual or public environmental activities. In order to achieve these objectives, the Government of Uzbekistan developed a comprehensive set of legislation to regulate environmental issues and implications of the Infrastructural projects.

National environmental legislation is based on the regulations of the Constitution of Uzbekistan, which was accepted on December 8, 1992, amended in accordance with the Law of Uzbekistan dated 28.12.1993, No. 989-XII, and the Law of Uzbekistan dated 24.04.2003 No. 470-II.

The fundamental legislative act regulating nature conservation is the Law “On nature protection” No. 754-XII dated December 9, 1992 (last revision was made by Law of Uzbekistan No.59 dated 10.10.2006). This Law states legal, economic and organizational bases for keeping conditions of environment, rational usage of nature complexes. It has the aim to provide balanced harmonic development of relations between humans and nature, protection of ecological systems, nature complexes and separate objects, and guarantee rights of citizens for favourable environment. The influence of economic activity on nature environment is limited by norms and quality standards established for various components of the natural environment. The aim is to guarantee ecological safety of population, production and protection of nature resources.

As a whole, ecological legislation of the Uzbekistan covers a wide spectrum of issues and includes regulations including:

- ❖ Protection of the environment and its main components;
- ❖ Protection of ecosystems and regulation of usage of nature resources;
- ❖ Evaluation of influence on environment and ecological expertise;
- ❖ Regulation of compensations for damage made to environment (including economical and administrative aspects);
- ❖ Regulation of property rights for nature resources.

The legislation of Uzbekistan prioritises a number of international agreements above the national legislation. For example, Article 53 of Law of Uzbekistan “On nature protection” requires that “in cases, when international agreement, concluded by Uzbekistan, states rules other than that contained in the present Law or other legislative act of Uzbekistan on nature protection, the rules of international agreement are applied, excluding cases when legislation of Uzbekistan established more strict requirements”.

Law on Nature Protection (dated December 9, 1992 (last revision was made by Law of Uzbekistan No.59 dated 10.10.2006)

This law is the key national environmental law for the protection of the environment and the sustainable use of resources and the right for the population to a clean healthy environment. This law states legal, economic, and organizational basis for the conservation of the environment and the rational use of natural resources.

- ❖ Article 24: The State Environmental Expertise (SEE) is a mandatory measure for environmental protection, preceded to decision making process.
- ❖ Article 25: The law prohibits the implementation of any Project without approval from SEE.
- ❖ Article 53: If an international treaty concluded by the Republic of Uzbekistan establishes rules other than those provided for by the legislation of the Republic of Uzbekistan on nature protection, the rules of the international treaty shall be applied, except in cases where the legislation of the Republic of Uzbekistan establishes stricter requirements.

Law on Environmental Control № 3PY-363 (2013, as amended in 2022)

- ❖ Article 4: The main objectives of this law include:
-

- Prevention, detection and suppression of violation of legislative requirements relating to environmental protection and rational use of natural resources.
- Monitoring the state of the environment, identifying situations that can lead to environmental pollution, irrational use of natural resources, pose a threat to the life and health of citizens.
- Determination of compliance with environmental requirements of any ongoing economic development activities.
- Ensuring compliance with the rights and legitimate interests of legal entities and individuals performing their duties in relation to environmental protection and sustainable use of natural resources.
- ❖ Article 7: The objects of environmental control are:
 - Land, its subsoil, waters, flora and fauna, and atmospheric air;
 - Natural and man-made sources of impact on the environment; and
 - Activities, action or inaction that may lead to pollution of the environment and irrational use of natural resources, create a threat to the life and health of citizens.

Presidential Decree No. 5863 on Environmental Protection Strategy (2019)

The Strategy contains measures to preserve the environment (atmospheric air, water, land, soil, subsoil, biodiversity, protected areas) from anthropogenic impact and other negative factors, expand protected areas, and improve the environmentally safe system of waste management. The Strategy approved 24 target tasks until 2030, which aim to increase the area of forest plantations, restoration and reclamation of disturbed lands, rational use of water resources, reduction of emissions into the air, protection and reproduction of biological resources, and improvement of the waste management system

3.4.1. National EIA Rules and Procedures for tree cutting

- ❖ “On Measures for Further Improvement of the Order of Use of Trees and Shrubs Not Included in the State Forest Fund, as well as Issuing Permits in the Field of Their Use”, No.43, dated January 17, 2019; and
- ❖ “On Additional Measures for Preserving Valuable Varieties of Trees and Shrubs Not Included in the State Forest Fund” No.93, dated February 18, 2020

Decree of the President of the Republic of Uzbekistan N0 PD-46 “On measures to accelerate works on landscaping and further effective organization of the protection of trees in the Republic of Uzbekistan” dated on 30.12.2021 relates to preservation of trees and to tree felling:

- ❖ Paragraph 1: Extend the moratorium on cutting down valuable species of trees and shrubs that are not included in the state forest fund for an indefinite period. *This means there is no deadline for restrictions on decorative tree cutting.*
 - ❖ Clause 2, Sub-clause D: It is strictly forbidden to adopt government orders, protocols, written instructions, departmental acts, instructions and decisions of local executive authorities, including instructions for felling, uprooting, damage or destruction of valuable species of trees and shrubs that are not included in the state forest fund.
 - ❖ Clause 6: The State Committee for Ecology is responsible for monitoring and it should record all permits issued for tree cutting, including pruning for sanitary purposes, in the context of a specific area and each tree.
 - ❖ Clause 15: The usual procedure of receiving permits for tree cutting is an inventory survey conducted by the Ecology Committee.
-

Resolution of Cabinet of Ministries No86 “On approval of single regulation on procedures for issuing certain permits through a special electronic system” dated on 01.03.2022

Resolution 86 of 2022 concerns “On approval of single regulation on procedures for issuing certain permits through a special electronic system”. Current legal act allows to issue permit for various purposes, including collecting species of flora as well as cutting trees, which do not belong to natural parks, forestry fund.

In particular, Annex 14 of Resolution prescribe cases when species of flora are eligible for collecting (preparation) and (or) extracting from the natural environment plant, apart from these which are included in the Red Book, and located on forestry fund land.

Annex 15 of current legislation allows following cases of tree cutting:

- ❖ Trees and bushes which are not located in land of forestry fund;
- ❖ Trees and bushes that might interfere operation of equipment and devices while construction and reconstruction of buildings, structures and communications;
- ❖ Trees and bushes that might interfere for implementation of engineering research.

For cutting trees and bushes for above mentioned cases, there is a need to obtain a special permission through the Unified centre for public services. It is necessary to submit an application and determine purposes for cutting and number of trees and bushes that are subject to removal.

Cutting of trees and bushes for sanitary purposes from a part of the trunk and (or) from the base (dry and diseased trees) is carried out without the fees stipulated in clauses 6 and 7 of this passport based on the permission of the bodies of the MEEPCC. A permit is not required for pruning or trimming branches of trees and shrubs for sanitary purposes;

Permission for cutting trees is not eligible for following types of land:

- ❖ Private land (gardens, land plots that belong to physical and legal entities);
- ❖ Trees, plants and bushes located in nurseries and plantations;
- ❖ Trees and bushes located in forestry fund land

Resolution specifies following trees and bushes which are not considered as forestry fund:

- ❖ Trees and bushes grown in cities and other settlements, as well as those which are planted for landscaping purposes;
- ❖ Trees and bushes grown in surrounding of railways and highways, natural and artificial water canals, water basins and other water bodies;
- ❖ Trees and bushes grown in surrounding of agricultural fields

Project developer should submit an application to Unified centre for public services with detailed description of project, number of trees/bushes to be cut due to the project implementation. Application is subject to review during 5 working days, and centre will notify project developer on the results of application review.

Many important aspects of public administration, use and protection of water resources, nature and agricultural plants are regulated by Decrees of the Cabinet of Ministers or the President, for example:

- ❖ About approval of the Regulations on procedure for development and approval of drafts of ecological standard rates (No.14, 21 January 2014);

- ❖ "On Improvement of the Environmental Impact Assessment Mechanism" (No.541, 7 September 2020);
- ❖ "On improvement of the environmental monitoring system in the Republic of Uzbekistan" (No.737, 5 September 2019);
- ❖ Measures to further ordering activities in the field of groundwater use (No.430, 27 June 2017);
- ❖ Measures for ordering control and accounting of the rational use of underground water reserves for 2017-2021 (No.PP-2954, 4 May 2017);
- ❖ Resolution of the Cabinet of Ministers No.820, 11 October 2018 "On approval of the Regulation on the procedure for compensation payments for environmental pollution and waste in the territory of the Republic of Uzbekistan." The Regulation determines the procedure for applying compensation payments for environmental pollution and waste disposal on the territory of the Republic of Uzbekistan.

Regulatory documents on protection of nature, organization of workplaces, including on the construction site. The relevant regulatory documents on nature protection, protection of human health approved by the government:

- ❖ Sanitary Norms and Rules No.0289-10. Sanitary rules and hygienic requirements for the organization of building and construction;
- ❖ Sanitary Norms and Rules No.0128-02. Hygienic Classifier of Toxic Industrial waste in the conditions of the Republic of Uzbekistan;
- ❖ Sanitary Norms and Rules No.0318-15. Hygienic and anti-epidemic requirements for water protection in the territory of the Republic of Uzbekistan.

Based on the provided Land Criteria materials, it is evident that project sites of M-41 have a considerable number of trees. Thus, the Consultant note that, as per Presidential Decree No. UP-46 dated 30.12.2021, a moratorium on tree felling (for an indefinite period) has been established. This moratorium relates to the felling of 78 designated valuable tree and plant species, as enlisted in the Annex to Resolution of the Cabinet of Ministers No. 93 dated 18.02.2020. In the event that the assessment reveals that the trees on the Project land fall within the scope of the moratorium list mentioned above, it will be required to follow the procedure outlined in Table 13 below.

The safeguarding of trees and shrubs within the moratorium, in accordance with the Decree, involves implementing preservation practices when choosing and allocating land plots for projects (including while developing the engineering and communication infrastructure). This includes practices such as transplantation and planting new trees in a specific quantity as compensation.

The moratorium does not apply to [the evaluation of the feasibility and execution of the activities outlined below shall be conducted with the involvement of the relevant state authorities:

- ❖ Sanitary pruning and felling of trees and shrubs damaged by natural factors, pests, plant diseases, those drying or dried, as well as those posing a threat to the safety of human life and property of legal and natural persons;
 - ❖ Felling of trees and shrubs (poplar and other fast-growing species, mulberry plantations, fruit trees, and shrubs) grown for wood and fruit production;
 - ❖ Felling of trees and shrubs grown on plantations and/or owned by a legal or natural person.
-

The procedures for obtaining authorization for tree-related activities under Uzbek laws are as follows:

- i) For trees under the moratorium: The local mayor (Khokim) or the Ministry of Ecology, Environmental Protection, and Climate Change may issue a decision allowing transplantation and corresponding compensation activities instead of felling activities.
- ii) For trees NOT under the moratorium: Special permission for tree felling must be obtained following established procedures outlined in Annex 15 to the Resolution of the Cabinet of Ministers No. 86 dated 22.02.2022. The relevant entity submits an electronic application through license.go.uz, pays the state fee, and obtains the necessary authorizing document from the Ministry of Ecology, Environmental Protection, and Climate Change. The procedure to be followed for obtaining special permission is outlined in the Appendix.

Note that in accordance with the provisions of the Presidential Decree No. UP-46, it is strictly prohibited to issue directives from the Government, protocols, written instructions, departmental acts, mandates, and decisions of local executive authorities (i.e., municipalities) that include instructions allowing the felling, uprooting, damage, or destruction of valuable trees/plants included in the list of CoM Decree No.93 referred to above.

In accordance with the established regulations for tree protection and subsequent landscaping, for the construction of new buildings or structures with a height exceeding 12 meters from ground level and/or having a total area exceeding 500 square meters, the allocation of landscaping/green territory (trees, shrubs, other plants, and seedlings) should not be less than 25 percent of the total land plot area designated for the project. This requirement is not applicable to projects involving the renovation of morally outdated buildings/structures with an expired service life.

Figure 7: Stakeholders involved in the inventory and replantation and/or compensation for moratorium trees and shrubs

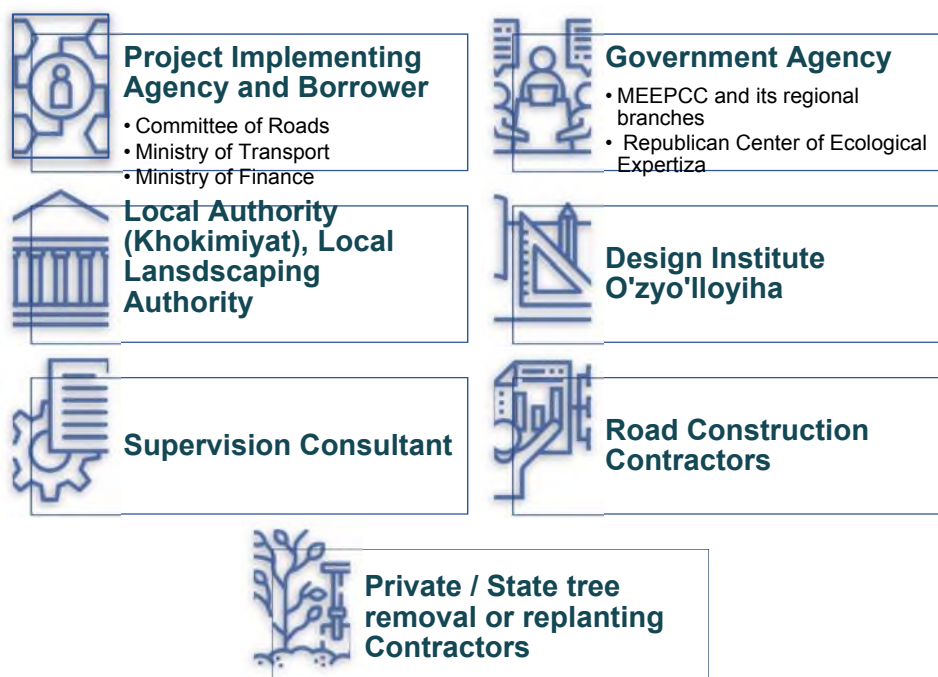


Table 13: Special permission procedures for tree felling of non-moratorium trees

Stage	Subjects	Activities	Timescales
1-st stage	Applicant	Appeal to the Public Services Center in an explicit manner or register on the Unified Portal of Interactive Public Services of the Republic of Uzbekistan (hereinafter - EPIGU ⁵) for obtaining permission to cut trees and shrubs that are not part of the state forest fund. Payment of Public Service Fee	Optional When contacting
2-nd stage	Public Services Center EPIGU	Submit application to the khokimiyat of the district (city) and to MEEPCC	Within 1 hour Automatically
3-rd stage	MEEPCC	Study of the condition of trees and shrubs, as well as the compliance of their felling with paragraph 2 of the Administrative Regulation ⁶ . Sending to the district (city) khokimiyat, as well as to the Public Services Center (when applying in person) or to the applicant (when applying electronically) through the EPIGU of a conclusion indicating the amount of payment for issuing a permit, except for the cases provided for in paragraph two of paragraph 2 Administrative regulations	Within 5 working days
4-th stage	The Public Services Center	After receipt of the conclusion, it is issued to the applicant by affixing his seal on it upon appeal.	During 1 hour
5-th stage	Applicant	After receipt of conclusion, payment of payments for issuing a permit in the amounts specified in the conclusion	Within 4 working days
6-th stage	Khokimiyat of the district (city)	If there is a positive conclusion from the MEEPCC after paying the fee for issuing the permit, except for the cases provided for in paragraph two of clause 2 of the Administrative Regulations, issue a permit and confirm it with its Electronic Digital Signature. In cases provided for in paragraph 2 of Clause 2 of the Administrative Regulations, after receipt of a positive opinion of the MEEPCC, a permit shall be issued. Sending permission to the Public Services Center (when applying in an explicit manner) or to the applicant (when applying in electronic form) through EPIGU.	Within 1 working day
7-th stage	The Public Services Center	Issuance of permission to the applicant by putting his seal on it at the appearance of the appeal.	During 1 hour

⁵ EPIGU is a national acronym for Unified Portal of Interactive Public Services of the Republic of Uzbekistan

⁶ Administrative Regulations for the Provision of Public Services for Issuing Permits for Felling Trees and Shrubs Not Included in the State Forest Fund (Appendix No. 1 to the Decree of the CM RUZ of 31.03.2018 No. 255)

3.6. KEY SOCIAL LEGISLATION

3.6.1. Land Rights, Acquisition and Resettlement

Land expropriation for public needs in Uzbekistan is carried out under the Land Code. The main objectives of the land legislation are to regulate the relations for the purpose of;

- ❖ Providing for the benefit of the present and future generations of evidence-based,
- ❖ Rational use and protection of lands,
- ❖ Reproduction and increase in fertility of soils,
- ❖ Preserving and improvements of the environment,
- ❖ Creation of conditions for equal development of all forms of managing,
- ❖ Protection of the rights of legal entities and physical persons to the parcels of land, and
- ❖ Strengthening of legality in this sphere, including by the prevention of corruption offenses.

The national laws and regulations with which the project will be compliance regarding the land rights, acquisition, and resettlement are:

- ❖ Constitution of the RUz dated December 08, 1992 (as amended on February 08, 2021);
 - ❖ Land Code of the RUz, No. 598-I dated April 30, 1998 (as amended on December 23, 2020);
 - ❖ Civil Code of the RUz, No. 163-I dated December 21, 1995 (as amended on January 22, 2020);
 - ❖ Law of the RUz “On State Land Cadastre”, No. 666-I dated August 28, 1998 (as amended on July 24, 2018);
 - ❖ Presidential Decree of the RUz “On Additional Measures to Simplify Procedures for the Implementation of Public Property Objects and Rights to Land Plots” No. 5552 dated October 11, 2018.
 - ❖ Presidential Decree of the RUz “On Measures for Effective Use of Land and Water Resources in Agricultural Industry” No. 5742 dated June 17, 2019;
 - ❖ Presidential Decree of the RUz “On Measures to Ensure Equality and Transparency in Land Relations, Reliable Protection of Land Rights and Transfer them into a Market Asset” No. 6243 dated June 08, 2021;
 - ❖ Presidential Decree of the RUz “About Additional Measures to Strengthen the Protection of Private Property and Guarantees of Owners 'Rights, to Redual Improvement of the System of Organization of Works to Support Entrepreneurial Initiatives and the Support of Initiatives” No. 5780 dated August 13, 2019;
 - ❖ Decree of the RUz Cabinet Minister “On Additional Measures to Improve the Procedure for Providing Compensations for the Removal and Provision of Land Plots and Providing a Guarantee of Property Rights of Individuals and Legal Entities” No. 911 dated November 16, 2019; and
 - ❖ Decree of the RUz Cabinet Minister “On Measures for Further Improvement of Procedures for Providing Vacant Land Plots for Business and Urban Construction” No. 1023 dated December 20, 2019.
-

Table 14: Major Resolutions for Land Rights, Acquisition and Resettlement of the Republic of Uzbekistan

Legislation	Purpose / Content
Resolution of Cabinet Ministers No. 97 dated 29 May 2006	This resolution deals with regulations that determine the procedure for withdrawal/redemption of a land plot or its part, as well as the procedure for calculating the amount of compensation to citizens and legal entities for demolished residential, industrial and other buildings, structures and trees and crops in connection with the withdrawal/redemption of land plots for state and public needs. The resolution specifies the purpose for which land can be withdrawn/redeemed and demolition of residential, industrial and other buildings, structures and trees and crops can be done.
Resolution of Cabinet Ministers No. 146 dated 25 May 2011	This resolution was promulgated to further improve the procedure for granting land plots, ensuring the protection of rights of legal entities and individuals to land, improving the architectural appearance of populated areas of the republic, optimal use of their development land in accordance with the Land Code and Town Planning Code of the Republic of Uzbekistan. Further, these regulations establish the procedure for determining the size and compensation of losses of owners, users, tenants and owners of land plots, as well as losses of agricultural and forestry production.
Resolution of Cabinet Ministers No. 3857 dated 17 July 2018	This resolution provides for certain measures for improving the efficiency of preparation and implementation of projects with the participation of international financial institutions and foreign government financial organizations. The resolution provides for compensating for land and structure in accordance with the provisions of the international funding agencies.
Presidential Decree No UP-5495. Decree “On measures on cardinal improvement of investment climate in the republic of Uzbekistan dated 01 August 2018	This resolution provides for certain measures for further improving the investment climate, measures to stimulate the attraction of direct investments, strengthen investor confidence in the consistency of government policy in this direction and increase the responsibility of government agencies in working with investors. The resolution stipulates that the affected person will have the right for prior information about withdrawal of land and its cost and other benefits entitled before a decision is made on the withdrawal of such land.

3.6.2. Right of Way (RoW) and Land Acquisition in Uzbekistan

Procedures for the use of right of way (RoW) in Uzbekistan are the same for legal entities and individuals. RoW or limited use of a land plot is determined in the Land Code of Uzbekistan, and Civil Code (under the term servitude), and also in the Resolution of Cabinet of Ministries No.911 dated on 16.11.2019.

Article 30 of Land Code (LC) determines engineering, electrical power and other lines and constructions as a reason for receiving the right to servitude. In accordance with Article 30 of the Land Code, Article 173 of the Civil Code (CC), and Article 30 of Annex 1 of the Resolution of Cabinet of Ministers No. 1060 dated December 29, 2018, servitude is established by agreement between persons demanding establishment of servitude and the owner, user, lessee, proprietor of the land plot. If they do not achieve consent, the servitude shall be established by court decision at the user’s claim. The agreement on servitude shall be subject to state registration and shall be preserved when the land plot is transferred to another person.

Servitude agreements can be terminated in cases of the cessation of the reason according to which it was established.

Article 173 of CC also states that the burdening of a land parcel by servitude does not deprive the owner of the parcel of the rights of possession, use, and disposition of this parcel.

Calculation and compensation of losses due to servitude agreement are performed in accordance with Law No 781 “On procedures for the withdrawal of land plots for public needs with compensation” (if it is a project for public needs) the Resolutions of Cabinet of Ministers No.146 from 25 May 2011 “On measures to improve the procedure for granting land plots for urban development activities and other non-agricultural purposes” and No. 911 from 16 November 2019 “On additional measures for enhancing modalities of providing compensation on withdrawal and allocation of land plots and safeguard the property rights legal and physical entities”.

Article 86 of the LC states that losses caused to the owners of land parcels, landowners, land users and lessees are liable to be fully refunded (including the lost profit) in the case of limitation of their rights in connection with land acquisition. Refunding of losses is carried out at the expense of the resources of the corresponding Centralized funds for compensation of losses to individuals and legal entities in connection with the seizure of land plots from them for public needs, and by enterprises, establishments and organizations the activity of which causes limitation of rights of land parcel owners, landowners, land users and lessees or worsening the quality of the neighbouring lands in the order established by legislation.

Article 173 of the CC states that the owner of the parcel burdened with the servitude has the right, unless otherwise provided by a Law, to demand from the person, in whose interests the servitude is established, proportional payment for the use of the parcel.

3.6.3. Labour and Employment

The GoU and the International Labor Organization (ILO) are actively cooperating on the elimination of the forced labor. Currently, 14 conventions of the ILO have been ratified, including 8 fundamental ones, which are focused on the preventing of forced labor. The

Republic adopted the National Plan of Action for the implementation of ILO conventions, the Country Program on Decent Work is being implemented, the essence and content of which are aimed at developing national labor legislation, the labor market, providing employment, social protection and dialogue with the population according to the ILO methodology. With the direct participation of experts from this organization, the use of child and forced labor in agriculture is monitored.

This project will be implemented based on the national legislation of prohibition of the forced labor in Uzbekistan. In addition to the Labor Code two main documents were approved by Oliy Majlis during two last years. Decree of the Cabinet of Ministers # 349 dated 10 May 2018 “On additional measures on the elimination of forced labor in Uzbekistan” prohibits and provides detail information on types of forced labor, types of governmental organizations and its staff, monitoring mechanism of local governorates (hokimiyats). According to this decree a financial resource of Public Works Fund, which was established under the Ministry of Employment and Labor Relations will be used for any public works in Uzbekistan.

The national legislation was approved by the new law recently approved by Oliy Majlis. On June 21, 2019 the Oliy Majlis of the RoU approved the Law #545, about Ratification of Protocols to the Convention 29 International Labor Organization 1930 on Forced Labor (Geneva, June 11, 2014). The adoption of this Protocol allows to establish new obligations to prevent forced labor, protect its victims and provide them with access to remedies; create a positive image of Uzbekistan in relations with the International Labor Organization and strengthen constructive cooperation with international human rights organizations.

The labour policy in Uzbekistan is applied at the national government level and is reflected in the relevant laws, regulations, and national social programmes.

- ❖ Law “On Compulsory Insurance of Third-Party Liability of Employers”, No. 210 dated April 16, 2009;
- ❖ Law “On Occupational Health and Safety” No. 410 dated September 22, 2016;
- ❖ Law “On Compulsory Industrial Accident and Occupational Disease Insurance”, No. 174 dated September 10, 2008;
- ❖ Law “On Public Pension Provisions” No. 938-XII dated September 03, 1993;
- ❖ Decree “On Improving the Procedure for Determining the Size of Wages, Pensions and Other Payments” No.5723 dated May 21, 2019;
- ❖ Decree “On Additional Measures to Create Favorable Conditions for Certain Categories of Pensioners Engaged in Labour Activities”, No.5291 dated December 28, 2017;
- ❖ Resolution “On Measures to Further Strengthen Guarantees for Labour Rights and Support of Women's Entrepreneurship”, No.4235 dated March 07, 2019;
- ❖ Decree of the Ministry of Employment and Labor and the Ministry of Health of the RUz “On Approval of the List of Hazardous Occupations for Women Not Recommended to be Used to Employ Women”, No.48 dated July 22, 2019;
- ❖ Resolution “On Measures to Create Favorable Conditions for Labor Activity in the RUz for Qualified Foreign Specialists”, No.4008 dated November 07, 2018;
- ❖ Resolution “On Additional Measures to Improve the System of External Labor Migration in the RUz”, No.3839 dated July 05, 2018; and
- ❖ Resolution “On Measures to Improve Cooperation with International and Foreign Financial Institutions”, No.3439 dated December 20, 2017.

3.6.4. Cultural Heritage

The *Article 49* of the Constitution of the GoU stresses that all citizens of the country are responsible for the preservation of the historical monuments and other cultural values. The Resolution of the President of the Republic of Uzbekistan identifies measures for the improvement of activities for protecting of cultural heritage objects, particularly, in the historical centers such as Bukhara, Samarkand, Khiva and Shahrisabz cities which are included in the UNESCO World Heritage List. This resolution presents responsibilities and tasks of the Ministry of Culture for protection, scientific study, rational use of the cultural heritage objects. It is planned to organize the Main Scientific and Production Administration for the Protection and the use of cultural heritage sites under the Ministry of Culture of the Republic of Uzbekistan, which defines the main tasks of this department as follows:

- ❖ implementation of state control on the protection and use of objects of cultural heritage, including objects of archaeological heritage, museum exhibits and collections, as well as cultural values;
 - ❖ maintaining the state cadaster of objects of cultural heritage, identification, documentation and registration of objects with historical, scientific, artistic or other cultural value, definition of categories and protection zones of objects of immovable cultural heritage, as well as ensuring their rational use;
 - ❖ implementation of historical and cultural expertise and design estimates documentation, conducting continuous scientific and technical control over the
 - ❖ implementation work to preserve the value and uniqueness of objects of cultural heritage.
 - ❖ establishing close cooperation with scientists, craftsmen, restorers and experts, supporting the development of unique methods, traditions and schools of repair studies, the implementation of public control.
-

Decree of the Cabinet of the Ministers No. 1011 of 22 December 2017 "On Perfection of the Decree no. PP-4068 "Regarding the strengthening of the protection, management and enhancement of tangible and intangible cultural heritage" (19 December 2018). A summary of the applicable legislation that will be considered during the ESIA process is presented in Table 15.

Table 15: National legislation, standards and guidelines applicable to the archaeology and cultural heritage study

Law /Act / Regulation	Objective
Constitution of the Republic of Uzbekistan (2017)	The Constitution of the Republic of Uzbekistan (2017) states that "It is the duty of every citizen to protect the historical, spiritual and cultural heritage of the people of Uzbekistan. Cultural monuments shall have protection by the state" (Art. 49).
Criminal Code of the Republic of Uzbekistan	Article 132 states that the intentional destruction, destruction or damage of objects of tangible cultural heritage under state protection causing significant or major damage shall be punishable by a fine, obligatory community service or by correctional labour up to three years. Article states that violation of a grave or a corpse, as well as the seizure of objects located on a corpse, grave or burial ground, shall be punishable by a fine, by corrective labour up to three years, by restriction of liberty or imprisonment from three to five years.
Code of the Republic of Uzbekistan on Administrative Responsibility	Article 64 notes that the violation of the rules for the protection and use of objects of tangible cultural heritage shall be sanctioned by a fine on citizens and officials. Construction or destruction of protected cultural property real estate objects in protected areas in specially protected historical and cultural territories without obtaining permission shall be sanctioned by a fine or administrative arrest.
Law No. 269-II "On the Protection and Use of Cultural Heritage Sites (30 August 2001, as amended)	Regulates the protection and use of cultural heritage objects (CHO), which are the national property of the people of Uzbekistan. The law protects ensembles, sites, monuments, objects of tangible and intangible cultural heritage. The law defines objects of tangible cultural heritage as representing historical, scientific, artistic or other cultural value ensembles, sites and monuments; and objects of intangible cultural heritage as representing customs, historical, scientific, artistic or other cultural value, folklore (the art of word, dance, music, performance), as well as knowledge, skills, tools, artefacts related to them and folk arts and crafts, and cultural spaces. Tangible cultural heritage is divided into CHO of national and local historical, scientific, architectural, artistic and memorial significance. Designated cultural heritage comprises World Heritage properties, elements inscribed on the Representative List of the Intangible Cultural Heritage of Humanity, CHO on the State Register, historical and cultural reserves, museum reserves and historical settlements. These are maintained on the State Cadastre of tangible CHO and the List of intangible objects of intangible CHO.
Law No. ZRU-229 "On protection and use of the objects of archaeological heritage" (13 October 2009)	Regulates the protection and use of the objects of archaeological heritage. The state has exclusive right of ownership of the objects of archaeological heritage. Objects of archaeological heritage are subject to compulsory state registration. The Ministry of Culture issues field investigation permits and approves the scientific report for each permit issued. Specially authorised institutions in the field of protection and use of archaeological heritage objects (authorised agencies) approve the procedures for archaeological exploration, archaeological excavations and archaeological surveillance, issue open sheets and

Law /Act / Regulation	Objective
	participate in the historical and cultural examination of archaeological heritage sites.
Presidential Decree No. PP-4068 “Concerning measures on preservation of objects of cultural and archaeological heritage” (19 December 2018)	Includes a ‘Road Map’ to radically improve the protection, conservation, scientific research, propaganda and rational use of tangible cultural heritage objects for 2019-2021.
Presidential Decree No. R-5181 “On improving the protection and use of objects of tangible cultural and archaeological heritage” (16 January 2018)	Required the creation of a national digital inventory, used as the basis for developing comprehensive measures to radically improve the protection, conservation, scientific study, promotion and use of objects of tangible cultural and archaeological heritage in 2018-2023.

3.7. NATIONAL NORMS AND STANDARDS FOR ROAD PROJECTS

Local legislation prescribes number of requirements for road. In particular SanPIN 0339-16” On sanitary rules and norms for planning and construction works of living settlements” prescribes specific requirements for reconstruction/reconstruction work of roads, highways, railways. As per this legal act the followings should be considered:

- ❖ Paragraph 11 - New project road/highway shouldn’t intersect central streets of living communities/settlements;
- ❖ Paragraph 25 - The distance from the edge of the carriageway of the main street, highspeed roads and railways to groups of residential buildings and places of quiet rest should be set at 50-100 m;
- ❖ Paragraph 26 - It is restricted to construct residential buildings with facades facing regulated intersections of urban highways and high-speed highways;
- ❖ Paragraph 27 - If construction of residential building along main streets, high-speed roads and railway tracks is necessary, they should be designed considering increased sound insulation of enclosing structures, cross-ventilation, placement of auxiliary premises of apartments and stairwells in the direction of the highway. It is also allowed to construct buildings with indentation of individual sections or upper floors in depth (kurdoner), which helps to reduce noise;
- ❖ Paragraph 49.4 - The distance between health resorts to roads of the 1st and 2nd category (highways of citywide and regional significance) must be at least 500 m, and for roads of the 3rd and 4th categories (local roads) the minimum distance from the extreme lane movement should be at least 100 m. If prescribed distance does not reduce noise, then additional measures (such as construction of screens, deepening of the roadbed, etc) should be planned.

Another legal act that should be followed while projecting/designing roads is ShnK 2.05.02 - 07 “Roads”, i.e.:

- ❖ Paragraph 1.10 - Roads of category I-III should be placed around settlements with access roads to them. At the same time, the distance from the edge of the subgrade of bypass roads to the development line of settlements should be taken in accordance with their master plans, but not less than 200 m;
- ❖ Paragraph 1.12 - Number of lanes for roads with a multi-lane carriageway, environmental protection measures, choice of solutions for road intersections and

- junctions, pavement design, furnishings, engineering devices (including fences, bicycle paths, lighting and communications), building composition and structures of the road and motor transport service in order to reduce one-time costs should be taken into account the staging of their construction and the increase in traffic intensity;
- ❖ Paragraph 1.13 - When designing highways, it is necessary to provide for environmental protection measures that ensure minimal disruption of the existing ecological, geological, hydrological and other natural conditions. It is also necessary to take into account valuable agricultural lands, cemeteries, mosques, and other religious buildings and structures, as well as recreation areas, protected areas, resorts;
 - ❖ Paragraph 2.8 - Outside populated areas, the average brightness of road sections, including large and medium bridges, should be 0.8 cd/m² on category I roads, 0.6 cd/m² on category II roads, and on connecting branches within traffic interchanges - 0.4 cd/m²;
 - ❖ Chapter III - assumes preparation of National EIA stages for road of Category I and II. This chapter also considers number of procedures (discharge of water, noise levels, restoration of topsoil after completion of construction) that should be considered while implementing road projects;
 - ❖ Paragraph 5.21 - The vertical distance from the wires of overhead telephone and telegraph lines to the carriageway at the intersections of highways must be at least 5.5 m (in the warm season). The elevation of wires at the intersection with power lines should be, m, not less than:
 - 6.0 m - at voltage up to 1 kV;
 - 7.0 m - at voltage up to 110 kV;
 - 7.5 m - at voltage up to 150 kV;
 - 8.0 m - at voltage up to 220 kV;
 - 8.5 m - at voltage up to 330 kV;
 - 9.0 m - at voltage up to 500 kV;
 - 16.0 m - at voltage up to 750 kV.

The State standards, and sanitary rules and norms are:

- ❖ SanPiN No: 0350-17 "Protection of atmospheric air in populated places of the RUz";
 - ❖ SanPiN No. 0267-09 "On acceptable noise levels in the premises of residential, public buildings and in residential areas";
 - ❖ SanPiN No. 0293-11 "List of hygiene standards regarding Maximum allowed concentration (MACs) values of air-polluting substances in populated areas in the RUz";
 - ❖ SanPiN No: 0318-15 "Hygienic anti-epidemic Requirements for the Protection of Water in reservoirs on the Territory of the RUz";
 - ❖ SanPiN No. 0255-08 "The main criteria for hygienic assessment of the degree of pollution of water and water bodies in terms of danger to public health in Uzbekistan";
 - ❖ SanPiN No. 0300-11 "Sanitary rules and standards for the organization of collection, inventory, classification, neutralization, storage and disposal of industrial waste in Uzbekistan";
 - ❖ O'zDSt 950:2011 "Drinking water. Hygiene requirements and quality control" (replaces O'zDSt 950:2000);
 - ❖ O'zRH 84.3.6, "Instructions on setting limit values for the discharge of pollutants into water bodies and the ground according to technically achievable indicators of wastewater treatment", 2004.
-

3.8. PERMITS AND LICENSES

Required permits and licenses related to the Project based on local legal requirements are listed in Table 16 below.

Table 16: Required permits and licenses

Permit / Required Activity	Permit Title	Issuing Authority	Implementing Law	Responsible Party for Obtaining License
Pre-Construction				
Construction activities	Construction Permit	Khokimiyats of Project region	- Resolution of the Oliy Majlis of the Republic of Uzbekistan "On the list of activities for which a license is required" No. 222-II of 12.05.2001; - Resolution of the Cabinet of the Republic of Uzbekistan No. 54 of 02/25/2013. Appendix 1 "Regulations on the procedure for granting land plots in populated areas for the implementation of urban planning activities of design and registration of construction objects, as well as the acceptance into operation of objects"	CAR
Construction activities	The Positive Conclusion of SEE for the national EIA (report (Stage I and/or Stage II))	MEEPCC	- Law «On Nature Protection» (1992); - Law of the Republic of Uzbekistan "On Ecological Expertise" (2000); and - Regulations "On the State Environmental Expertise" (SEE), approved by the Resolution of Cabinet of Ministers No. 541 "On further improvement of the environmental impact assessment mechanism" (2020).	CAR
Construction activities	Receipt of agreement on land acquisition (if required for Project) from local authorities	Khokimiyats of Project region	Law No781 "On land acquisition for public needs with compensation" dated on 29.06.2022	CAR
Construction activities	Cultural Heritage Clearance	Agency on Cultural Heritage under Ministry of Tourism and cultural Heritage / National Centre for Archaeology	Law on the Protection and Use of Cultural Heritage Objects (2001)	CAR
Tree cutting	Permits for tree cutting	MEEPCC	Decree of the President of the Republic of Uzbekistan No PD-46	CAR / Contractor

Permit / Required Activity	Permit Title	Issuing Authority	Implementing Law	Responsible Party for Obtaining License
			Resolution of Cabinet of Ministries No 86	
Pre-Commissioning				
Construction activities	The Positive Conclusion of SEE for the national EIA report (Stage III) - ZEP	MEEPCC	- Law «On Nature Protection» (1992); - Law of the Republic of Uzbekistan “On Ecological Expertise” (2000); and - Regulations "On the State Environmental Expertise" (SEE), approved by the Resolution of Cabinet of Ministers No. 541 “On further improvement of the environmental impact assessment mechanism” (2020).	CAR / Contractor
Construction activities	Visual geological engineering conclusion	O'zGASHKLITI	- PCM RUz No. 222 “On Improving the System of Permitting Procedures and State Supervision in the Sphere of Urban Planning” - Urban Development Code of the Republic of Uzbekistan	CAR
Waste discharge	Waste passport		Oz RH 84.3.18: 2005. Regulation Document on Production and consumption waste.	CAR
Hazardous materials transport and storage	Hazardous materials permission	“Kishlokkime” (Agricultural Chemicals)	The Order No. 2438 of March 20, 2013	CAR
Construction activities	SPZ permits	- Relevant Regional Hokimiyats, and relevant Regional Department of Ecology and Environmental Protection - Sanitary epidemiological welfare and public health service of RUz	- ShnK 2.05.02 – 07 “Roads” - SaNPiN 0339-16 “On sanitary rules and norms for planning and construction works of living settlements”	CAR
Underground Water abstraction	Mineral extraction license	State Committee on Geology and Mineral Resources	PKM # 443 of 12.06.2018. Regulations on the procedure for issuing licenses for the right to use subsoil areas containing nonmetallic minerals	Contractor
Construction or upgrade of access roads	Approval of construction or upgrade activities	State Inspectorate for quality control of roads and construction works	Law of the Republic of Uzbekistan “On Automobile Roads”	Contractor

Permit / Required Activity	Permit Title	Issuing Authority	Implementing Law	Responsible Party for Obtaining License
		under the Cabinet of Ministers of the Republic of Uzbekistan		
Transportation of oversized and overweight cargo	Transportation permit	State Committee of the Republic of Uzbekistan on highways	▪ PKM RUz No 11 of January 11, 1995 "On the procedure for the entry, stay, transit and departure of foreign road carriers from the territory of Uzbekistan"	Contractor
Soil disposal	Soil disposal approval	Goskomekologiya Waste department	▪ Law "On Subsoil", dated May 8, 2012	Contractor

3.9. INTERNATIONAL CONVENTIONS AND AGREEMENTS

As a member of the International Labour Organization (ILO) since 1992, Uzbekistan has ratified 17 ILO conventions⁷, including the eight fundamental conventions (bold) as set out in Table 17.

Table 17: Labour Conventions ratified by Uzbekistan

Convention	Date of Ratification
Universal Declaration of Human Right (1948)	1991
CCPR - International Covenant on Civil and Political Rights (1966)	28-Sep-1995
Convention on the Elimination of All Forms of Intolerance and of Discrimination Based on Religion or Belief (1981)	30-Aug-1997
EU Partnership and Cooperation Agreement (1996)	21-Jun -1996
C029 - Forced Labour Convention, 1930 (No. 29)	13-Jul-1992
P029 - Protocol of 2014 to the Forced Labour Convention, 1930	16-Sep-2019
C087 - Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)	12-Dec-2016
C098 - Right to Organise and Collective Bargaining Convention, 1949 (No. 98)	13-Jul-1992
C100 - Equal Remuneration Convention, 1951 (No. 100)	13-Jul-1992
C105 - Abolition of Forced Labour Convention, 1957 (No. 105)	15-Dec-1997
C111 - Discrimination (Employment and Occupation) Convention, 1958 (No. 111)	13-Jul-1992
C138 - Minimum Age Convention, 1973 (No. 138) Minimum age specified: 15 years	06-Mar-2009
C182 - Worst Forms of Child Labour Convention, 1999 (No. 182)	24-Jun-2008
C081 - Labour Inspection Convention, 1947 (No. 81)	19-Nov-2019
C122 - Employment Policy Convention, 1964 (No. 122)	13-Jul-1992
C129 - Labour Inspection (Agriculture) Convention, 1969 (No. 129)	19-Nov-2019

⁷ International Labour Organisation (ILO): Ratifications for Uzbekistan. Website: http://ilo.org/dyn/normlex/en/f?p=1000:11200:0::NO:11200:P11200_COUNTRY_ID:103101 (date viewed: 28.02.2018)

Convention	Date of Ratification
C144 - Tripartite Consultation (International Labour Standards) Convention, 1976 (No. 144)	13-Aug-2019
C047 - Forty-Hour Week Convention, 1935 (No. 47)	13-Jul-1992
C052 - Holidays with Pay Convention, 1936 (No. 52)	13-Jul-1992
C103 - Maternity Protection Convention (Revised), 1952 (No. 103)	13-Jul-1992
C135 - Workers' Representatives Convention, 1971 (No. 135)	15-Dec-1997
C154 - Collective Bargaining Convention, 1981 (No. 154)	15-Dec-1997
C167 - Safety and Health in Construction Convention, (No. 167)	1988
CEDAW - Convention on the Elimination of All Forms of Discrimination against Women	19-Jul-1995
C187 - Promotional Framework for Occupational Safety and Health Convention, 2006 (No. 187)	14-Sep-2021

Measures have been enacted via a national action plan to implement these conventions into national law, including a legal and institutional framework to prevent forced labour. The legislation of the Republic of Uzbekistan (Constitution, Labour Code, and Law on Employment) prohibits the use of child and forced labour. Article 7 of the Labour Code stipulates that forced labour, namely compulsion to perform work under the threat of some form of punishment (including as a means of labour discipline) is prohibited.

Fundamental conventions and agreements (in addition to the ILO conventions mentioned above) signed and ratified by Uzbekistan that are relevant to the Project are listed in Table 18.

Table 18: International Environmental and Social Conventions Ratified by Uzbekistan

Convention	Date of Ratification
Convention on Wetlands of International Importance Especially as Waterfowl Habitat (IEA ID# 2793)	08/02/2002
Convention for The Protection of The World Cultural and Natural Heritage (IEA ID# 2812)	13/01/1993
Convention on International Trade in Endangered Species of Wild Fauna and Flora (IEA ID# 2814)	08/10/1997
Convention on The Conservation of Migratory Species of Wild Animals (IEA ID# 2896)	01/09/1998
Convention for The Protection of The Ozone Layer (IEA ID# 2982)	16/08/1993
Montreal Protocol on Substances That Deplete the Ozone Layer (IEA ID# 3021)	18/08/1993
Convention on The Control of Transboundary Movements of Hazardous Wastes and Their Disposal (IEA ID# 3042)	07/05/1996
Agreement on cooperation in the field of ecology and environmental protection (IEA ID# 2489)	08/02/1992
Agreement on Cooperation in The Field of Joint Water Resources Management and Conservation of Interstate Sources (IEA ID# 3113)	18/02/1992
Convention on The Protection and Use of Transboundary Watercourses and International Lakes (IEA ID# 3116)	03/12/2007
United Nations Framework Convention on Climate Change (IEA ID# 3126)	21/03/1994
Convention on Biological Diversity (IEA ID# 3128)	17/10/1995

Convention	Date of Ratification
Statute of the Interstate Commission for Water Coordination of Central Asia (IEA ID# 4765)	05/12/1992
Agreement on Joint Activities in Addressing the Aral Sea and The Zone Around the Sea Crisis, Improving the Environment, And Ensuring the Social and Economic Development of The Aral Sea Region (IEA ID# 3155)	26/03/1993
Convention to Combat Desertification in Those Countries Experiencing Serious Drought And/or Desertification, Particularly in Africa (IEA ID# 3188)	26/12/1996
Agreement on The Conservation of African-Eurasian Migratory Water birds (IEA ID# 3216)	01/04/2004
Agreement between the Government of Kazakhstan, the Government of Kyrgyzstan and the Government of Uzbekistan on management of water resources in Central Asia (IEA ID# 8452)	05/04/1996
Agreement on The Use of Water and Energy Resources of The Syr Darya Basin (IEA ID# 3279)	07/05/1999
Convention on Wetlands of International Importance Especially as Waterfowl Habitat (IEA ID# 2793)	08/02/2002
Convention for The Protection of The World Cultural and Natural Heritage (IEA ID# 2812)	13/01/1993
Convention on International Trade in Endangered Species of Wild Fauna and Flora (IEA ID# 2814)	08/10/1997
Convention on The Conservation of Migratory Species of Wild Animals (IEA ID# 2896)	01/09/1998
Convention for The Protection of The Ozone Layer (IEA ID# 2982)	16/08/1993
Montreal Protocol on Substances that Deplete the Ozone Layer (IEA ID# 3021)	18/08/1993
Convention on The Control of Transboundary Movements of Hazardous Wastes and Their Disposal (IEA ID# 3042)	07/05/1996
Agreement on cooperation in the field of ecology and environmental protection (IEA ID# 2489)	08/02/1992
Agreement on Cooperation in The Field of Joint Water Resources Management and Conservation of Interstate Sources (IEA ID# 3113)	18/02/1992
Convention on The Protection and Use of Transboundary Watercourses and International Lakes (IEA ID# 3116)	03/12/2007
United Nations Framework Convention on Climate Change (IEA ID# 3126)	21/03/1994
Convention on Biological Diversity (IEA ID# 3128)	17/10/1995
Statute of the Interstate Commission for Water Coordination of Central Asia (IEA ID# 4765)	05/12/1992
Agreement on Joint Activities in Addressing the Aral Sea and The Zone Around the Sea Crisis, Improving the Environment, And Ensuring the Social and Economic Development of The Aral Sea Region (IEA ID# 3155)	26/03/1993
Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (IEA ID# 3188)	26/12/1996
Agreement on The Conservation of African-Eurasian Migratory Waterbirds (IEA ID# 3216)	01/04/2004
Agreement between the Government of Kazakhstan, the Government of Kyrgyzstan and the Government of Uzbekistan on management of water resources in Central Asia (IEA ID# 8452)	05/04/1996
Agreement on The Use of Water and Energy Resources of The Syr Darya Basin (IEA ID# 3279)	07/05/1999

Convention	Date of Ratification
Agreement on The Conservation of African-Eurasian Migratory Waterbirds (IEA ID# 3216)	01/04/2004
Agreement between the Government of Kazakhstan, the Government of Kyrgyzstan and the Government of Uzbekistan on management of water resources in Central Asia (IEA ID# 8452)	05/04/1996
Agreement on The Use of Water and Energy Resources of The Syr Darya Basin (IEA ID# 3279)	07/05/1999

3.10. LENDER REQUIREMENTS

3.10.1. WB Policy

The Section below discusses the relevance of World Bank's Environment and Social Framework 2018, each of the ten standards (ESS 1 to 10) and associated Directive; their requirements are tabulated in Table 19. Additionally, it also discusses the relevance and requirements relating to other guidance notes of World Bank.

Table 19: World Bank ESF Policy, 2018 and World Bank Groups' EHSGs 2007

World Bank ESS, Standards, Directive	Objectives	Requirements	Reason for Trigger
ESS1: Assessment and Management of Environmental and Social Risks and Impacts	Identify, assess, evaluate, and manage environment and social risks and impacts in a manner consistent with the ESF. Adopt differentiated measures so that adverse impacts do not fall disproportionately on the disadvantaged or vulnerable, and they are not disadvantaged in sharing development benefits and opportunities	The types of E&S risk and impacts that should be considered in the environmental and social assessment. The use and strengthening of the Borrower's environmental and social framework for the assessment, development and implementation of World Bank financed projects where appropriate.	ESS 1 is triggered. Since the proposed project is likely to have adverse environmental and social impacts. The present ESIA has been conducted in compliance with the ESS 1. (I) Project components will be thoroughly screened to ensure that they are covered by and meet the requirements of ESS and Government laws and regulation. (II) E&S risks and Impacts have been identified based on surveys and consultations with primary stakeholders including communities and implementing agency (II) Environmental and Social Management Plan (ESMP) will be prepared based on the identified E&S impacts.
ESS2: Labor and Working Conditions	Promote safety and health at work. Promote the fair treatment, non-discrimination, and equal opportunity of project workers. Protect project workers, with particular emphasis on vulnerable workers. Prevent the use of all forms of forced labor and child labor. Support the principles of freedom of association and collective bargaining of project workers in a manner consistent with national law. Provide project workers with accessible means to raise workplace concerns.	Requirements for the Borrower to prepare and adopt labor management procedures. Provisions on the treatment of direct, contracted, community, and primary supply workers, and government civil servants. Requirements on terms and conditions of work, non-discrimination and equal opportunity and workers organizations. Provisions on child labor and forced labor. Requirements on occupational health and safety, in keeping with the World Bank Group's Environmental, Health, and Safety Guidelines (EHSG).	ESS 2 is triggered. This project will employ direct, contracted and primary supply workers who might be exposed to risks such as inadequate accommodation; non-payment of wages; non-payment of benefits, discrimination at employment, child labour, forced labour, human trafficking, Occupational Health and Safety (OHS) issues including workplace accident and work related diseases, communicable diseases including Sexually Transmitted Infections (STIs), grievances related to workers and GBV. The contracted workers are more susceptible to such risks. A labor management procedure will be prepared to regulate working condition and management of workers relation including worker specific GRM, terms and conditions of employment, non-discrimination and equal opportunity,

World Bank ESS, Standards, Directive	Objectives	Requirements	Reason for Trigger
			GBV, protection of workforce, the prohibition of child /forced labor and provision of OHS.
ESS3: Resource Efficiency and Pollution Prevention and Management	Promote the sustainable use of resources, including energy, water, and raw materials. Avoid or minimize adverse impacts on human health and the environment caused by pollution from project activities. Avoid or minimize project-related emissions of short and long-lived climate pollutants. Avoid or minimize generation of hazardous and non-hazardous waste. Minimize and manage the risks and impacts associated with pesticide use. Requires technically and financially feasible measures to improve efficient consumption of energy, water, and raw materials, and introduces specific requirements for water efficiency where a project has high water demand.	Requires an estimate of gross greenhouse gas emissions resulting from project (unless minor), where technically and financially feasible. Requirements on management of wastes, chemical and hazardous materials, and contains provisions to address historical pollution. ESS-3 refers to national law and Good International Industry Practice, in the first instance the World Bank Groups' EHSs	ESS 3 is triggered. ESS-3 covers generic risks and impacts such as landscape aesthetic, air and noise pollution, potential hazards and solid waste management, and pollution of water sources. The project's impacts and risk would be of significance on sensitive receptors due muck disposal; slope stability and erosion; blocking or filling of irrigation canals; emission from construction vehicles, equipment and plants; dust from earth works, hill cutting, stack yard, transportation of materials, noise pollution and settlements along road; damage to structure vibration from movement of machine and equipment (structure on embankment); handling of hazardous and non-hazardous wastes, quarry and borrow area. All these impacts are more prominent during construction stage and can be managed through specific measures described in the mitigation chapter according to national standards for air, noise and water quality as well as through best practices applicable to road construction projects.
ESS4: Community Health and safety	Anticipate or avoid adverse impacts on the health and safety of project-affected communities during project life-cycle from routine and non-routine circumstances. Promote quality, safety, and climate change considerations in infrastructure design and construction, including dams. Avoid or minimize community exposure to project-related traffic and road safety risks, diseases and hazardous materials. Have in place	Requirements on infrastructure, taking into account safety and climate change, and applying the concept of universal access, where technically and financially feasible. Requirements on traffic and road safety, including road safety assessments and monitoring. Addresses risks arising from impacts on provisioning and regulating ecosystem service. Measures to avoid or minimize the risk of water-related,	ESS 4 is triggered. Transporting construction materials will cause nuisance to community. The project activities such as hill cutting, road excavation, use of vibratory equipment might result in landslides/mass wasting, and dust pollution. The stockpiling of construction materials, debris generated during construction will disturb the landscape and cultivated lands and contaminate the water bodies. Impact upon existing traffic is likely with the construction activities and plying of construction vehicle, storage of construction materials close to the existing highway. Presence of

World Bank ESS, Standards, Directive	Objectives	Requirements	Reason for Trigger
	effective measures to address emergency events. Ensure that safeguarding of personnel and property is carried out in a manner that avoids or minimizes risks to the project-affected communities.	communicable, and noncommunicable diseases. Requirements to assess risks associated with security personnel, and review and report unlawful and abusive acts to relevant authorities.	outside labour force can cause negative impact on environment and local communities and should be managed to prevent conflict situations, including GBV.
ESS5: Acquisition, Restrictions Land Involuntary Resettlement	Land on and Avoid or minimize involuntary resettlement by exploring project design alternatives. Avoid forced eviction. Mitigate unavoidable adverse impacts from land acquisition or restrictions on land use by providing compensation at replacement cost and assisting displaced persons in their efforts to improve, or at least restore, livelihoods and living standards to pre-displacement levels or to levels prevailing prior to the beginning of project implementation, whichever is higher. Improve living conditions of poor or vulnerable persons who are physically displaced, through provision of adequate housing, access to services and facilities, and security of tenure. Conceive and execute resettlement activities as sustainable development programs.	Applies to permanent or temporary physical and economic displacement resulting from different types of land acquisition and restrictions on access. Does not apply to voluntary market transactions, except where these affect third parties. Provides criteria for “voluntary” land donations, sale of community land, and parties obtaining income from illegal rentals. Prohibits forced eviction (removal against the will of affected people, without legal and other protection including all applicable procedures and principles in ESS5). Requires that acquisition of land and assets happens only after payment of compensation and resettlement has occurred. Requires community engagement and consultation, disclosure of information and a grievance mechanism.	ESS 5 is triggered. Land will be required for widening, upgradation works in identified corridors and possibly for rehabilitation corridor works, curve/geometric improvements, blind spots, etc. Hence impacts on land, private and community owned assets including structures, trees and crops within existing and proposed RoW is required. Physical and economic displacement is required. Full Resettlement Action Plan (RAP) will be prepared. Activities under the project could result in some land acquisition, displacement and restriction of access to means of livelihood and encroachment on right of way. The project involves economic displacement due to the setting of the project. Given such impacts, ESS 5 is triggered.
ESS6: Biodiversity Conservation and Sustainable Management of	Protect and conserve biodiversity and habitats. Apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on	Requirements for projects affecting areas that are legally protected designated for protection or regionally/ internationally recognized to be of high biodiversity value. Requirements on	ESS 6 is triggered. This ESS plays a minor role during this assessment as impacts on biodiversity and habitats are unlikely to appear. Site clearance activities for road construction will involve removal of road side vegetation and felling of trees.

World Bank ESS, Standards, Directive	Objectives	Requirements	Reason for Trigger
Living Natural Resources	biodiversity. To promote the sustainable management of living natural resources.	sustainable management of living natural resources, including primary production and harvesting, distinguishing between small-scale and commercial activities. Requirements relating to primary suppliers, where a project is purchasing natural resource commodities, including food, timber and fiber.	The habitat in the RoW and in surrounding areas of the project road is already fragmented and anthropogenic pressure on the area is very much prevalent. A critical habitat screening conducted as part of the ESIA indicated that there are no critical habitats within the RoW. The Project activity do not pass through any protected areas or ecologically sensitive areas. There are no known populations of threatened species in the immediate vicinity of the project sites. Impacts on ecology and wildlife due to Project activity will not be significant. Disruption of animal habitats and cutting of migrating corridors is not expected. Trees from roadside, which need to be cut due to project activities, will be replaced under the measures prescribed by the ESMP. This will be undertaken by a separate landscaping contract. This ESS will be applied accordingly. However, during detailed assessment Consultant should review potential identified risks against ESS 6 and include additional mitigation measures in ESMP.
ESS7: Indigenous Peoples	Ensure that the development process fosters full respect for affected parties' human rights, dignity, aspirations, identity, culture, and natural resource-based livelihoods. Promote sustainable development benefits and opportunities in a manner that is accessible, culturally appropriate and inclusive. Improve project design and promote local support by establishing and maintaining an ongoing relationship based on meaningful consultation with affected parties. Obtain the Free, Prior, and Informed Consent (FPIC) of affected parties in three circumstances.	Applies when the Indigenous Peoples are present or have a collective attachment to the land, whether they are affected positively or negatively and regardless of economic, political or social vulnerability. The option to use different terminologies for groups that meet the criteria set out in the Standard. The use of national screening processes, providing these meet World Bank criteria and requirements. Coverage of forest dwellers, hunter gatherers, and pastoralists and other nomadic groups. Requirements for meaningful consultation tailored to	ESS 7 is not triggered. This ESS will identify the measures to minimize disruption of the livelihoods due to the project development. Currently no Indigenous person has been identified.

World Bank ESS, Standards, Directive	Objectives	Requirements	Reason for Trigger
	Recognize, respect and preserve the culture, knowledge, and practices of Indigenous Peoples, and to provide them with an opportunity to adapt to changing conditions in a manner and in a timeframe acceptable to them.	affected parties and a grievance mechanism. Requirements for a process of free, prior and informed consent in three circumstances.	
ESS8: Cultural Heritage	Protect cultural heritage from the adverse impacts of project activities and support its preservation. Address cultural heritage as an integral aspect of sustainable development. Promote meaningful consultation with stakeholders regarding cultural heritage. Promote the equitable sharing of benefits from the use of cultural heritage.	Requires a chance finds procedure to be established. Recognition of the need to ensure peoples' continued access to culturally important sites, as well as the need for confidentiality when revealing information about cultural heritage assets that would compromise or jeopardize their safety or integrity. Requirement for fair and equitable sharing of benefits from commercial use of cultural resources. Provisions of archaeological sites and material, built heritage, natural features with cultural significance, and moveable cultural heritage.	ESS 8 is triggered. There are no any impact and risk on tangible and intangible heritage by project intervention. The alignment of project road does not have any ancient monuments and tangible religious, cultural, historical and archaeological sites. Similarly, the cultural heritages, such as religious and cultural practices, languages, religions, values and norms of IPs community will not be affected. However, 1 natural monument is situated in the vicinity of the road, like an historical monument called by the local people "the bridge of Alexander the Great" although it's historical association is not proven. Buffer zones of site is 100 meters. This sites, including its 100 meters buffer zone do not intersect with existing road and will not be affected in any option of road extension. The proposed design of road expansion and bypasses already takes into account the proximity of such sites and is not expected to impact them directly. Chance find procedures will be incorporated in the ESMP, and chance find clauses will also be incorporated in work contracts requiring contractors to stop construction
ESS9: Financial Intermediaries	Sets out how Financial Intermediaries (FI) will assess and manage environmental and social risks and impacts associated with the subprojects it finances. Promote good environmental and social management	Financial Intermediaries (FIs) to have an Environmental and Social Management System (ESMS) - a system for identifying, assessing, managing, and monitoring the environmental and social risks and	ESS 10 is not triggered. Not relevant as there is no financial intermediary involved.

World Bank ESS, Standards, Directive	Objectives	Requirements	Reason for Trigger
	practices in the subprojects the FI finance. Promote good environmental and sound human resources management within the FI.	impacts of FI subprojects on an ongoing basis. FI to develop a categorization system for all subprojects; with special provisions for subprojects categorized as high or substantial risk. FI borrowers to conduct stakeholder engagement in a manner proportionate to the risks and impacts of the FI subprojects.	
ESS10: Stakeholder Engagement and Information Disclosure	Establish a systematic approach to stakeholder engagement that helps Borrowers identify stakeholders and maintain a constructive relationship with them. Assess stakeholder interest and support for the project and enable stakeholders' views to be taken into account in project design. Promote and provide means for effective and inclusive engagement with project-affected parties throughout the project lifecycle. Ensure that appropriate project information is disclosed to stakeholders in a timely, understandable, accessible and appropriate manner.	Requires stakeholder engagement throughout the project life cycle, and preparation and implementation of a Stakeholder Engagement Plan (SEP). Requires early identification of stakeholders, both project-affected parties and other interested parties, and clarification on how effective engagement takes place. Stakeholder engagement to be conducted in a manner proportionate to the nature, scale, risks and impacts of the project, and appropriate to stakeholders' interests. Specifies what is required for information disclosure and to achieve meaningful consultation.	ESS 10 is triggered. Relevant as the project will involve a wide variety of stakeholders during its project cycle including Police Department that are associated with activities under other components of the project such as Road Safety. The project will ensure: - Stakeholders have been consulted during the preparation of the SEP. - The project-level Stakeholder Engagement Plan (SEP) has been prepared to follow during the implementation of the project. During the stakeholder consultation, the key issues raised were: compensation for impacted land, affected private and public structures; construction of public structures; mitigation of landslide risks during construction of road; establishment of road safety measures; establishment of district level GRM, ensuring employment to locals (including female).
World Bank Environment and Social Policy for Investment Project Financing	It sets out the mandatory requirements of the Bank in relation to the projects it supports through Investment Project Financing.	The types of E&S risk and impacts that should be considered in the environmental and social assessment. The use and strengthening of the Borrower's environmental and social framework for the assessment, development and implementation of	

World Bank ESS, Standards, Directive	Objectives	Requirements	Reason for Trigger
		World Bank financed projects where appropriate.	
Environmental and Social Directive for Investment Project Financing	This Directive applies to the Bank and sets out the mandatory requirements for the implementation of the Environmental and Social Policy for Investment Project Financing (IPF).	It lays down the following responsibilities of the Bank to manage ES risks and impacts as below: a) undertake its own due diligence of the ES risks and impacts related to the Project; b) support the Borrower to engage in meaningful consultation with stakeholders, in particular affected communities, and in providing Project-based grievance mechanisms; c) assist the Borrower in identifying appropriate methods and tools to assess and manage the potential ES risks and impacts of the Project; d) agree with the Borrower on the conditions under which the Bank is prepared to provide support to the Project, as set out in the ESCP; and e) monitor the ES performance of a Project in accordance with the ESCP and the ESSs.	
Good Practice Note on Road Safety	Road Safety - To identify, evaluate and monitor the potential traffic and road safety risks to workers, affected communities and road users throughout the project life-cycle and, where appropriate, will develop measures and plans to address them. The Borrower will incorporate technically and financially feasible road safety measures into the project design to prevent and mitigate potential road	Requirements on traffic and road safety, including road safety assessments and monitoring.	

World Bank ESS, Standards, Directive	Objectives	Requirements	Reason for Trigger
	safety risks to road users and affected communities”.		
General Guidelines, 2007, IFC EHS April,	The General EHS Guidelines contain information on crosscutting environmental, health, and safety issues potentially applicable to all industry sectors	Requirements on environmental, health, and safety issues during construction of project road.	
EHS Guidelines for Construction Materials Extraction, 2007, IFC April,	The EHS Guidelines contain the performance levels and measures that are considered to construction materials extraction activities such as aggregates, limestone, slates, sand, gravel, clay, gypsum, feldspar, silica sands, and quartzite	Requirements on the resource management of construction materials extraction activities such as aggregates, limestone, slates, sand, gravel, clay, gypsum, feldspar, silica sands, and quartzite	

The Bank will classify all projects into one of four classifications: *High Risk*, *Substantial Risk*, *Moderate Risk* or *Low Risk*. In determining the appropriate risk classification, the Bank will take into account relevant issues, such as the type, location, sensitivity, and scale of the project; the nature and magnitude of the potential environmental and social risks and impacts; and the capacity and commitment of the Borrower (including any other entity responsible for the implementation of the project) to manage the environmental and social risks and impacts in a manner consistent with the ESSs.

The Bank undertakes environmental screening of each proposed project that to define the extent and type of required environmental assessment. The projects are classified by four risk categories/classification based on their type, location, sensitivities and scale:

- **High:** A Project is classified as **High Risk** if the project is likely to generate a wide range of significant adverse risks and impacts (preservation areas, cultural heritage sites, traditional communal lands etc) and are on human populations or the environment and impact is long term, permanent and/or irreversible, high in magnitude, significant adverse cumulative impacts and a high probability of serious adverse effects to human health and/or the environment.
- **Substantial:** A Project is classified as **Substantial Risk** if the Project may not be as complex as High Risk Projects, its ES scale and impact is large to medium (temporary, predictable and/or reversible and are medium in magnitude), medium to low probability of serious adverse effects to human health and/or the environment and there are known and reliable mechanisms available to prevent or minimize such incidents.
- **Moderate:** A project is classified as **Moderate Risk** if risks and impacts on human populations and/or the environment are not likely to be significant, located away from environmentally or socially sensitive areas, impact is predictable and reversible, duration is short term and low in magnitude; low probability of serious adverse effects to human health and/or the environment and can mitigate easily.
- **Low:** A project is classified as **Low Risk** if it's potential adverse risks to and impacts on human populations and/or the environment are likely to be minimal or negligible. These Projects, with few or no adverse risks and impacts and issues, do not require further ES assessment following the initial screening.

3.10.2. Applicable EU and Other Requirements

The list of EU substantive environmental standards relevant to the Project includes but is not limited to the following directives/regulations:

- ❖ Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise,
- ❖ Directive 2000/14/EC of the European Parliament and of the Council of 8 May 2000 on the approximation of the laws of the Member States relating to the noise emission in the environment by equipment for use outdoors,
- ❖ Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives,
- ❖ Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control).

The listed below international conventions and protocols relating to E&S, as transposed into national legislation, may also be applied:

- ❖ Convention on Biological Diversity and Cartagena Protocol on Biosafety;
- ❖ Aarhus Convention on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters.

The Project shall include all reasonable measures to avoid, minimise or mitigate any adverse change in E&A conditions and impacts on public health and safety, especially with respect to any disproportionate impacts on any group of people as a result of their gender, age, ethnicity, disability, socio-economic status and/or other personal characteristics.

The Project must also refer to relevant WBG Environmental, Health, and Safety Guidelines (ESHG) including, but not limited to:

- ❖ Voluntary Principles on Security and Human Rights (est. 2000); (<http://www.voluntaryprinciples.org/>);
- ❖ United Nations Guiding Principles for “Protect, Respect and Remedy” Human Rights Framework (2011); (<https://www.business-humanrights.org/en/un-secretarygenerals-special-representative-on-business-human-rights/un-protect-respect-andremedy-framework-and-guiding-principles>);
- ❖ United Nations Code of Conduct for Law Enforcement Officials; and (<https://www.un.org/ruleoflaw/blog/document/code-of-conduct-for-law-enforcementofficials/>);
- ❖ United Nations Basic Principles on the Use of Force and Firearms by Law;
- ❖ Use of Security Forces: Assessing and Managing Risks and Impacts (February 2017);
- ❖ Worker's Accommodation: Processes and Standards (Guidance Note by IFC), and
- ❖ Stakeholder Engagement: A Good Practice Handbook for Companies Doing Business in Emerging Markets, 2007.
- ❖ World Bank Group Environmental, Health, and Safety Guidelines. General EHS Guidelines

With reference to the EIA Directive, an EIA is mandatory for all projects which are considered as having significant effects on the environment and as listed in Annex I of the EIA Directive. This includes *“7 c. Construction of a new road of four or more lanes, or realignment and/or widening of an existing road of two lanes or less so as to provide four or more lanes, where such new road or realigned and/or widened section of road would be 10 km or more in a continuous length.”*⁸

3.11. PROJECT CATEGORIZATION

3.11.1. WB Categorization

For legal aspects, the work during reconstruction and operation will follow the Uzbekistan laws and the World Bank's Environment and Social Framework 2018 (ESF). According to both Uzbek Environmental Protection laws and regulations and the World Bank's *ESS1: Assessment and Management of Environmental and Social Risks and Impacts*, the proposed project is rated as “Substantial,” with both environmental and social risks individually rated as substantial. The types of the project activities, such as road construction/rehabilitation, construction/extension of bridges (possible impacts on natural water habitats), rehabilitation or reconstruction of hydraulic structures, operation of quarries and borrow pits, make it a complex project. These activities can generate significant potential environmental risks and impacts, including the risk of pollution of waterways and soil due to uncontrolled management hazardous materials (oil, fuel, cement, and bitumen), the potential exposure of workers and

⁸ <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32011L0092>

the public to several health and safety risks and hazards, such as accidents, exposure to high level of noise, and hazardous chemicals.

The ESIA study and field visit to the proposed site indicated that the proposed road reconstruction will likely generate impacts on densely populated settlements with high likelihood of physical resettlement and livelihoods impacts. As per the initial design, the project requires about 59 Ha of private land to be acquired for which a Resettlement Action Plan (RAP) will be prepared and implemented. Therefore, it may involve mitigation or management measures which are complex and beyond the direct control of the project.

3.11.2. National Categorization

The Appendix to the Governmental Resolution No.541 includes the list of activities falling under the different Categories for the purposes of EIA. The Road construction projects are either Category I or Category II. Category I includes the high-speed highways and large bridges. According to the list of activities subject to state ecological expertise, which is established by the Resolution of Cabinet of Ministers No. 541 “On further improvement of the environmental impact assessment mechanism’ (2020), highways and bridges are categorized as follows depending on the level of impact on the environment⁹:

- ❖ Motorways, subways, railways, major highways, bridges and cargo terminals of state and international significance – Category I (high risk);
- ❖ Highways and bridges of the Republic of Karakalpakstan, regions and the city of Tashkent significance – Category II (medium risk);
- ❖ Highways and bridges of district and city (except Tashkent) significance – Category III (low risk).

There are no more detailed criteria for categorization. Therefore, the project relates to the Category I (high risk) of the projects with substantial impacts and requires the preparation of the SEI. The scope and content of SEI is in general in line with this ESIA (prepared for WB).

⁹ Under the Resolution of Cabinet of Ministers of Uzbekistan, No 541, all economic activities are classified into one of four categories of environmental impact: Category I (high risk), Category II (medium risk), Category III (low risk) and Category IV (local impact).

4. IMPACT ASSESSMENT METHODOLOGY

This section provides information about the data collection and consultation process undertaken to inform the ESIA and the methodology that has been used to describe the sensitivity of environmental and social receptors; predict the magnitude of environmental and social impacts and assess the significance of impacts upon applicable environmental parameters.

4.1. INTRODUCTION

The ESIA is an iterative process that comprises prediction and assessment of potential impacts of the Project on physical, biological and cultural components (indicators) of the environment and on social and socio-economic resources / receptors. In the course of the ESIA study, the recommendations to eliminate, minimize, reduce, mitigate and compensate the adverse impacts and obtain expected benefits and opportunities have been defined and the proper management and monitoring measures have been proposed.

The ESIA scoping identified the issues and impacts to be addressed in the ESIA as summarised in Table 20. Where no impact was predicted between the project and the receiving environment, the topics were not considered further.

Table 20: Topics scoped into the ESIA

Environment and Health			Social			Labour, Health and Safety		
	C	O		C	O		C	O
Air quality	✓	✓	Socio-economic (including local employment)	✓	✓	Labour and working conditions	✓	
Noise	✓	✓	Visual impacts		✓	Worker accommodation	✓	
Hydrology - groundwater & surface water pollution	✓	✓	Traffic and transportation	✓	✓	Community health and safety (including Emergency preparedness and response)	✓	✓
Soils	✓		Land acquisition and livelihood restoration impacts	✓		Occupational health and safety	✓	✓
Protected Areas	✓		Cultural heritage	✓		Security	✓	
Habitat of conservation importance	✓							
Species of conservation importance	✓							
Tree Cutting	✓							
Climate resilience	✓	✓						
Climate Change	✓	✓						
Vibration	✓							
Waste	✓							

Note: C = Construction, O = Operations

Figure 8: ESIA Stages



4.1.1. Screening

Screening is the initial stage of the ESIA that is carried out to determine the level of the impact assessment as well as what legal and other requirements will be applied for the Project.

According to the ToRs for this ESIA Assignment, the Project envisions a reconstruction of the M-41 road km 1525-1622 (97 km) (4 lanes) that could result in potentially significant adverse environmental and/or social impacts. The WB has categorised this Project as “Substantial,” with both environmental and social risks individually rated as substantial as per the World Bank’s Environment and Social Framework 2018, which means that a comprehensive ESIA report and associated documents must be elaborated, followed by their public disclosure for a minimum period of 120 days.

Background data and information collected by the team was obtained from published and unpublished sources, e.g., on climate, topography, geology and soils, natural resources, flora

and fauna, agriculture, and socio-economic data. References to all sources used is made throughout the report.

4.1.2. Scoping

The key task of the E&S scoping is to determine the content and extent of the matters that should be covered in the ESIA and associated documentation. It should be noted that the Inception Report is not intended to provide detailed information regarding the Project. Instead, it is a preliminary overview of the Project intended to form the basis for early engagement with relevant stakeholders and to help identify potential Project impacts. Scoping is designed to ensure that ESIA is focused on the most important impacts, project alternatives, and any other significant issues.

The scoping is carried out to determine the anticipated E&S impacts through a comprehensive analysis of features/activities associated with the stages of Project life-cycle and their potential to interact (positively or negatively) with environmental (including physical and biological receptors), social and socio-economic resources / receptors.

The results of the E&S scoping study were presented in Inception Report submitted to the Bank on October 2025.

4.1.3. Baseline Studies and Research

To provide a context within which the impacts of the Project can be assessed, a description of physical, biological, socioeconomic (social, economic and health safety) conditions / environment that are expected to prevail in the absence of the Project should be presented. In this respect, it is necessary to have comprehensive data pertaining to baseline environmental, social and socioeconomic conditions that can be obtained in the course of baseline information (primary and secondary) collection process.

The secondary baseline information/data were gathered from the documentation prepared within the Project design and national EIA study and provided by the WB and CAR for the Consultant's internal use. In addition, the baseline information relating to the Project region, components and associated facilities has been collected by the Consultant from the publically available sources, reports, online databases and interactions with Project stakeholders.

Where necessary or if there is a lack of information, the secondary baseline information should be supplemented by the primary data to be collected/obtained during the field surveys/investigations.

The following field surveys were performed by the Consultant and State Unitary Enterprise "Uzyulloyikha" jointly with the subcontracting design organization Zhanubyulloyikha in order to describe the baseline conditions within the area of Project influence and to supplement the baseline chapter (see Chapter 5) of this ESIA report:

- ❖ Biodiversity (flora and fauna) field investigation;
- ❖ Tree inventory;
- ❖ Determination of contamination degree of soil (within the Project's area of influence);
- ❖ Background air quality survey;
- ❖ Noise study; and
- ❖ Socio-economic data collection and interviews.

The results of the field surveys were provided in the relevant sections of Chapter 5 and annexes and discussed in Chapter 7 of this ESIA report.

Baseline highlights the existing E&S issues and forms the background against which impacts will be identified and evaluated. In particular, the baseline aims to provide information to enable the following:

1. Identify the key conditions and sensitivities within the zone potentially affected by the Project,
2. Provide baseline data for subsequent prediction and assessment of possible impacts to be generated in the course of Project implementation,
3. Understand stakeholders' concerns and analysis of their perceptions and expectations,
4. Ensure a benchmark to assess future changes resulting from the Project implementation and monitor the effectiveness of mitigation measures.

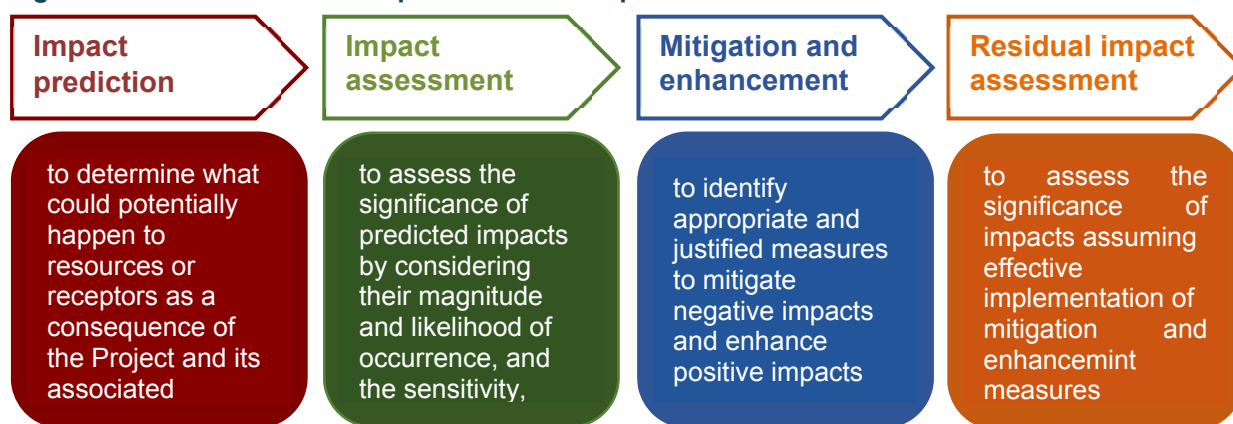
4.1.4. Impact Assessment Significance Criteria

The potentially significant impacts identified during the scoping stage are subject to a full-scale appraisal in the course of the ESIA study. The impact assessment follows a consistent process for the consideration of the following four aspects:

- ❖ Impact prediction,
- ❖ Impact evaluation,
- ❖ Mitigation and enhancement,
- ❖ Residual impact evaluation.

The scheme of impact assessment and evaluation process is presented in Figure 9.

Figure 9: Schematic view of impact assessment process



Impact Prediction

Prediction of impacts is an expert exercise to determine what is likely to happen to the environment as a consequence of the Project and its associated activities / features. The impacts to the various resources / receptors are identified and elaborated from the potentially significant interactions identified during scoping. The diverse range of potential impacts considered in the impact assessment process typically results in a wide range of prediction methods being used, including quantitative, semi-quantitative and qualitative techniques.

Impact Assessment

Environmental and social impacts arise as a result of Project activities / features either interacting with the receptors directly or causing changes to the existing environment indirectly. Impacts may be described and quantified in a number of ways. In the course of

this study, impacts on the different components of the physical, biological, human and social environment are assessed over the lifetime of the Project in terms of:

- ❖ Direction: positive or negative,
- ❖ Type: direct, indirect, residual,
- ❖ Magnitude: high, medium, low, not significant,
- ❖ Likelihood: high, medium, low,
- ❖ Duration of the Impact: temporary, short-term, long-term, permanent,
- ❖ Reversibility,
- ❖ Significance degree: significant, medium, low, not significant.

The key characteristics of the impacts are defined in Table 21.

Table 21: Impact Characteristics

Impact	Characteristics Description
Type	Direct impact resulting from the direct interaction between a project activity and the resource / receptor. Indirect impact between the proposed activity and the environment/receptor as a result of subsequent interactions within it. Residual impacts are defined as those impacts that remain following the implementation of the mitigation measures proposed.
Duration of impact	Temporary (very low duration) impacts would last for a short duration of six months or less and are reversible and intermittent or occasional in nature. The resource or receptor would return to the previous state when the effect ceases or after a short period of recovery. Short-term (low duration), when impact is likely to be restricted for a duration of up to three years. Long-term (medium duration), when impacts would continue for an extended period of time; this is based on the understanding that there will be recovery of the effected environmental component to its best achievable pre-project state over time. Permanent (high duration), when impacts would occur during the lifetime of the Project and cause a permanent change in the affected receptor or resource.
Magnitude	Not significant, when the impact having almost no influence on baseline conditions. Low, when resulting in slight changes of prevailing baseline conditions. Medium, when resulting in changes which are within the benchmark norms or shows some signs of stress on any of the components of environment. High, when resulting in changes which affects larger extent or shows signs of stress on receptors in larger extent.
Likelihood	Low, when event is unlikely, but may occur at some time during normal operating conditions. Medium, when event is likely to occur at some time during normal operating conditions. High, when event will occur during normal operating conditions.

Impact Significance Rating

The impact significance rating process serves two purposes: firstly, it helps to highlight the critical impacts requiring consideration in the approval process; secondly, it serves to show the primary impact characteristics, as defined above, used to evaluate impact significance. The impact significance rating system is presented in Table 23 and described as follows:

- ❖ **Part A:** Define impact consequence using the three primary impact characteristics of magnitude, spatial scale and duration.
- ❖ **Part B:** Use the matrix to determine a rating for impact consequence based on the definitions identified in Part A; and

- ❖ **Part C:** Use the matrix to determine the impact significance rating, which is a function of the impact consequence rating (from Part B) and the probability of occurrence.

Using the matrix, the significance of each described impact is rated.

If duration of the impact is long-term or permanent, but likelihood is low or medium, the impact significance is evaluated one step stronger.

In case of a positive impact, no magnitude designation (aside from "positive") was assigned. It is considered sufficient for the purpose of the impact assessment to indicate that the Project is expected to result in a positive impact, without characterising the exact degree of positive change likely to occur.

Context of impact significance for E&S resources are described below in Table 22.

Table 22: Context of impact significance

Significance of impacts	Description	
	Environmental resources	Socio-economic resources
Not Significant	Impacts practically do not change the environmental baseline conditions, local in extent and temporary or short-term in duration.	No significant changes in baseline conditions are expected, in-site in extent and temporary or short-term in duration impact. No significant inconveniences are caused.
Low	Site, local and regional impacts which are not accompanied by long-term degradation of sensitive resources; effects are usually reversible and minor (do not require special mitigation measures); usually do not exceed the applicable standards (criteria, i.e. noise, vibration, etc.) in relation to the less sensitive resources.	Short-term inconveniences caused by Project implementation to individuals and communities, but with no consequences to long-term change of livelihood or quality of life. Receptors either easily in part adapt to changes brought by the Project or proceed with previous livelihood.
Medium	Site and local environmental impacts, mostly long-term; impacts which do not affect critical resources but result in irreversible loss of biodiversity and habitats; impacts with regional effects persisting from 1 to 3 years; require development of cost reasonable impact mitigation measures.	Direct and indirect impacts on livelihood and quality of life of the local communities or individuals. Receptors may undergo some difficulties to adapt to changes and they will be able to return to their former livelihood under condition of some support (for instance, compensation).
High	Significant impacts of regional and of the larger scale; medium-term, long-term and permanent impacts resulting in irreversible changes and degradation of baseline conditions; usually having adverse effects exceeding national environmental standards or associated with transnational environmental issues; involving effects of toxic substances and associated with potential emergencies affecting critical resources and sensitive receptors.	Widely spread adverse direct and indirect impacts on both individuals and local communities which are practically cannot be mitigated or compensated. Affected receptors are not able to adapt to changes or proceed with previous livelihood.

Table 23: Method for Rating Significance

PART A: DEFINING CONSEQUENCE IN TERMS OF MAGNITUDE, DURATION AND SPATIAL SCALE			
Definition		Criteria	
MAGNITUDE		Negative	Positive
	High	• Large number of receptors affected • Receptors highly sensitive and/or are of conservation importance • Substantial deterioration, nuisance or harm to receptors expected • Relevant thresholds often exceeded • Significant public concern expressed during stakeholder consultation • Receiving environment has an inherent value to stakeholders	• Large number of receptors affected • Receptors highly amenable to positive change • Receptors likely to experience a big improvement in their situation • Relevant positive thresholds often exceeded
	Medium	• Some receptors affected • Receptors slightly sensitive and/or of moderate conservation importance • Measurable deterioration, nuisance or harm to receptors • Relevant thresholds occasionally exceeded • Limited public concern expressed during stakeholder consultation • Limited value attached to the environment	• Some receptors affected • Receptors likely to experience some improvement in their situation • Relevant positive thresholds occasionally exceeded
	Low	• No or limited receptors within the zone of impact • Receptors not sensitive to change • Minor deterioration, nuisance or harm to receptors • Change not measurable or relevant thresholds never exceeded • Stakeholders have not expressed concerns regarding the receiving environment	• No or limited receptors affected • Receptors not sensitive to change • Minor or no improvement in current situation • Change not measurable • Relevant positive thresholds never exceeded No stakeholder comment expected
TIMEFRAME		Duration of Continuous Aspects	Frequency of Intermittent Aspects
	Short term / low frequency	Less than 4 years from onset of impact	Occurs less than once a year



	Medium term / medium frequency	More than 4 years from onset of impact up to end of life of project (approximately 30 years)	Occurs less than 10 times a year but more than once a year
	Long term / high frequency	Impact is experienced during and beyond the life of the project (greater than 30 years)	Occurs more than 10 times a year
SPATIAL SCALE		Biophysical	Socio-economic
	Small	Within the defined 'Project area'	Within the defined 'Project area'
	Intermediate	Within the district in which the facilities are located	Within the municipality in which the activity occurs
	Extensive	Beyond the district in which the facilities are located	Beyond the municipality in which the activity occurs

PART B: DETERMINING CONSEQUENCE RATING

MAGNITUDE		TIMEFRAME			SPATIAL SCALE		
			Small		Intermediate		Extensive
Low	Short term / low frequency	Low	Low	Low	Moderate		
	Medium term / medium frequency	Low	Low	Low	Moderate		
	Long term / high frequency	Moderate	Moderate	Moderate	Moderate		
Moderate	Short term / low frequency	Low	Moderate	Moderate	Moderate		
	Medium term / medium frequency	Moderate	Moderate	Moderate	High		
	Long term / high frequency	Moderate	High	High	High		
High	Short term / low frequency	Moderate	Moderate	Moderate	High		
	Medium term / medium frequency	Moderate	Moderate	Moderate	High		
	Long term / high frequency	High	High	High	High		

PART C: DETERMINING SIGNIFICANCE RATING

		CONSEQUENCE				
		Negligible	Low	Moderate	High	
PROBABILITY (of exposure to impacts)	Definite	Not Significant	Low	Moderate	High	
	Possible	Not Significant	Low	Moderate	High	
	Unlikely	Not Significant	Low	Low	Moderate	
	Negligible	Not Significant	Not Significant	Not Significant	Not Significant	



Mitigation and Enhancement

A key component of the ESIA process is to explore practical ways of avoiding, reducing or mitigating the potentially significant impacts identified during the study. These are referred to as mitigation measures and are incorporated into the Project as commitments. The objective of mitigation is to prevent, minimize or manage significant negative impacts to as low as reasonably practicable and to optimize and maximize any potential benefits / opportunities of the Project, where applicable.

A hierarchy of mitigation options is considered with the preference to avoid the impact at source, and least desirable option is to provide compensation or an offset for residual impacts that cannot be further reasonably avoided.

Embedded controls (i.e., physical or procedural controls that are planned as part of the Project design documents and are not added in response to an impact significance assignment), were considered as part of the Project (i.e. prior to the impact assessment stage of the ESIA Process).

Accordingly, they are not described as mitigation measures in the individual topic assessment sections.

In general, the following hierarchy of mitigation measures has been applied to reduce, where possible, the significance of impacts to acceptable levels:

- ❖ Avoid and reduce through design (embedded mitigation)
- ❖ Abate impacts at source or receptor
- ❖ Repair, restore or reinstate to address temporary construction effects
- ❖ Compensate for loss or damage, such as replacement planting elsewhere

All mitigation measures outlined within the ESIA are summarized in an Environmental and Social Management Plan (ESMP) for the Project and present an overview of how the mitigation measures for this Project will be implemented during the construction and operation stages. In some cases, monitoring is also required to verify the successful implementation of mitigation measures or factors related to the Project. These are also outlined in the topic specific sections below.

Residual Impact Assessment

Following the identification of potential E&S impacts, their significance is assessed taking into account the proposed mitigation measures already incorporated into the Project design documents and, where appropriate, any further mitigation measures that are considered feasible and justified.

Mitigation measures are applied to reduce impacts to as low as reasonably practicable and as such may not be eliminated entirely. These remaining impacts are thus termed residual impacts.

One objective of the ESIA is to understand the significance of these residual impacts that will remain after mitigation measures have been designed into the intended activity and to envisage the proper monitoring and measurement actions.

4.1.5. Management and Monitoring

On the final stage of the impact assessment process, the basic management and monitoring measures are defined to identify whether: a) residual impacts or their associated Project objects remain in conformance with applicable standards; and b) mitigation measures are



effectively addressing impacts and compensatory measures and offsets are reducing effects to the extent predicted.

4.1.6. Stateholder Engagement and Public Consultations

The international practice for the implementation of an ESIA and the requirements of the WB provide the basis to conduct active consultations with the competent supervisory agencies, experts, affected local communities and other stakeholders. This is undertaken in order to understand their views of the Project and its impacts and to take these into account in predicting and evaluating of impacts and the corresponding mitigation measures. Consultation is also valuable for the identification of data and information in the studied area.

Within the framework of this ESIA a Stakeholder Engagement Plan (SEP) will be developed (including a grievance mechanism) in order to be used, as a structured and systematic approach for stakeholder engagement, during all stages of the implementation of the Project.

5. ENVIRONMENTAL AND SOCIAL BASELINE DATA

This section provides information about the initial state of the physical, biological, and social environment. Collection of relevant baseline data is an integral part of the ESIA to provide background information on existing conditions with which to assess the potential impacts of the proposed project during construction and operation.

Baseline data required for the impact assessment was collected using a combination of approaches, including the collection of information from primary and secondary sources.

- ❖ Primary source information: Project site visit observations including interviews, field surveys, consultation meetings, focus groups, and visual observations.
- ❖ Secondary source information: Desk-based review of laws, policies, reports from the relevant governmental and non-governmental institutions and existing national and international publicly available information data from websites and national EIAs.

This chapter covers baseline information on the following topics:

- ❖ Physical environment: Topography, geology and soils, geohazards, air quality, climate and climate vulnerability and hydrology.
- ❖ Biological environment: Designated areas, habitat and species of conservation importance.
- ❖ Socio-economic environment: land use, livelihoods, cultural heritage, noise, health and safety, infrastructure and utilities.

5.1. DEFINING THE AOI

The Project area of influence can be determined based on specific topics. For example, noise impacts from road traffic during the operational phase will extend over a greater distance than potential impacts to soils which will be largely confined to work zones and construction sites. The specific AOIs for the various Project topics and aspects are included in each topic subsection of the ESIA Impacts and Mitigation Section below.

The alignment is characterized with a wide range of social receptors, including residential, commercial and industrial properties, public infrastructure (including power lines and gas pipelines), cultural objects and agricultural fields. The more detailed information on various receptors is given in the Section 5.4 Socio-economic baseline.

Reconnaissance surveys were undertaken along the existing road alignment and where possible along the route of the proposed bypasses. The summary of appropriate observations is provided at the end of this section, Table 46.

5.2. PHYSICAL BASELINE

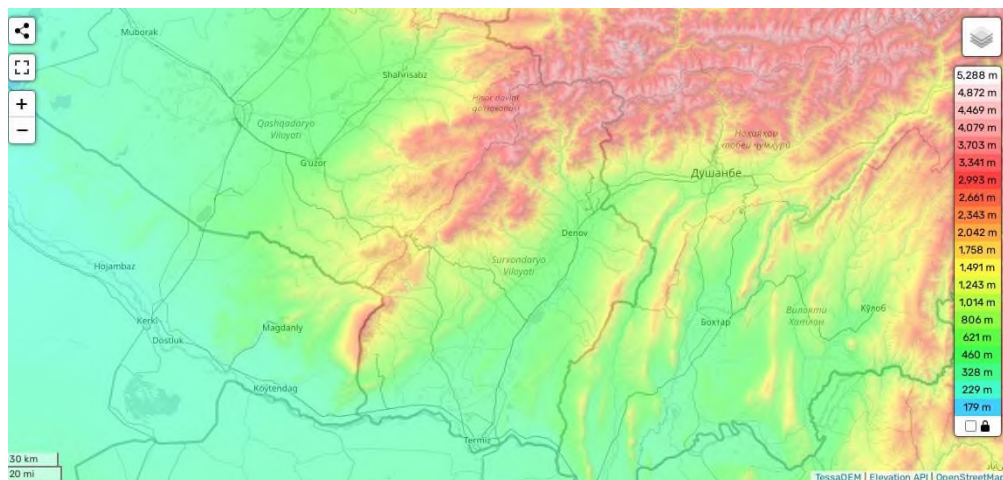
5.2.1. Topography

By topography, the Project road is divided into the rugged section crossing the southern part of the Boysuntaq Ridge and relatively flat portion running within the right side of Surkhandarya valley. Figure 10 shows the difference in the types of the terrain and true altitudes along the different road sections. Boysuntaq Ridge is a southern branch of the Gissar Range, located in the western part of Pamir-Alay mountain system.

The Gissar range stretches over 200 km across the territory of Tajikistan and Uzbekistan generally in east-west direction and mainly composed by the crystalline and igneous rocks.

The Boysuntaq is a southwest branch of the Gissar and mainly composed by the sedimentary rocks such as dolomites and sandstones ranging from Neogene to Jurassic age.

Figure 10: Relief map of the project area and its surroundings



The volcanic rocks are rarely in the Project area and represented by the isolated outcrops of Upper-Paleozoic granite like formations. The rocky strata along the road mainly covered by the Quaternary Deposits of various thickness and origin. The geological structure of the study area crosses the sections composed by the Mesozoic sedimentary of Quaternary sediments, laying over Neogene sediments. The total thickness of Quaternary deposits in the study area in some locations is over 1,000 m. The project road runs on the stable rocky foundation covered by talus and glacier brought deposits.

There are three types of the relief formed in the Project area:

- i. Inclined valleys formed by the old alluvial fans.
- ii. Medium and Low mountains with arid-denudation processes
- iii. The loess cover forming the terrain.

The soils along the Project are presented by serozems, mainly stable and not prone to subsiding.

5.2.2. Soils

Most of the alignment passes through agricultural land and urban / semi urban landscape. The soil cover of the region is represented by typical gray soils and a complex of meadow and solonchak-meadow soils in the floodplains of rivers and along the banks of artificial watercourses. In the profile of typical grey soils, the most fertile layer is 0.3-0.45 m, depending on the position in the relief and the exposure of the hill slopes. Typical gray soils developed on loess are characterized by low humus content: the humus content in soils under plantings is 2.5%, in open spaces - 1.8%

The soils of the region are very diverse, varying in mechanical and chemical composition, varying degrees of salinity. The soils of the region under consideration belong to old irrigated soils with a pronounced cultural layer. On the territory of the Kumkurgan-Zharkurgan-Termez region, meadow gray soils predominate, which are characterized by a high humus content and a strong structure. The mineralogical composition is distinguished by the richness of primary minerals, due to the weak weathering of the rocks. Large fractions are dominated by feldspars, mica quartz, hornblende and carbonates. The clay fraction contains more hydromicas and minerals of the montmorillonite group; sometimes a small admixture of goethite and gibbsite is found.

Amorphous substances, quartz, and rarely kaolinite are found as accompanying minerals. The soil-forming rocks (light gray soils) are loess and loess-like loams of proluvial, deluvial and alluvial origin, underlain by pebbles. These soils develop in the zone of semi-deserts or desert steppes, low-grass semi-savannas. The described soils are biologically active. The number of microorganisms in the upper (humus) horizon reaches 10 million per 1g. soil. The composition of microorganisms is abundantly rearranged by actinomycetes and spore-forming bacteria. The number of nitrifiers and denitrifiers is high.

The fauna of gray soils is also very diverse. Lots of shellfish, insects, spiders, termites, worms. Among the shrews there are representatives of many classes of vertebrates.

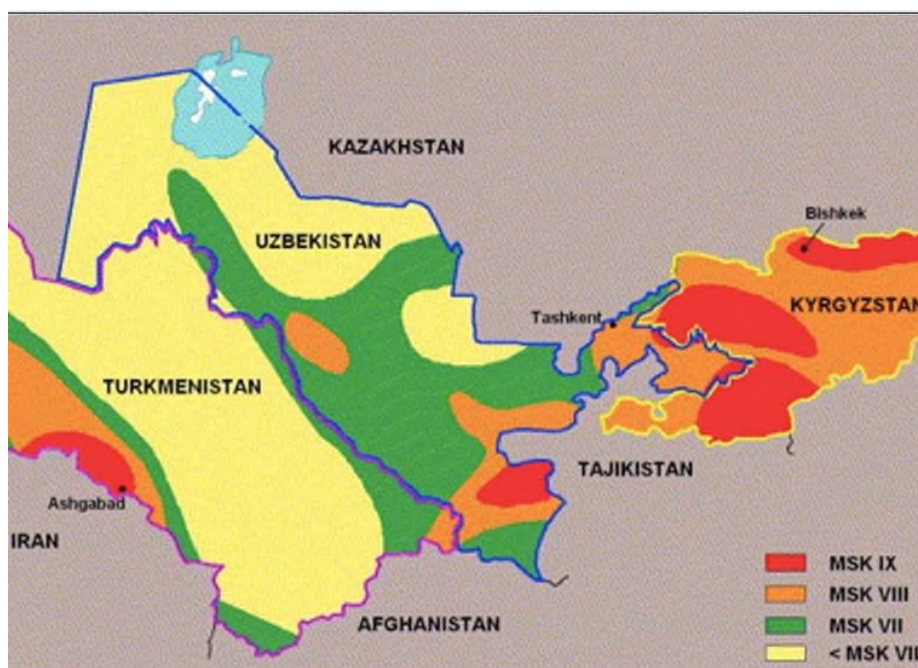
Calcium carbonate predominates in the composition of carbonates in soils. In soil horizons, as they approach the day surface, an increase in absorbed potassium and calcium is observed. The gross content of potassium and phosphorus varies slightly from place to place, the calcium content is constant.

5.2.3. Seismicity

Uzbekistan's territory is related to the active tectonic structure of the lithosphere of Western Tian-Shan, the development of which results in the formation of deep fault networks¹⁰. A considerable part of the territory of Uzbekistan belongs to the zone of seismic intensity VIII (very strong) (MSK scale)¹¹.

In Uzbekistan and surrounding regions, there have been several earthquakes with magnitude $ML > 7$ in historical and modern times. Therefore, maintenance of seismic safety is vital.

Figure 11: Seismic Zoning of Uzbekistan



The Surkhandarya region is susceptible to geophysical (earthquakes), meteorological (storms) and climatological (wildfires, droughts) events. For example, the project geophysical

¹⁰ Mavlyanova N. et al (2004): Seismic code of Uzbekistan. Proceedings 13th World Conference on Earthquake Engineering Vancouver, B.C., Canada. August 1-6, 2004. Paper No. 1611

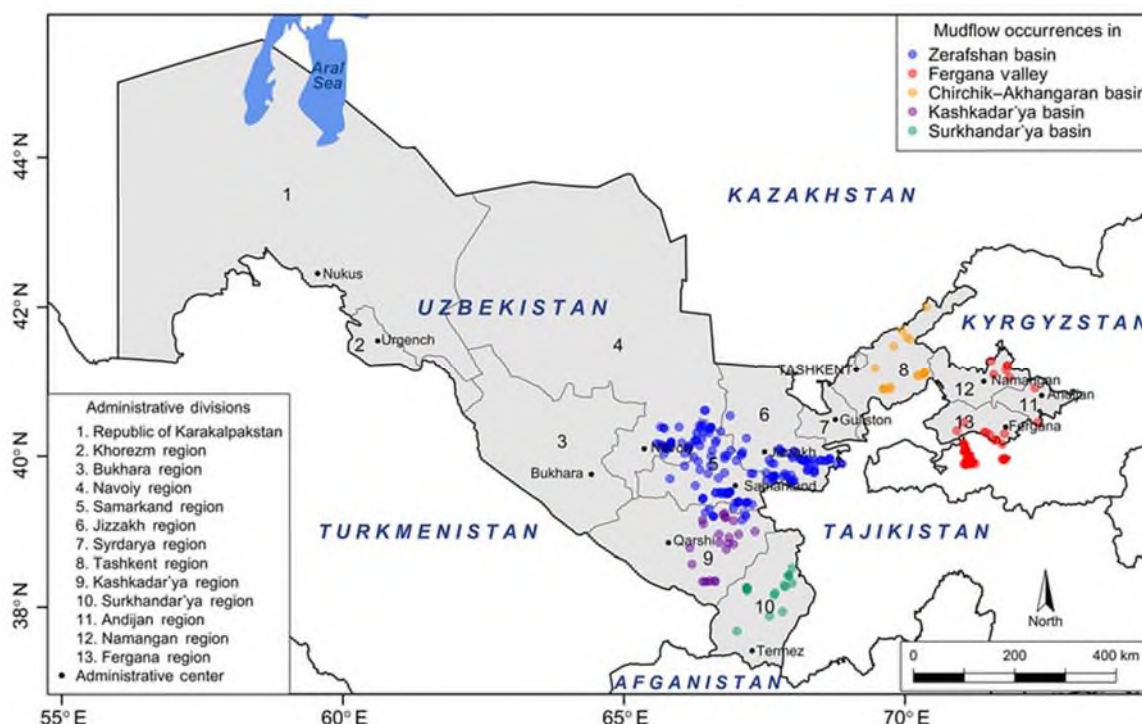
¹¹ Medvedev-Sponheuer-Karnik (MSK) scale. This is similar to the Modified Mercalli Intensity scale used in the United States and Europe.

hazard risk is Medium for earthquakes; Climatological hazard risk is Medium for water CRcity and wildfires (Suntrace, 2020). Occurrence of extreme heat events is also High.

Figure 11 presents the seismic zones in Uzbekistan. The Surkhandarya basin is prone to mudflows that may generally occur during the periods of intense rainfall or rapid snowmelt. The project area of influence is outside the susceptible areas as shown in Figure 12 for period 2005 to 2014; however, further investigations will be undertaken during detailed engineering design and findings will be included in the updated in the Final ESIA and ESMP (if available).

According to the generated map, the study area is located in seismic zone of 7-8.

Figure 12: Mudflow Occurrence across Uzbekistan



The project is located in a seismically active area and project design complaint with the relevant seismic standards (KMK 2.01.03-96). No project activity is expected to cause any seismic consequences. No landslides or mudflow areas can be found within the project area.

5.2.4. Air quality

Uzbekistan is situated in the arid zone, which includes large natural sources of dust from the Kara-Kum and Kyzyl-Kum deserts with their repeated windstorms, the Aral Sea area zone (Priaralye) and the dried Aral seabed area (Aralkum). Soil and mineral particles are the main constituents of suspended particulate matters from these sources. In Uzbekistan, sulfur dioxide (SO₂), nitrogen dioxide (NO₂) and carbon monoxide (CO), and suspended particulates of different composition and origin are the main anthropogenic air pollutants.

The project area has the potential for a significant number of anthropogenic sources of air quality degradation. Exhaust emissions from vehicles can significantly affect air quality. However, according to the environmental pollution monitoring data of the Republic of Uzbekistan¹² the air pollution index (API) in Termez is low at 1.58. Average daily concentrations of pollutants (mg/m³) are:

¹² <https://monitoring.meteo.uz/en>

- ❖ Sulfur dioxide (SO₂): 0.002
- ❖ Nitrogen dioxide (NO₂): 0.02
- ❖ Suspended solids (dust): 0.11
- ❖ Carbone monoxide (CO): 0.3

The background level of dust in the atmosphere is 0.2-0.3 MAC. In urban areas, the atmospheric air condition is generally acceptable. All road sections are currently paved with asphalt, which limits the potential for dust impacts normally associated with un-paved or degraded roads. The road traverses mainly agricultural land and urban settlements, however, significant stationary sources of air pollution are not detected nearby the project alignment. Problems of increased levels of inorganic dust and nitrogen dioxide in the atmospheric air exist around the brick factory.

The state of atmospheric air is determined mainly by emissions from mobile sources. To a lesser extent, the state of atmospheric air in the residential area of settlements is affected by emissions from unorganized sources of emissions from the unloading and sorting point of Shargunkumyr LLC, a brick factory, and high sources of the Tajik aluminum plant.

It should be noted that chemical emissions from vehicles are assessed as low and unorganized and do not extend over significant distances from the facility. The highest concentrations usually occur in the immediate vicinity of the road. At a distance of 20 m, the most dramatic “dilution” of impurities in the air occurs.

The road traverses mainly agricultural land and urban settlements, however, significant stationary sources of air pollution are not detected nearby the project alignment. The sensitive locations for air quality monitoring coincide with the noise and vibration monitoring points. Presumably, the future regular monitoring during construction phase shall be conducted at the sensitive locations nearby the project road. The measurements points should be evenly distributed along the road and located within the settlements of ranging by size from the densely built district centers to small villages with the scattered houses.

As part of ESIA, the air quality samples were taken at six selected points along the M-41 highway for four components (NO₂, SO₂, CO and Inorganic dust), as well as meteorological parameters of the project area (see Table 24 for sampling locations). Measurements were made three times at time intervals (morning, afternoon and evening). By comparing national standards of Uzbekistan and IFC Ambient Air Quality Standards, the national standards are more stringent, so they are applicable for this project. The measurements points are evenly distributed along the road and located within the settlements of ranging by size from the densely built district centers like Kumkurgan to small villages with the scattered houses like Markaziy Surkhon or Avlod.

The monitoring results have been compared to SanR&N RUz No. 0293-11 Sanitarian Rules and Norms List of Maximum Permissible Concentrations (MPC) of pollutants in the atmospheric air of populated areas on the territory of the Republic of Uzbekistan.

Table 24: Results of air quality field data on M-41 road for selected locations

Name of village	Location	Parameter	Maximum Permissible Concentration (MPC) on SanPiN RUz No. 0293-11, mg/m ³	Levels (General IFC Guidelines)	Readings (mg/m ³)
	Jarkurgan district	Nitrogen dioxide (NO ₂)	0.085	0.2 / 1 Hour 0.04 / 1 Year	0.072

Name of village	Location	Parameter	Maximum Permissible Concentration (MPC) on SanPiN RUz No. 0293-11, mg/m ³	Levels (General IFC Guidelines)	Readings (mg/m ³)
School # 63 (Jarkurgan Sport college)	37°24'29.12 67°26'30.43	Sulfur dioxide (SO ₂)	0.5	0.5 / 10 min	0.31
		Carbon Oxide	5.0	N/A	1.25
		Inorganic dust ¹³	0.3		0.19
Navbakhor community, bridge	Kumkurgan district 37°48'15.84 67°33'55.10	Nitrogen dioxide (NO ₂)	0.085	0.2 / 1 Hour 0.04 / 1 Year	0.029
		Sulfur dioxide (SO ₂)	0.5	0.5 / 10 min	0.061
		Carbon Oxide	5.0	N/A	0.032
		Inorganic dust	0.3		0.12
Karakhan community	Termez district 37°18'20.25 67°23'18.92	Nitrogen dioxide (NO ₂)	0.085	0.2 / 1 Hour 0.04 / 1 Year	0.032
		Sulfur dioxide (SO ₂)	0.5	0.5 / 10 min	0.37
		Carbon Oxide	5.0	N/A	2.65
		Inorganic dust	0.3		0.30

Field visits indicate that air quality in the project sites is good since these areas are located in rural setting without significant industrial or commercial zones, traffic volume to cause air quality degradation or high noise levels. Typically, in Uzbekistan, outside of main town centre there are few industrial pollution sources and the volume of vehicular traffic is low. There is no available air quality data or noise level measurements for the project districts and/or project sites.

5.2.5. Climate

The territory of the Surkhandarya region, which the route crosses from the northeast to the south-southeast borders, lies in an area of arid climate. The valley of the Surkhandarya River in the north, west and east is surrounded by high mountain ranges, but in the south and southwest it is open to desert sand massifs, therefore the northern, central and southern regions of the territory have slight differences in wind and temperature conditions. Mountain ranges to the north and northwest block the movement of cold northern and northwest masses. At the same time, the proximity to the mountains determines the mountain-valley circulation and the dominance of winds of northern and north-north-eastern directions. The climate is characterized by high values of solar radiation (6000-6500 MJ/m²), significant daily and annual temperature fluctuations and extreme aridity.

Characteristics of the climate of the northeastern and central territories of the region (Kumkurgan) are given according to data from the Denau weather station. The section of the southern part of the region (Dzarkurgan and Termez districts) is presented according to data from the Termez weather station.

An area with a sharply continental climate, expressed in large differences in daily and seasonal temperatures, low amounts of precipitation with an uneven distribution across the seasons. The region is characterized by predominantly positive temperatures throughout the year, low relative humidity values. The average annual air temperature over a long-term

¹³ IFC does not have a standard for "inorganic dust"

period is 16.2°. The average minimum relative humidity of the coldest month is 54%, the hottest month is 29%.

Summer is hot, the maximum temperature occurs in July (absolute maximum +44.8°), the minimum temperature is observed in December-January (absolute minimum -20.5°).

Figure 13: Temperature in Surkhandarya region

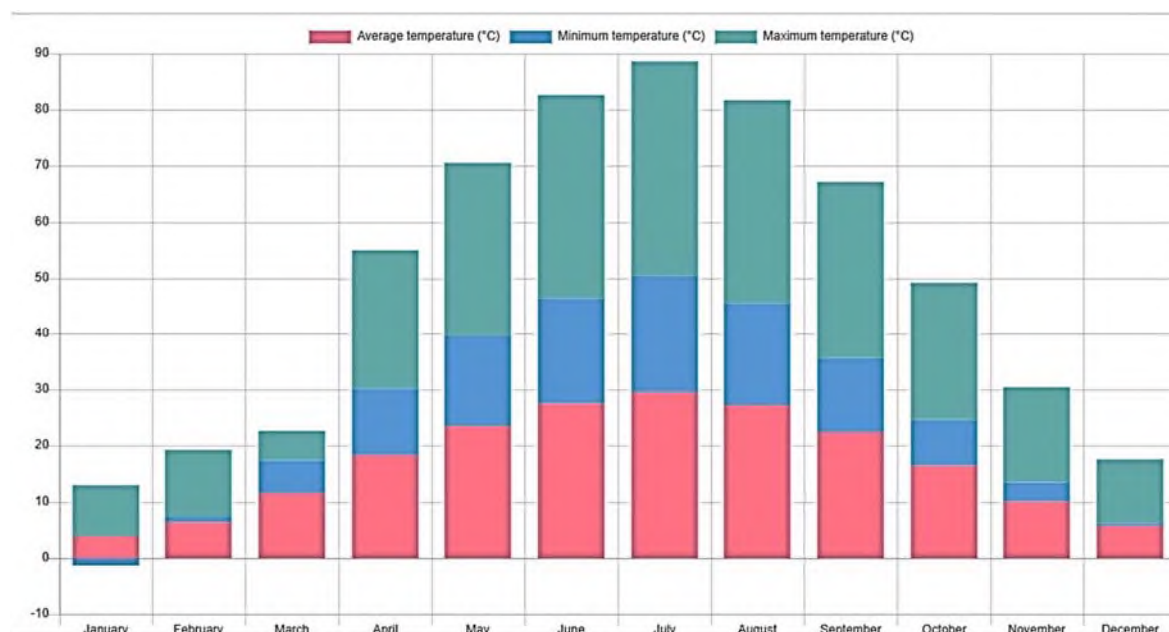


Table 25 shows the average monthly temperatures for the Denau weather station presented by SEI. The details on the period of observations are not provided.

Table 25: Mean temperature at Denau weather station (C°)

Month	I	II	III	IV	V	VI	VII	VIII	IX	X	XI	XII	Year Av.
Temp	3.6	6.1	10.7	17.1	24.9	22.3	27	28.4	26.1	21.3	15.5	9.9	17.4

Source: Project SEI

Snow cover is insignificant, the number of days with snow cover ranges from 3 to 22. The average duration of the frost-free period is 239 days, the shortest duration is 191 days, the longest is 310 days.

Precipitation falls extremely unevenly; there are cases when the amount of precipitation per day significantly exceeds the monthly norm. The average annual quantity is 344 mm. The greatest amount of precipitation falls from November to March - 257 mm. During the year, the greatest amount of precipitation falls in March (74 mm), and the least in July (0.4-4 mm).

The driest period of the year is the growing season with an average relative humidity of 40-46%. The driest month is June, in which the average relative humidity does not exceed 40%. In winter the air is humid. Humidity in January–February reaches 70-71%. Due to the exceptional dryness of the area, irrigation is mainly artificial.

The specificity of the area is the presence of strong, gusty, dry, hot and dusty winds - the so-called "Afghan". This wind lasts 12-20 hours, after which the cold begins. The maximum recorded wind speed is 32 m/sec. According to the results of long-term observations, dust storms are observed up to 15 days a year. Their greatest frequency occurs in spring-summer, and they are most observed in May-June and August-September. Dust storms mainly occur during the daytime. Table 26 shows winter and summer frequencies of the winds.

Table 26: The dominate wind direction frequencies and speeds (m/sec)

Direction	North	Northeast	East	South east	South	South west	West	North west	Still
January	31/2.3	34/2.4	7/1.6	2/1.5	12/2.3	10/2.5	2/1.4	2/2.7	17
July	23/1.8	26/1.7	7/1.4	2/1.2	11/1.7	20/2.0	8/1.6	3/1.4	4

Source: Project SEI

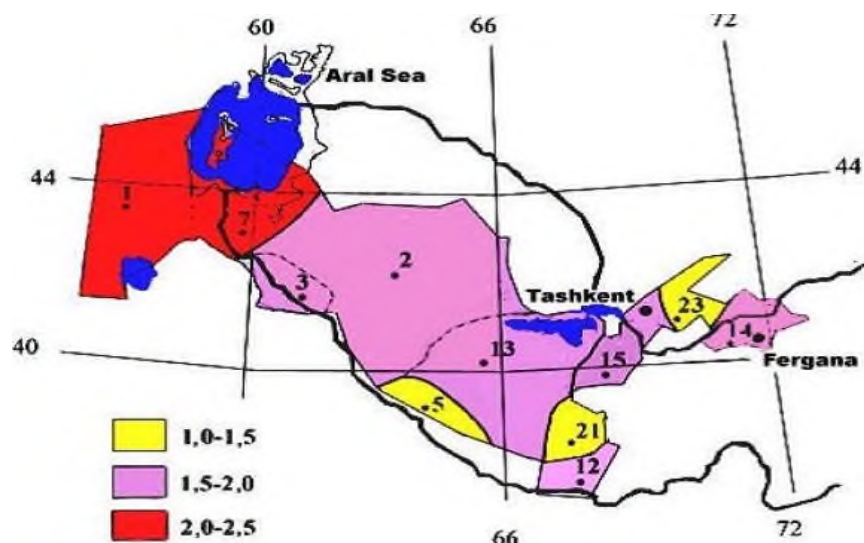
During the cold period (December-January), winds from the northern and northeastern directions predominate at a speed of 2.3-2.4 m/sec. In summer, along with northern and northeastern winds, southwestern winds are quite often observed. In general, in summer the wind speed is lower - 1.7-2.0 m/sec. Calm conditions are observed in 14-17% of cases. The leeward position of the southwestern areas relative to the main residential areas of the city allows us to recommend them for the location of enterprises and utility and warehouse areas.

Thus, the climate of the region over a long period of the year is characterized by high temperatures, weak winds and low humidity values, which naturally affects high evaporation.

5.2.6. Climate Change Implications

Climate change has been identified as an increasing threat to the environment in Uzbekistan. The greatest concern has been an increase in air temperature, which has serious implications for its glaciers and water resources. Ground air temperatures are increasing in most districts and high-altitude zones (Figure 14).

Figure 14: Projected change in average annual temperatures by 2039 compared with 1960-1991



According to projections, climate change and its consequences like extreme temperatures, isolated anomalous rainfall and natural disasters will continue to have serious impacts on road infrastructure. However new road infrastructure such as improved alignments and pavements will considerably reduce travel time and consequently fuel consumption, which in turn will lead to reduced emissions and increased road safety as well as improved transport communication between the regions and remote districts of the country.

The road projects are sensitive to the following climate change variables:

- ❖ Maximum and minimum daily surface temperatures and difference between the maximal and minimal temperature during a day.
- ❖ Number of hot (>35 °C) and frost days
- ❖ Increase in maximal daily precipitation.

Increase of mean and extreme temperatures may accelerate the deterioration of the road layers and cause rutting of pavement (for asphalt paved sections), subgrade and base. In addition, the summer heat stress may result in temperature related curling (and associated stresses), moisture warping and concrete “blows up” due to excessive slab expansion.

The main hazard future climate change poses to the Project refers to increased risk of flooding due to more severe single precipitation events in conjunction with temperature rise and snow melting. This refers to the rivers, streams and the associated irrigation system and has been considered in the design of the bridges and culverts.

GHG emissions

The current level of traffic on the project road fully justifies the proposed upgrading works. The project road between Bishkek-Dushanbe-Termez, totaling 97 km was subdivided into two road sections of around 45 km according to the envisaged four procurement Lots. The project road has an average annual average daily traffic of 17 289 aut/day for Lot 1 (1570-1622 km) and 14 657 aut/day for Lot 2 (1525-1570 km km) vehicles per day of which 87% are cars, vans, buses, and the remainder 13% trucks. The average speed on the project road is expected to increase from the current 65 km per hour to around 80 km per hour after project completion. In addition, the road works will make the road more resilient to climate-related events such as heavy rain and flooding.

HDM-4¹⁴ Model Version 2.09 was used to undertake the economic evaluation. HDM-4 simulates life cycle conditions and costs and provides economic decision criteria for multiple road design and maintenance alternatives. The quantified net benefits computed for the economic analysis of the project roads comprise vehicle operating costs, travel time costs, road maintenance costs, economic costs of road accidents, and environmental effects in terms of CO₂ emissions costs. The project road works will result in reduced travel time and vehicle operating costs, thus reducing travel costs.

The cost-benefit analysis indicates that the Economic Internal Rate of Return (EIRR) for the upgrading of the project road is 25.4 percent. The Net Present Value is US\$ 1,492 million at a discount rate of 8 percent, indicating that the project is economically justified. A sensitivity analysis shows that for the scenario with a 20 percent increase in construction costs, the EIRR is 22.8 percent. For the scenario with a 20 percent decrease in benefits, the EIRR is 22.1 percent. If both scenarios are combined, the EIRR is 19.6 percent.

The GHG accounting assessment estimates that there will be an increase in carbon dioxide (CO₂) emissions on the project road with the project. The baseline CO₂ emissions for the project (without project emissions) are 7,085,537 tons and the project gross CO₂ emissions (with project emissions) are 7,547,356 tons. The total net and annual net CO₂ emissions for the project roads are 461,819 tons and 23,091 tons per year respectively. The increase in CO₂ emissions is attributed to the increase in fuel consumption due to the higher speeds on the project road with the project and the generated traffic.

5.2.7. Noise

Within the area of influence, the road traffic is a main source of noise for the local settlements and communities.

Sound is the sensation produced in the ear as a result of fluctuations in air pressure, superimposed on the steady atmospheric pressure. The ear responds to these much smaller fluctuations with great sensitivity. Noise is defined as sound that is loud, unpleasant,

¹⁴ Highway Development and Management.

unexpected, or undesired. Traffic noise is usually a composite of noise from engine exhaust and tire-road surface interaction.

Generally, traffic noise increases with bigger traffic volume (more vehicles mean more noise), higher speeds (faster vehicles makes more noise), and bigger number of heavy trucks (heavy trucks make bigger noise than passenger vehicles).

During construction, ambient noise level within the Project road corridor is attributable to vehicular traffic, construction and quarrying operations. Sensitive receptors concerning noise emissions are schools, hospitals mosques or other social infrastructure facilities located within the settlements alongside the Project road.

On the sections of road under consideration, the traffic flow intensity is 17 289 aut/day for Lot 1 (1570-1622 km) and 14 657 aut/day for Lot 2 (1525-1570 km km); in the future, it will be about 61 473 aut/day for Lot 1 (1570-1622 km) and 52 119 aut/day for Lot 2 (1525-1570 km km). The average speed in populated areas is 70 km/h, and outside populated areas outside the city limits it is 100 km/h. The analysis of the noise characteristics in the construction area was carried out based on the measured actual intensity of traffic flow and its composition. At the time of the survey, the composition of the traffic flow included: 89% passenger cars, 11% trucks.

An enlarged analysis showed that the equivalent noise levels in the immediate vicinity of the road (7.5 m from the outer lane at a height of 1.5 m) is 75.0 dBA.

In accordance with the data provided by the local Design Institute, the equivalent levels of noise never exceed 75 dBA (7.5 m from road margin at height of 1.5m) around the project site. National standards require the maximal level for residential areas as 55 dBA at daytime and 45 dBA for a nighttime which is in line with EHS Guidelines. At the same time, for residential buildings on the outskirts of cities, where traffic flow is redistributed in certain directions, the noise level remains at the level of sanitary standards due to the remoteness of residential buildings and the presence of fences around them. At night, the traffic intensity decreases, so the noise level also decreases. In populated areas, the project will install noise-absorbing screens to protect the population from noise exposure over a length of 100.13 km.

There is no multiapartment residential building nearby the road corridor and most of sensitive receptors along the road are houses with relatively large yards. The thick walls traditionally built from the bricks serve as good noise barrier and it is expected that the noise level inside the yards is anticipated to be below maximal acceptable levels.

As a part of ESIA, noise measurements were conducted at six selected sample points in the project area. The maximum and average noise level at the road section was identified as 56-58 dB. By comparing national standards of Uzbekistan and World Bank Group (WBG) Environment, Health and Safety (EHS) Guidelines, the national standards are more stringent, so they are applicable for this project.

The maximum and average noise level was shown below according to SanR&N RUz No. 0267-09 Sanitarian Rules and Norms On admissible noise level into the living area, both inside and outside the buildings. See Table 27 for the monitoring results.

Table 27: Results of noise measurement analysis (dB)

Name of village	Location	National Noise Level Standard (SanPiN No. 0267-09)	IFC/WBG General EHS Guidelines (2007)	Level Measurement Results
-----------------	----------	--	---------------------------------------	---------------------------

		Daytime (07:00 to 23:00)	Night- time (23:00 to 07:00)	Daytime (07:00 to 23:00)	Night- time (23:00 to 07:00)	Daytime (07:00 to 23:00)	Night- time (23:00 to 07:00)
School # 63 (Jarkurgan Sport college)	Jarkurgan district 37°24'29.12 67°26'30.43	55	45	55	45	46	41,7
Navbakhor community, bridge	Kumkurgan district 37°48'15.84 67°33'55.10	55	45	55	45	49,6	43,5
Karakhan community	Termez district 37°18'20.25 67°23'18.92	55	45	55	45	48,3	39,7

5.2.8. Hydrology

Uzbekistan and most of the neighboring countries are situated in the Aral Sea internal drainage basin, trans-boundary waters of which are in shared use for economic and environmental needs. The fresh waters of the rivers, lakes and reservoirs are used for irrigated farming, industrial and public utility sector needs.

The Aral Sea Basin is subdivided into two major sub-basins: (i) sub-basin of Syrdarya and (ii) sub-basin of Amudarya River. The Project area located within the Surkhandarya and Sherabad rivers watersheds which are major right tributaries of Amudarya River (Figure 15).

Figure 15: Layout of the Aral Sea Basin



Groundwater

The groundwater in the area under consideration is subpressure. The upper and lower horizons of rocks are in close hydraulic reciprocity. They receive their nutrition due to filtration

from surface watercourses, infiltration from irrigation fields and influx from hypsometrically higher mountains.

Groundwater in the area is divided into interstratal water of tertiary deposits and groundwater of quaternary formations. Groundwater of Neogene deposits is confined to the conglomerate part of the strata and lies at a depth of over 100 m.

Groundwater of Quaternary deposits is confined mainly to the gravel-pebble layer, and the aquifer is stone loess.

The main influence on the formation of groundwater is exerted by surface and underground runoff from the Bobotog mountain ranges located outside the region. Groundwater in all sections of the road has not been exposed by pits up to 1.0 m deep. Groundwater lying at a depth of more than 1.0 m is mainly fed by water infiltration and seepage of surface irrigated water and atmospheric precipitation. The groundwater in the area is poorly mineralized. The mineralization of groundwater on irrigated lands varies from 0.5 to 2.0 g/l, and on virgin lands and fallow lands - from 4 to 9 mg/l of dense residue. According to the hydrochemical composition of the water, it is hydrocarbonate - sulfate - magnesium, slightly alkaline.

Groundwater is non-aggressive to Portland cement concrete and reinforced concrete structures; during periods of high standing, it is at a depth of 4.5 m from the surface of the earth.

Irrigation has the main influence on the groundwater regime. According to the data of the Surkhandarya hydrogeological party, the high groundwater level occurs in July-August, and the low groundwater level occurs in February-March. The annual amplitude of the groundwater level is 0.9-1.9 m.

The main surface watercourse is rain and mudflows of the Bobotog mountain range.

The chemical composition of the water in the arteries in question is formed under the influence of wastewater from enterprises in the Surkhandarya region and agricultural runoff. The closest water sources are the Surkhandarya River, which flows parallel to the designed road.

The Surkhandarya River contains impurities of petroleum products, phenols, nitrogen and sodium oxides. The average annual mineralization for chlorine ion ranges from 0.01 to 0.06 g/l, and for dry residue from 0.15 to 0.83 g/l. The acid reaction of water is neutral pH=7.0-7.5.

In general, in the water arteries under consideration, the content of such ingredients as sodium, potassium, magnesium, chlorine, calcium, zinc, fluorine, arsenic, sulfates does not exceed sanitary standards.

The designed road is located on the foothills of Mount Bobotog and therefore, along the road, a temporary reservoir of storm drains from Mount Bobotog is formed. Consequently, the Surkhandarya River is characterized by an increased level of peat and the potential for self-purification due to intense flow and abundant development of aquatic biota, a special association of aquatic vegetation. Thus, the ecological state of surface watercourses flowing in the area where the enterprise is located is satisfactory according to hydrobiological characteristics; according to hydrochemical indicators, surface waters belong to class II of clean and class III of moderately polluted waters. The hydrogeological conditions of the area are determined by the geological structure and climate.

The groundwater in the area is poorly mineralized. The mineralization of groundwater on irrigated lands varies from 0.5 to 2.0 g/l, and on virgin lands and fallow lands - from 4 to 9

mg/l of dense residue. According to the hydrochemical composition of the water, it is hydrocarbonate - sulfate - magnesium, slightly alkaline.

Groundwater is non-aggressive to Portland cement concrete and reinforced concrete structures; during periods of high standing, it is at a depth of 4.5 m from the surface of the earth.

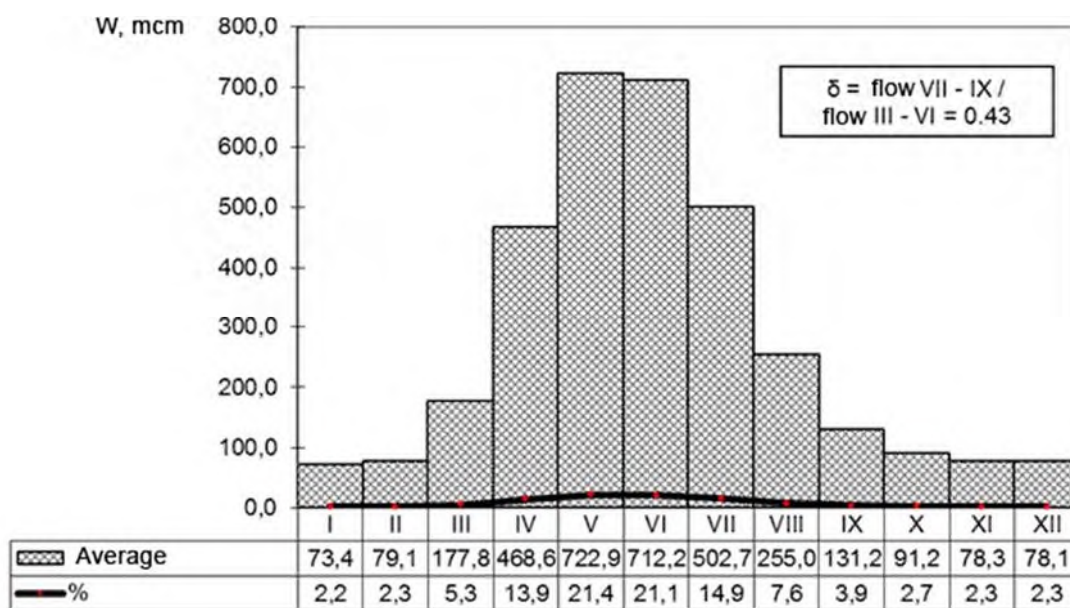
Groundwater is the main source of the drinking water in the Project area and in water take locations meets the drinking water standards.

Surface Water

Surkhandarya river is formed at the confluence of the Karatag and Tupolang rivers nearby the city of Denau. It flows into the Amu Darya in the city Termez. The length of river is 175 km (287 km including its source river Karatag) and a basin area of 13,500 km². The flood peak of river is from June to August with flow rate up to 65.8 m³/sec near the confluence with Amudarya. The closest distance from the Project Road to Surkhandarya river is over 1 km.

The M41 road, in the range of 1525-1622 km, stretches along the valley of the Surkhandarya River, 6-9 km wide, crossing the valleys of numerous tributaries flowing from the southern spurs of the Gissar Mountains.

Figure 16: The main parameters for Surkhandarya River



Source: CAWATERinfo

From the beginning of the route to Denau, the M41 road crosses the left valleys of the lower tributaries of the Tupolang River - a wide alluvial cone and the bed of the Obizarang River, then the valley and the bed of the Shargun River. 4 km below the confluence of the Shargun River and the Tupolang River, the river receives the waters of the full-flowing Karatag River, flowing from Tajikistan. Both rivers belong to the group of snow-glacial watercourses.

From Denau city to Termez city, the road runs parallel to the bed of the Surkhandarya River, sometimes moving away and sometimes approaching the floodplain-bed part of the river. In this section, the flow of the Surkhandarya is replenished with water from the right tributaries - the Sangardak-Kyzylsu, Khudzhapaik and Baidahansai rivers. 62 km from the confluence of Tupolang and Karadag, in the narrowest part of the valley, the river bed is regulated by the South Surkhan reservoir. The flow of the Tupolang tributary is also regulated, the dam of which is located 36 km from the mouth of the river (the beginning of the Surkhandarya River).



Photo 5: Surkhan river



Photo 6: Zang canal

The total length of the Surkhandarya River is 175 km (from the source of the Karatag River - 287 km), the drainage area is 13610 km². Average monthly river flows range from 10 m³/s during low-water periods to 145 m³/s during floods and the growing season. Average annual water consumption for the period 2010–2015 is 37-74 m³/s. (Table 28). Throughout its entire length, the Surkhandarya drains groundwater, the specific value of which exceeds 20% of the river's annual flow.

The average monthly water flow of the Surkhandarya river in the upper pool of the South Surkhan reservoir at the Bazarjoy post is 7.6-62.26 m³/s.

Table 28: Long-term average monthly water consumption of Surkhandarya River

Year	Month											
	10	11	12	1	2	3	4	5	6	7	8	9
2010–2015	8,398	14,35	17,89	16,38	21,98	21,8	47,83	62,26	42,23	35,03	18,08	7,6

Below the reservoir, river flows are regulated, but do not exceed long-term average values

The hydrochemical regime of the Surkhandarya River is largely formed under the influence of pollution coming from wastewater from industrial enterprises in the cities of Denau, Shurchi, Termez and agricultural waste.

The road stretches along the Surkhandarya River, sometimes moving away from it by 2 km-11 km, sometimes approaching the riverbed at a distance of 250 m-300 m. The road crosses the bed of the Surkhandarya River twice: the first crossing of the river was arranged at a point near the eastern outskirts of the city of Dzharkurgan, moving from the right bank of the river to the left, the second at a point near the city of Termez, crossing the left bank to the right. The length of the bridge near the city of Dzharkurgan reaches 200 m, width 17 m.

The road runs at a safe distance from the floodplain, which is artificially limited by bank protection dams.

The road crosses irrigation canals along the right bank of the valley, canals: Shamdankazak Q=3m³/s, Damarik Q=8.5m³/s, Yangiarik Q=3m³/s, Dayetulak Q=3m³/s, Kumkurgan - ShMMK Q=110m³/s, Surkhan Q=18m³/s, Zang Q=86 m³/s, on the left bank, canals: Yangiaryk Q=7m³/s, Galaba Q=11.6m³/s Termez-Q=7m³/s. The intersection of channels occurs mainly through tubular transitions.

A dense network of collectors intersects along the tubular passages: - Karasuv, Divana, Sangardak, Gorodskoy, Kushtegerman, Rmsovkhoz, Karamaksai, Kozoksay, Sergairat, Pakhtakor, Besh yillik, Shaldikor, Khurlik, Elboensai, Kumkurgan - and Kumkurgan-2, Zholoir, Yosh gairat, Markaziy, Shark Yulduz, M-R-2, M-R-5, M-R-4, M-R-1, Minor-4, K-5.

Water Quality

The environmental documentation prepared by designers (SEI) and approved by the SEE provides some information on the surface water quality. According to the SEI, river of Surkhandarya contains such pollutants as oil mixtures, phenol, NO_x and NaO_x. Mean annual concentrations of chlorine ions is ranging from 0.01 to 0.06 g/l and dry residues from 0.15 to 0.83 g/L.

The document states that the concentrations of compounds of sodium, potassium, magnesium, chlorine, calcium, zinc, fluorine, arsenic and sulfites are within the National tolerance limits (Maximal Allowable Concentration, MAC). Table 29 shows the content of pollutants in Surkhandarya River nearby the Denau city. The river is heavily utilized for irrigation, flows through densely populated area, while the settlements lacking the adequate wastewater treatment system. For this reason, some results exceed national standard.

Table 29: Water Quality of Surkhandarya River

Parameter	Unit	MAC	2021		
			I- Quarter	II-Quarter	III-Quarter
Water Hardness	mg-eq/L	7	7.2	6.6	6.6
Chlorides	mg/l	300	35	110	145
BOD ₅	mg/l	3	2.7	2.4	2.5
Ammonia Nitrogen (NH ₄ NO ₃)	mg/l	0.5	0.45	0.3	0.35
Nitrogen Nitrite	mg/l	0.02	0.029	0.024	0.26
COD	mg/l	15	14.8	12.5	13.0
Sulfates	mg/l	100	110	115	110
Total Suspended Particles	mg/l	15	31.1	17	18
Dry Residue	mg/l	1,000	915	890	900
pH		6.5-8.5	7.4	7	6.9

Source: MEEPCC (The information was provided on the Quarterly basis, no specific sampling dates available.)

5.3. BIOLOGICAL BASELINE

This section describes the ecological baseline and identifies likely impacts and significant ecological effects that will arise from the Proposed Project. These include impacts on species, habitats and sites designated for their importance for nature conservation.

5.3.1. Introduction

M-41 road within the boundaries of the Surkhandarya region is very picturesque, since the route is laid along the wide valley of the Surkhandarya River surrounded by high mountains, crossing either gently hilly or slightly undulating foothill plains. The valley of the Surkhandarya River is actively developed, so the road passes by irrigated lands where grains, oilseeds, technical crops are cultivated, often orchards and vineyards, and crosses numerous villages and urban areas. The road is laid through the territory of about 24 settlements, including through regional center cities such as Kumkurgan and Djharkurgan. In the final section, the road approaches the northern borders of Termez. 12 km of the project road section runs along the Yuzhno-Surkhan Reservoir.

The majority of the existing road and proposed bypasses run through anthropogenic landscapes (towns, villages, irrigation channels and ditches and irrigated agricultural lands)

that was converted for agricultural use many years ago. There is practically no remaining natural habitat in the area, with the majority of flora being limited to crops, and artificially planted trees and shrubs, and the fauna comprising of domesticated animals. Planted native and non-native fruit and ornamental trees (*Catalpa bignonioides*, *Juniperus virginiana*, *Morus alba*, *Platycladus orientalis*, *Populus afghanica* and etc.), as well as different herbaceous weeds grow along the Project Road, irrigation channels and between the buildings along the road.

There are no natural forest lands along the entire RoW. There are, however, trees along existing roads which intersect the RoW. A program for essential tree cutting to implement the Project should be developed with and approved by the Surkhandarya MEEPCC regional office. A total of 3 303 trees will be sacrificed (See Table 30). Compensation for the commercial value of the trees cut should be paid.

Table 30: Loss of trees (Preliminary quantity)

District	Tree cutting (pcs)	
	Low-value tree species, pcs	Valuable tree species, pcs.
Termez district	32	575
Dzharkurgan district	175	2379
Kumkurgan district	19	123
TOTAL	226	3077

Source: Annex 3 of national EIA

On December 24, 2025, the scientific conclusion from the Tashkent Botanical Garden named after Academician Rusanov at the Institute of Botany of the Academy of Sciences of Uzbekistan was received about the value of mulberry trees. According to this conclusion, all plants included in the inventory list are natural species. On December 19, 2025, specialists of the Institute of Botany conducted field survey in the Surkhandarya region. The result of field survey are the following:

- ❖ According to the MEEPCC's inventory, the total number of mulberry trees along the project sites is 2,244;
- ❖ The mulberry trees growing along the road in the construction site were planted in different years (1970–1990) for the purpose of:
 - development of sericulture;
 - landscaping;
 - increasing agricultural yields;
 - protection against wind erosion (in the form of protective forest belts);
- ❖ The majority of mulberry trees belongs to breeding varieties bred for use in the sericulture industry;
- ❖ Among the mulberry trees examined, the following are classified as natural species falling under the scope of Resolution No. 93:
 - 2 trees - in Termez district;
 - 1 tree - in Dzharkurgan district;
 - 1 tree - in Kumkurgan district.

Total: 4 trees;
- ❖ The remaining mulberry trees are varietal and are not subject to the Resolution No. 93;

Therefore, the possible number of valuable mulberry trees will be 837, not 3,077.

The biodiversity baseline characterization for the Project has been developed by biodiversity expert and is based on a comprehensive review of technical literature, publicly available biodiversity databases, and other sources of “desk-based” information. As well as recent ecological survey data, the baseline has been developed with the IBAT, and consultation with local government departments, local communities and national and international experts. A range of further secondary data sources were also used including technical assistance reports, published government reports, environmental impact assessments conducted in the same region, government websites, academic papers and research and recognized institutions and relevant government departments.

Table 31: Preliminary tree inventory

Diameter cm	Kumkurgan		Dzharkurgan		Termez	
	<i>Low valuable trees</i>	<i>Valuable trees</i>	<i>Low valuable trees</i>	<i>Valuable trees</i>	<i>Low valuable trees</i>	<i>Valuable trees</i>
0-4,1 cm	0	10	151	53	4	0
4,1-8 cm		3	0	119	0	255
4,1-12 cm	0	7	0	25	0	0
8,1-12 cm	12	46	3	722	0	18
12,1-16 cm	4	10	8	137	25	258
16,1-20 cm	1	9	3	232	0	26
20,1-24 cm	0	4	1	173	0	6
24,1-28 cm	1	10	5	491	3	0
28,1-32 cm	1	12	1	262	0	9
32,1-36 cm	0	7	3	88	0	0
36,1-40 cm	0	2	0	70	0	0
40,1-44 cm	0	0	0	1	0	2
44,1-48 cm	0	0	0	4	0	0
48,1-52 cm	0	0	0	0	0	0
52,1-56 cm	0	1	0	0	0	1
56,1-60 cm	0	0	0	0	0	0
60,1-64 cm	0	1	0	0	0	0
More than 64 cm	0	1	0	2	0	0
Total	19	123	175	2379	32	575

5.3.2. Protected and Designated Area Baseline

Uzbekistan has five categories of protected natural areas, including national nature reserves (zapovedniks); national parks; ecological centers; wildlife areas (zakazniks); and national nature memorials¹⁵. There is 1 State Nature Reserve within 70km of the project road, the Surkhan State Nature Reserve. There are also 7 internationally designated sites for

¹⁵ Environmental Performance Review – Uzbekistan. Third Review. UN, 2020

Biodiversity within 50km of the project alignment, these comprise 5 IBAs¹⁶ and 2 Key Biodiversity areas (KBAs)¹⁷. One additional protected site is within 50km, Hodjapil, although it is in Turkmenistan.

The nine protected and designated areas within 50 km of the Project alignment are presented in Table 32 and illustrated in Figure 17.

Table 32: Protected areas near project alignment

Name	Designation	Distance (km)	Direction
Kugitang and Boysuntay Mountains	KBA	50	N & W
Darasay Gorge	IBA	>15	E
Middle reaches of the Sherabad River	IBA	20-25	S
Yuzhno-Surkhan Reservoir	IBA	2-3	S
Gissar State Nature Reserve ¹⁸	IBA	20-23	N
Uzbek Babatag	KBA	23	E
Surkhan State Nature Reserve	State Nature Reserve	>70	SW
Koytendag	IBA	>70	SW
Hodjapil ¹⁹	Protected	>65	SW

IBA = Important Bird and Biodiversity Area, KBA = Key Biodiversity Area

Figure 17 illustrates the protected areas in relation to the proposed project. The analysis of protected areas comprises both nationally protected areas and internationally recognized zones with emphasis on Key Biodiversity Areas (KBAs).

The project AOI does not intersect any of these protected areas / KBAs. These protected areas are associated with either mountainous terrain or wetlands, and therefore support ecosystems that differ substantially from ecosystems within the study area. These protected areas are therefore not expected to be influenced by the proposed development and are not considered critical habitat features associated with the project.

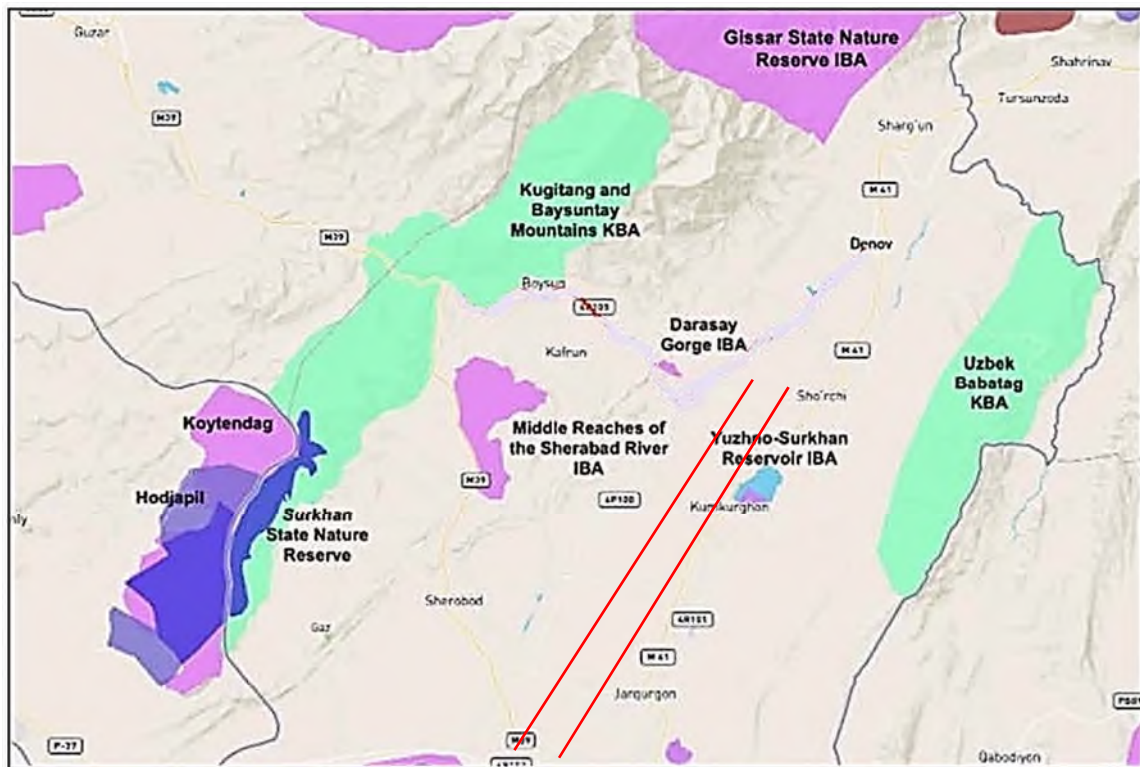
Figure 17: Protected areas located close to the Project road corridor

¹⁶ An IBA is an area identified using an internationally agreed set of criteria developed by BirdLife International as being globally important for the conservation of bird populations.

¹⁷ A KBA is an area of international importance for biodiversity conservation identified and designated using globally standardized criteria developed by the IUCN, Birdlife international and other partners.

¹⁸ This IBA is named after the State Nature Reserve of the same name but is a larger area. The State Nature Reserve itself is further than 50km from the project road.

¹⁹ This protected site is in Turkmenistan and thus does not fall under the same designations as those in Uzbekistan.



The closest protected area to the Project is Yuzhno-Surkhan Reservoir IBA, which is 3 km to the north-east and therefore outside of the Project Aol. 12 km of the project road section runs along the Yuzhno-Surkhan Reservoir. This reservoir is situated in the foothills of hilly steppe 2-3 km from Kumkurgan town in the bed of the Surchandariya river. The water level is not stable, but it does not flood or freeze in winter.

Figure 18: The closest protected area to the Project - Yuzhno-Surkhan Reservoir



The **Yuzhno-Surkhan (South-Surkhan) Reservoir** IBA is approximately 12 km from the Project. Data from 2007 shows this IBA supporting significant congregations of nonthreatened migratory waterbirds (>35,000). There is a deficiency of more recent data so on a precautionary basis it is assumed the IBA still supports similar numbers of waterbirds. However, there are no major water bodies or water courses near the Project, nor any other landmark that would function as a stop-off or bottleneck, that would cause these birds in migration to interact with the Project road.

The **Darasay Gorge** is another IBA located 15 km north of the Project alignment. It was designated as an IBA by Birdlife International in 2007 due to the presence of multiple IBA trigger species including one internationally Endangered species, the Saker Falcon. In 2007 at the time of the survey, 1-3 pairs were estimated to nest in the Gorge. There is no recent evidence to suggest that it is still present.

The **Gissar State Nature Reserve** IBA is located 22km north of the Project alignment. The IBA is not a protected area under Uzbekistan Law but was designated by Birdlife International as it is home to many threatened species of bird, including populations of the Endangered Egyptian Vulture and Saker Falcon. The IBA is much larger than the State Nature Reserve that gives it its name, the protected site itself is more than 50km from the project road.

5.3.3. Habitat Baseline

The Project passes through varying degrees of modified habitat, the majority of which is agricultural. About 97km is dominated by cropland and settlements and areas of less modified Steppe/semi-desert. The MEEPCC identifies this habitat as a western Pamiro-Alai foothill plain and adyrs ecosystem, which has been severely affected by agricultural activities. Typically, where habitat has not been converted to cropland it is used for livestock grazing.

The botanical baseline data collection was developed using a combination of desk-based review of secondary information sources and primary data gathering through field surveys conducted within the Project area. Desktop research included a comprehensive review of available technical literature on the flora of Uzbekistan, as well as review of publicly available databases including, the IUCN Red List of Threatened Species.

Surkhandarya has almost completely changed the natural landscape to a cultural one. Woody vegetation is represented along with native species of vegetation and also acclimatized species from other regions. Photographs of the major vegetation types located along the Project Road are presented in Photo 7.

Photo 7: The major vegetation types located along the Project Road



Surkhan river



Canal Zang



Urban roadside vegetation



Village Munchoqtepa in Kumkurgan district with planted trees and anthropogenic herbaceous vegetation



Cabbage field in Kumkurgan district



Cotton fields in Termez district

Baseline research identified 492 species of fauna and flora that are potentially present within 60km of the Project. These included 26 globally threatened species (IUCN), including 2 Critically Endangered (CR), 5 Endangered (EN), and 19 Vulnerable (VU) species, as well as species listed in the Uzbekistan Red Data Book. Table 33 details the results:

Table 33: Fauna and flora present or potentially present within 60km of the project

Group	Critically Endangered	Endangered	Vulnerable	Near Threatened, Least Concern, Data Deficient	Total
Birds	1	5	9	222	279
Mammals	0	0	5	68	73
Reptiles	1	0	2	25	28
Amphibians	0	0	0	0	0
Fish	0	0	3	11	14
Plants	0	0	0	58	58
Total	2	5	19	384	452

Following a review of the scientific literature, and consultation with national experts, it was determined that only 15 of the threatened species initially identified had the potential to regularly occur in the Project area. These species are listed in Table 34.

Table 34: IUCN threatened species that have the potential to regularly occur in the Project area

Latin name	Common name	IUCN Category
<i>Aquila nipalensis</i>	Steppe eagle	EN
<i>Falco cherrug</i>	Saker falcon	EN
<i>Neophron percnopterus</i>	Egyptian vulture	EN
<i>Ovis vignei bochariensis</i>	Bukhara Urial	EN (subspecies)
<i>Cyprinus carpio</i>	Wild Common Carp	VU
<i>Luciobarbus brachycephalus</i>	Aral Barbel	VU
<i>Luciobarbus capito</i>	N/A (Fish Species)	VU
<i>Gazella subgutturosa</i>	Goitered Gazelle	VU
<i>Vormela peregusna</i>	Marbled polecat	VU
<i>Streptopelia turtur</i>	European Turtledove	VU
<i>Aquila heliaca</i>	Eastern imperial eagle	VU
<i>Clanga clanga</i>	Greater spotted Eagle	VU
<i>Chlamydotis macqueenii</i>	Asian houbara	VU
<i>Testudo horsfieldii</i>	Central Asian Tortoise	VU
<i>Picipes rhizophilus</i>	N/A (Fungus species)	VU

Several species that are not internationally threatened (IUCN) but are listed in the Uzbekistan Red Book are also thought to be present or potentially present in the Project area. These are detailed in Table 35.

Table 35: Uzbekistan Red Book species that have the potential to regularly occur in the Project area

Latin name	Common name
<i>Tulipa tubergeniana</i>	Tulip
<i>Otostegia bucharica</i>	N/A
<i>Hieraaetus pennatus</i>	Booted Eagle
<i>Aquila chrysaetos</i>	Golden eagle
<i>Aegypius monachus</i>	Cinereous (Black) vulture
<i>Gyps himalayensis</i>	Himalayan vulture
<i>Capra falconeri</i>	Markhor
<i>Glyptosternon reticulatum</i>	Turkestan catfish

Critical habitat thresholds are triggered for one species - the Egyptian Vulture (Table 36). The Saker Falcon is Endangered and regularly present in the Aol but its population is not sufficient to trigger Critical Habitat. The Bukhara Urial is also Endangered, but large local population is not likely as since the usual habitat is located more than 50-60 km from the project zone, and it is not sufficient to trigger Critical Habitat.

Table 36: Results of the scoping assessment for Critical habitat thresholds

Latin name	Common Name	Population Sizes	Assessment Results	CH Conclusion
<i>Neophron percnopterus</i>	Egyptian vulture (EN)	12,000 individuals globally and only 134 breeding pairs (c.270 individuals) in Uzbekistan. Three local populations constituting approximately 154 resident individuals	The 154 resident individuals found locally triggers	Critical Habitat
<i>Ovis vignei bochariensis</i>	Bukhara Urial (EN)	Approximately 800 individuals in the world. Recent (2014 – 2018) data suggests as many as 295 individuals present in the Kugitag and Baysuntay mountains to the south-west of Denau, Shurchi, Kumkurgan district.	295 Bukhara Urial individuals do not trigger critical habitat thresholds. And a large local population is not likely as since the usual habitat is located more than 50 km from the project zone.	Non Critical Habitat
<i>Falco cherrug</i>	Saker falcon (EN)	12,000 individuals globally. Unknown how many are currently in Uzbekistan. The population present in the AoA is estimated to be between 8 and 16 individuals.	8 to 16 individuals is not sufficient to trigger critical habitat thresholds for this species	Non Critical Habitat

5.3.4. Flora

The M-41 road passes through predominantly agricultural land, where numerous types of vegetables, fruits and cereals are cultivated, in addition to animal fodder crops such as alfalfa. Flora in the Project area typically comprises shrub, grasslands, ephemeral vegetation and human-planted orchards. Prominent species include juniper, wormwood wheatgrass and xerophyte shrubs (*Juniperus zeravschanica*, *Artemisia tenuisecta*, *A.Boldshuanica*, *Elytrigia trichophoral*, *Festula sulcala*, *Elytrigia trichophoral*). Ephemeral vegetation is common in combination with wild almond, and *Carex pachystylis*, *Poa bulbosa*, *Taeniatherum crinitum*, *Psoralea drupasea*, *Phlomis sp.sp*, *Cousinia resinosa*, *Convolvulus subhirsulus*, *Taeniatherum crinitum*, *Psoralea drupasea*, *Phlomis sp.*). Common planted species include juniper, cherry, mulberry, apricot, poplar, loch and apple.

The vegetation cover of residential and industrial zones in cities and towns is represented by components of cultivated vegetation, which are formed by tree plantings from ornamental deciduous and coniferous species (hazel, poplar, ash maple, eastern elm, Weymouth pine, eastern juniper), walnut-fruit and stone fruit species, rosaries Garden plots and agricultural lands are dominated by fruit trees, fodder and vegetable crops.

Along the outer edge of the roadsides, wastelands and inconvenient areas, meadow-weed forbs dominate with a predominance of grasshoppers and thorny species - cornflower, cousins, safflower, camel thorn.

The Tulip (*Tulipa tubergeniana*) is the only threatened flora (Uzbekistan Red Book) present in the project area. The species is, however, sparsely distributed and individuals are typically located between 50 and 100m from the existing road.

Along the irrigation ditches along the perimeter of the fields and country roads, a dense cover of azhrek, lactuk, sow thistle, sweet clover, as well as prickly grass caper and yantak develops.

Outside the borders of cities, agricultural crops dominate - grain, as well as vineyards and orchards of pomegranate, peaches, quinces and persimmons. The photos belonging to observed plant species are given on Photo 8.

Photo 8: Observed plant species of the Project Area



Xanthium strumarium and Tamarix sp.



The Tulip (Tulipa tubergeniana)

In the floodplain of the Surkhan River, tamarix and lawns of azhrek and gumaya are found. Willows, tamarix, poplars and maples grow along the banks of the river.

5.3.5. Fauna

As already described, the majority of the non-urban land surrounding the existing road and proposed bypasses is turned over to intensive agriculture, leaving very few areas of unmanaged land. As a result of the extensive impact of the long-established area of agriculture, wildlife in the project area is predominantly restricted to species that are tolerant of permanently agricultural conditions.

Birds

The most common birds are the little dove, tree sparrow, common starling, mynah, rook, carrion crow, magpie, blackbird, magpie and Afghan vest.

The biotopes of the oases, as well as in the adjacent desert expanses, consist of household buildings and elm plantings. House sparrows, tree sparrows, barn swallows, little doves, and common crows are typical for populated areas.

In residential biotopes with a predominance of household plots and among artificial tree and shrub plantings and herbaceous groups, there are many birds, for which there is enough food in oasis biocenoses. Tree seeds and cereal weeds serve as favorite food for granivorous and wintering bird species. The most typical birds of the city and countryside are rock pigeons, little doves, house and tree sparrows, and the common mynah. Blackbird winters in the city.

Several threatened species are understood to regularly occur in the Project area. These include resident populations of the globally Endangered (IUCN) Egyptian vulture (*Neophron percnopterus*) and Saker falcon (*Falco cherrug*). And several nationally threatened species (Uzbekistan Red Book) were recorded including Booted eagle (*Hieraaetus pennatus*), Golden eagle (*Aquila chrysaetos*), Black vulture (*AegyPIUs monachus*) and Himalayan vulture (*Gyps himalayensis*).

Photo 9: The Photos of Observed and Potential Birds of the Project Area



Common Raven



Booted Eagle

Secondary research revealed that two globally Vulnerable species (IUCN) that may be present, however they were not recorded during field surveys and little data is available. The European Turtle Dove (*Streptopelia turtur*) is potentially present, however there has only been a single recorded sighting in region, in the Gissar State Nature reserve, over 20 km to the north. If this species is present at all in the Project Area, it is likely in very low numbers. The Asian Houbara (*Chlamydotis macqueenii*) is also potentially present although there have been very few recorded observations of this species in the Surkhandarya region. There are larger populations elsewhere in Uzbekistan, with the main Breeding population in the Kyzylkum desert and surrounding regions. Therefore, it is unlikely to occur or breed in the Project area, and if it does in small numbers.

Mammals

In residential areas in cities and towns, artificial plantings of ornamental, fruit trees and shrubs predominate. In the private sector, vegetable crops and grapes are planted on personal plots along with fruit trees. Therefore, the animal world includes those representatives who live in close proximity to humans. These include pets, insects, birds, and rodents. The burrows of small rodents (gophers, field mice) can be found in the fields. Garden rats, house mice and others live in gardens. Toads and frogs live near irrigation ditches.

Foxes, hares settle on rarely visited areas of agricultural land, and birds and rodents are still numerous. Rare representatives of fauna in a densely populated area do not appear and do not settle.

Four IUCN threatened species are potentially present, the Bukharan Urial (*Ovis vignei bochariensis*, EN) Goitered Gazelle (*Gazella subgutturosa*, VU) and Marbled Polecat (*Vormela peregusna*, VU). The nationally threatened Markhor (*Capra falconeri*, Uzbekistan Red List) is also known to occur in the wider region.

Bukhara Urial (*Ovis vignei bochariensis*) is an extremely rare and Endangered (IUCN) subspecies of Urial, with an approximate known global population of only 800 individuals. The literature and consultation with species experts confirm there is an important local population of Bukhara Urial present in the Kugitang and Boysuntay mountains (see Figure 17) that has the potential to interact with project road at its most westerly end. This population potentially comprises at least 200 individuals, although the exact population is unknown. The

literature shows there is also a smaller population of Bukhara Urial in the Gissar State Reserve, although the exact numbers are unknown.

The exact distribution of the local Bukhara Urial population is unknown. It is known, however, that the species preferred habitat consists of rolling hills with grass and forb vegetation with some tree and shrub cover (open woodlands) and with some rock outcrops (experts pers comms). The species is highly mobile and migrates seasonally, males are known to migrate over 100 kilometres. It is elusive and rarely sighted by locals. The few sightings from the local community occurred in the mountainous regions (preferred habitat for this species) to the north of the Project. It is therefore very unlikely that Bukhara Urial regularly occurs in the project area.

The Goitered Gazelle is rare in the Surkhandarya region, with the regional population estimated at just 30-50 individuals. With no data or known sightings close to the Project alignment, it is unlikely to occur in the Aol.

The Marbled Polecat occurs across much of Central Asia and is generally rare and mosaically distributed. With no data or known sightings close to the project alignment it is thought to be unlikely to occur in the Aol.

In addition to wild fauna, it is worth highlighting grazing and stable animals, which are typical for rural settlements. Grazing of domestic and camp animals takes place on the outskirts of villages and in river valleys. In the morning and evening hours, animals often move along the roads, and in the event of crossing the road, herds or individual animals create emergency situations on the roads, which necessitates the need for the construction of livestock crossings.

Reptiles

Reptiles were observed in various locations along the Project Area including the Dice Snake (*Natrix Tessellata*, LC), the Spotted Whip Snake (*Hemorrhois ravergeri*), Bogdanov's Gecko (*Tenuidactylus bogdanovi*, LC) and the wall lizard species *Eremias Regali*. None of these are listed as globally or nationally threatened. Both species of snake found are non-venomous and not dangerous to humans.

Burrows indicating the presence of the Central Asian Tortoise *Testudo horsfieldii* (IUCN VU) were observed in Darasay Gorge IBA only. The literature suggests that the region supports a lower density of tortoises than elsewhere in Uzbekistan, stating that it 'is rarely found in the foothills of the Surkhandarya or Boysuntau Ridge's. Therefore, although present this species likely occurs in low numbers and may be restricted to Darasay gorge rather than occurring along the whole alignment.

Photo 10: The Photos of Observed and Potential Reptile Species of the Project Area



Testudo horsfieldii



Tenuidactylus bogdanovi



Hemorrhois ravergieri



Lizard

5.3.6. Critical Habitat Assessment Conclusions

Critical Habitat is the most significant and highest priority land on the planet for biodiversity conservation. It takes into account both global and national priority setting systems and builds on the conservation biology principles of 'vulnerability' (degree of threat) and 'irreplaceability' (rarity or uniqueness).

Objectives' of ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources are the following:

- ❖ To protect and conserve biodiversity and habitats.
- ❖ To apply the mitigation hierarchy and the precautionary approach in the design and implementation of projects that could have an impact on biodiversity.
- ❖ To promote the sustainable management of living natural resources.
- ❖ To support livelihoods of local communities, including Indigenous Peoples, and inclusive economic development, through the adoption of practices that integrate conservation needs and development priorities.

Where a project could have significant adverse impacts to critical habitats, it should only go ahead if appropriate mitigation measures are put in place, in accordance with the mitigation hierarchy, to ensure no net loss of biodiversity over the project's lifespan. WB ESS6 states that, compensatory measures, such as biodiversity offsets, should only be used as a last resort, and should achieve no net loss or a net gain of the affected biodiversity.

A number of other vulnerable, endangered and critically endangered species have been identified as present, and whilst they do not trigger critical habitat, will need consideration in project design and monitoring to avoid, reduce, minimise and potentially offset any potential adverse impacts.

The project area falls within a much broader migratory flyway. There are several raptors, passerines and waterbirds that will all likely fly over the Aol in passage on migration. There are however no recognised ecological or topographical features that constitute significant stop-off points or bottlenecks in, or in close proximity to, the project area that would result in regular or consistent interaction with the project for any of these species. The project is therefore not anticipated to lead to significant impacts to these species.

The Project triggers critical habitat under WB ESS6 requirements for the Egyptian Vulture. The Egyptian Vulture and Saker Falcon are thought to be at low risk from the project. To avoid and minimise potential adverse impacts during construction (e.g. poaching by workers) the ESIA will include that the contractor's environmental officer (EO) includes during toolbox talks and training at contractor camps and on-site awareness raising of the threatened species present and the potential risks to them. There will also be a hunting ban for all workers.

The likelihood of adverse impacts to the Bukhara Urial is very low. The species has a large range, of which the Aol constitutes less than 0.1% of it. Further, the settlements either side of the road and their associated gardens, out buildings and boundaries are likely to deter the sheep from the Road. However, as an endangered species, with an important local population it needs careful attention to ensure its conservation status is maintained. There are existing culverts and underpasses that will be maintained and a number of animal crossings (including cattle crossings) are included in the road design. Further appropriate measures will be detailed in the associated Management Plans.

Adaptive management measures (including additional mitigation, biodiversity offsets and additional conservation actions) will be described to ensure net gain. Monitoring of the Egyptian vulture should be also be conducted by the project.

5.4. SOCIO-ECONOMIC BASELINE

5.4.1. Introduction

The proposed road crosses six districts in Surkhandarya region namely Kumkurgan, Jarkurgan and Termez districts. There are 24 settlements areas located along both sides of the proposed road. All of these communities are considered to be directly impacted by the road (AOI communities).

A Field Social Survey (FSS) of the AOI were developed through the conduction of a sample socio-economic survey of households in the AOI communities in October-November 2025 as part of the RAP preparation and wider ESIA process.

The main objective of the FSS was to determine the areas affected by the Project, identify Project Affected Persons (PAPs) and vulnerabilities among these, collect socio-economic data and through these activities establish a baseline for the Project in advance of construction activities. The collected baseline data will be integrated into the ESIA as well as the Stakeholder Engagement Plan (SEP).

The stakeholders were directly and indirectly participated in the preparation of final ESIA through various consultation meeting and interviews. These stakeholders included the central

and local authorities, the population, PAPs, community members, elders, women, youths, farmers, and other project interested parties.

5.4.2. Demographics

As of January 1, 2025, the permanent population of Surkhandarya region is 2,945.5²⁰ thousand people (7.8% of Republic). The population increased by 870.5 thousand people compared to the 2010. In particular, the urban population was 1,064.1 thousand people (36% of the total population), the rural population – 1,881.4 thousand people (64 %).

According to State Committee on Statistics, there are slightly more males in Uzbekistan -50.4 % of the population, females, respectively - 51% of the total number of citizens in January 1, 2025. As for 2021, in Surkhandarya region the number of female population is 1.32 million (49.5%) and 1.35 million (50.5%) male population.

Uzbekistan has a significant demographic growth and large labor force. In the context of population growth and unemployment, there is another issue - labor migration which was observed during the field survey.

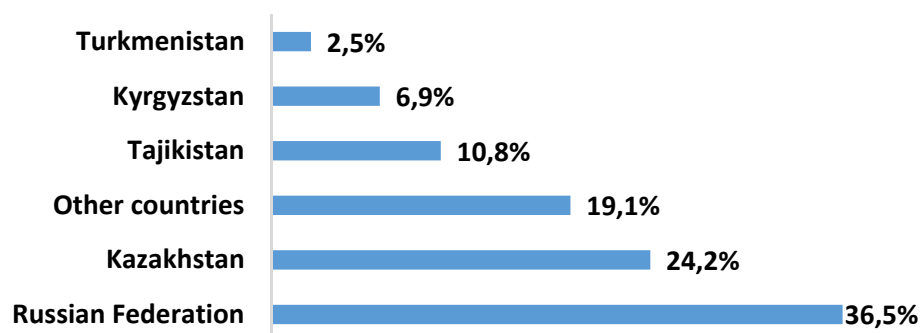
Due to economic difficulties in Uzbekistan, labor migration to Russia, Kazakhstan, the United Arab Emirates (UAE), Turkey, the Republic of Korea and Europe has been increasing over the last years. According to State committee of Uzbekistan on statistics in 2024, the number of emigrants in Surxandaryo region was 13,857 people, and the number of immigrants was 10,839 people from foreign countries.

Table 37: Migration and Emigration flows to Surkhandarya region, 2024

Districts	Emigrants, thousand people, 2024	Immigrants, thousand people, 2024
Surkhandarya region	13 857	10 839
Jarkurgan district	993	685
Kumkurgan district	999	602
Termez district	990	1268

Source: UzStat, 2024

Figure 19 Migration flows to Uzbekistan for permanent residence by country of origin, January 01, 2025



Source: UzStat, 2023

As of January 1, 2025, the permanent population of the Surkhandarya region totals 2,945.5 thousand people (7.8% of the population of the Republic of Uzbekistan). Administratively, the

²⁰ <https://www.grstat.uz/uz/>

region is divided into one city of regional subordination and 14 districts. The population density is 148.1 people per square kilometer. The administrative center is the city of Termez, with a population of 207.3 thousand people.

The total population residing in the Termez, Kumkurgan, and Jarkurgan districts amounts to 592.8 thousand people (20.1% of the Surkhandarya region's total).

Consultant visited the project area and collected the data sheets and secondary data (passports for each mahalla (communities) with socio-economic data. The total number of population in 46 project communities is 178 thousand people. The average share of male in project communities amounts at 48.18 %, share of women 46.07% respectively. The number of HHs in project communities is 32,777 (48,817 families). The average number of HH's members is 1.48 persons per.

The breakdown of the population of the project affected communities in the direct AOI is provided in table below.

Table 38: Population of AOI communities

№	District / community	Population number (thous. people) / beneficiaries	Including %		Number of families, units	Number of HHs, units
			Male	Female		
1	Termez district	19.7				
1.1	Amir Temur	3.4	49,53	50,47	860	554
1.2	Karakhan	4.5	49,40	50,60	1008	1008
1.3	Kuyashli Yurt	3.5	53,43	46,57	875	552
1.4	Termiz	4.7	46,51	53,49	1100	1025
1.5	Sh.Rashidov	3.5	49,99	50,01	855	655
2	Kumkurgan district	58.2				
2.1	Besh Kahraman	3.7	59,52	40,48	782	515
2.2	Gultepa	4.5	48,64	51,36	1158	783
2.3	Jarkyshlak	3.3	-	-	801	651
2.4	Jiydali	5.5	52,70	47,30	1320	1014
2.5	Mehrobad	3.5	49,76	50,24	868	577
2.6	Munchoktepa	3.8	49,69	50,31	912	575
2.7	Navbahor	6.8	49,95	50,05	2005	1145
2.8	Surkhan sahili	2.5	53,63	46,37	622	529
2.9	Hunarmandlar	4.0	51,00	49,00	1235	636
2.10	Elabad	4.6	51,35	48,65	1276	842
3	Dzarkurgan district					
3.1	Gur Gur	4.8	49,83	50,17	1150	1007
3.2	Dostlik	3.5	51,85	48,15	1005	504
3.3	Ismail	3.5	50,98	49,02	785	529
3.4	Istiklol	3.3	49,49	50,51	874	601
3.5	Nurli diyor	3.9	50,84	49,16	833	832
3.6	Obi hayot	6.1	50,66	49,34	1192	1017
3.7	Oktepa	3.0	50,47	49,53	753	584
3.8	Oltintepa	2.7	0,00	0,00	805	625
3.9	Surkhon sokhili	2.5	49,75	50,25	774	627

Source: Passports of AOI communities. All data in all communities is provided according to its passports

The gender distribution is fairly consistent across the AOI districts, with slightly more women than men Table below provides the gender distribution of the seven AOI districts.

Table 39: Gender distribution of the AOI districts²¹

Districts	Population	Male (%)	Female (%)
Termez district	45,4	49,77	50,23
Kumkurgan district	58,2	50,86	49,14
Jarkurgan district	100,1	50,99	49,01

Source: Passports of AOI communities. All data in all communities is provided according to its passports

Theoretically, more males than females are the demographic norm. However, in cases such as this, a higher female presence may indicate a larger migration of males for income generation purposes in other parts of Uzbekistan or abroad. Therefore, it is recommended that mitigation measures and project associated programs ensure female populations are just as much targeted as male population.

Age group

The age distribution within the project communities, delineating the percentage of the population across three main age groups: 0-17 years old, 18-30 years old, and 30 years and older. The majority of the population falls within the 30 and older category, constituting 48.28% of the total population, followed by those aged 0-17 years old at 32.55%. The smallest proportion belongs to individuals aged 18-30 years old, comprising 19.17% of the population.

Majority of the project affected households' members (above 18 years) at project communities were aged between 31-40 years as shown in the Table below. It should be noted that the majority of household members, aged between 18 and 41 years old, will be of working age during the road construction period. Therefore, given that the AOI will affect some businesses, many temporarily, during construction, it is recommended that as much as possible unskilled and skilled labour be sourced locally along the project road as much as possible.

Table 40: Age structure of population in project communities, %

Age	% of population
0-17 years old	32,55 %
18-30 years old	19,17 %
30 and older	48,28 %
General	100 %

Source: Passports of AOI communities. All data in all communities is provided according to its passports

5.4.3. Education

The right to education is guaranteed to all citizens of the Republic of Uzbekistan under the Constitution "Every person has a right to education". The state oversees education and provides guarantee for free secondary education. Almost 100% of Uzbek's population has at least a secondary education with women and men both at an equal ration of 99.9%.

²¹ State statistics Committee of the Republic of Uzbekistan Statistical department of the Surkhandarya region for January-December 2025

The improvement of education system is one of the main priorities in the Governmental Policy. As of 2025, Uzbekistan had 10,943 comprehensive schools, including 995 in Surkhandarya region. In Surkhandarya region, 33,850 students graduated from high school (11 years of studies) in academic year 2023–2024. The region has 920 of the private and state kindergartens including 310 in urban and 610 in the rural areas. Surkhandarya Region also has 7 Institutions of Higher education including Denau Institute of Entrepreneurship and Pedagogy. The professional education is also well developed.

Photo 11: Photos of general education institutions along the Project road



Schools

There are 247 preschool institutions (serving 16,619 children) and 92 schools (with 56,543 pupils) in the project communities' territory. Among them, there are two lyceum units serving 527 students, two colleges accommodating 277 students, and despite the absence of physical units, 360 students are enrolled in universities (in other regions of the country).

Table 41: Education institutions in project communities

Education institutions	Units	Number of students
Preschool educational institutions	247	16 619
Schools	92	56 543
Lyceums	2	527
Number of Colleges	2	0
Number of universities	0	360

For children's education no discrimination was reported along gender lines.

5.4.4. Language and ethnicity

Uzbekistan's population profile is characteristic with high ethnical and cultural diversity. The main ethnic group is Uzbeks (79.2%), however there are over 130 of various ethnical groups in the country. The main ethnical minorities are Russian (4.1%), Kazakhs (3.8%), and Karakalpaks (2.2%). The Project area also has a significant Tajik minority.

By law, Uzbek is Uzbekistan's exclusive nation-wide state language. Government policy requires the use of Uzbek in all dealings with officials, in street signage, and in business and education. Russian is still spoken widely and enjoys ambiguous legal status as the language of inter-ethnic communication.

Religion plays a crucial role with regards to unity in the AOI communities. Islam is by far the dominant religion in Uzbekistan, as Muslims constitute 90% of the population while 5% of the population follow Russian Orthodox Christianity, and 5% of the population follow other religions. 54% of Muslims are non-denominational Muslims, 18% are Sunnis and 1% are Shias.

The majority of the ethnic makeup of the population within the project communities identifies as Uzbek, constituting 91.34% of the total population. Other ethnicities such as Tajik, Russian, Tatar, Uyghur, Kazak, and Gypsy represent smaller percentages, with Tajik being the next most prevalent at 7.85%.

Table 42: National composition of population in project communities, %

Nationality	% of population
Uzbek	91,34 %
Tajik	7,85 %
Russian	0,04 %
Tatar	0,09 %
Kazak	0,01 %
Uyghur and others	0,67 %
TOTAL	100 %

Source: Passports of AOI communities. All data in all communities is provided according to its passports

The majority of households practice Islam, however this was not explicitly indicated in the surveys due to cultural sensitivities in the disclosure of this type of information.

5.4.5. Economy, Employment and Livelihoods

According to the discussions undertaken during the complementary ESIA and the RPF preparation, it is understood that women play a critical role in the society in terms of their role in the decision making within the household and in economic activities, especially agriculture and small businesses.

The main activity of the population of project communities is engagement into various forms of work and entrepreneurship, with a notable portion involved in agricultural activity. Specifically, the majority of the population are employed either in enterprises (27.83%) or engaged in business and entrepreneurship (11.91%). Additionally, a significant portion is involved in agricultural activities such as livestock, poultry, and beekeeping (11.66%). This suggests that the primary economic activities of the community revolve around both traditional and modern forms of commerce, with a focus on enterprise and agriculture.

Table 43: Status of employment

Status of employment	% of population
Number of employees in enterprises and organizations	27,83%
Number of people engaged in business / entrepreneurs	11,91%
Number of people engaged in household chores	0,44%
Number of traders	3,21%
Number of people engaged in livestock, poultry and beekeeping	11,66%
Number of people engaged in seasonal work	13,06%

Long term employees in foreign countries	6,36%
Number of people engaged in child care	13,46%
Number of students	3,99%
Number of working pensioners	1,77%
Number of unemployed	6,30%
TOTAL	100%

Source: Passports of AOI communities. All data in all communities is provided according to its passports

5.4.6. Land use, agriculture and natural resources

In Surkhandarya region, 64.9% of land is agricultural land while 17.4% is considered pastureland.

The existing road passes through predominantly agricultural land. Areas that are not turned over to agriculture include urban and semi-urban areas. Table 44 provides a summary of the broad land use and land cover categories encountered, and Photo 12 shows typical environments in these categories.

Table 44: Summary of Major Land Use and Land Cover Categories along the Existing Road

Land-use Category	Broad Description	Total Length (km)
Agricultural	Intensively farmed irrigated or semi-arid agricultural land that is turned over to growing wheat and other crops such as cotton, rice, cabbage, grapes and etc.	55 km
Semi-Urban	Agricultural land but with residential houses, shops, workshops, warehouses, and other small businesses along one side of the road, often within 20 metres of the road edge.	18 km
Urban	Built-up urban areas with a high density of residential, commercial and industrial activity on both sides of the alignment and in close proximity (often less than 10 metres) to the roadside.	23 km





Photo 12: The Four Major Land Use Categories Encountered Along the Existing and Proposed Road Alignments: Grassland (top left); Agricultural (top right); Semi-Urban (bottom left); and Urban (bottom right)

Initial baseline observations determined that 60% land along Project road is rural area while the remaining 40% urban. Social structures: residential, commercial, educational, institutional, recreational etc were identified along the Project road. The infrastructure in the AOI includes local transmission lines, under/above ground water/gas pipelines and communication lines etc.

5.4.7. Poverty and equity

According to the Asian Development Bank (ADB), as of 2021 a total of 17% of the population of Uzbekistan lived under the national poverty line. A total of 6.6% of the working population earned less than the \$1.90 using the purchasing power parity poverty indicator as of 2021²². Poverty levels in Uzbekistan had been decreasing, however they have been negatively impacted by the COVID-19 pandemic. In 2020 it was determined that 1.3% of the population (approximately 448,000 people) may have fallen into poverty as a result of COVID-19²³.

Government of Uzbekistan provides a poverty benefit in the form of financial and nonfinancial aid to low-income families. The data in table below shows receipt of the benefit among AOI communities.

5.4.8. Labour and human rights

As Uzbekistan is considered as a member of UN, all the main international instruments of the UN relating to the protection of human rights and freedoms, including UN Universal Declaration of Human Rights, Human Rights Council Resolution No. 30/15 on human rights and preventing and countering violent extremism, Convention on the Elimination of all Forms of Discrimination against Women among others, implemented by Uzbekistan government.

In order to create the necessary organizational, legal, social, economic, spiritual and moral foundations for the protection of human rights, the state policy of Uzbekistan in the field of human rights is aimed at preventing violations or any restriction of human rights and freedoms.

In 1995-1996, two independent and effective institutions for the protection of human rights were established in Uzbekistan:

²² <https://www.adb.org/where-we-work/uzbekistan/poverty>

²³ <https://www.undp.org/press-releases/uzbekistans-health-care-system-economy-hit-hard-covid-19>

- The Human Rights Commissioner (Ombudsman) of the Oliy Majlis of the Republic of Uzbekistan; and
- The National Centre for Human Rights.

In subsequent years, special structures for the protection of human rights were established in various ministries and departments of the Republic of Uzbekistan.

Execution of human rights in Uzbekistan in various spheres is delegated to the existing ministries and agency, although there are no requirement for have stand alone document for organisations/companies and other entities to have human right policy.

For instance, enshrining labour rights, coordination labour/employment relations, eliminating forced labour, child labour and discrimination at recruitment process is managed and monitored by Ministry of Employment and Poverty Reduction through the relevant laws, legal acts.

To protect workers' rights, Uzbek legislation does require signing employment agreement for all type of employment (full time, part-time, short-term involvement for particular service etc). Labour Code states certain requirement related to overtime work, night time work, work wages.

Although there are no strict retrenchments in legislation related to reduction of working places (retrenchment) in Uzbekistan, employers are obliged by requirements of Labour Code to make prior notifications. If there were no notification, hen employer has to pay compensation equal to the two times salary amount.

Child and forced labour are strictly prohibited by Constitution and Labour Code of Uzbekistan. As exceptional case, legislation allow worker under 18 to work with permission of parents (or guardian), and practice forced labour in emergency situations.

In Uzbekistan, workers and students (over the age 15) are free to establish or join trade unions, which are free from state or any public organisations, for better protection of their rights and obtaining support. Trade unions have wide scope of activity and eligible to provide legal, social, economic support and defend their members interests. These provisions are regulated by Law on Trade Unions of Uzbekistan (8.03.2020).

Gender equality

Discrimination of all forms of women discrimination, in particular at recruitment process, in relations to salary wages, promotions in career are strictly prohibited. The exception case is certain types of professions, i.e., industrial ones that may negatively affect to women' s health. By the Presidential Decree (No4235, dated 2019) the certain list of profession with negative affect to women were approved.

Women's right for childcare and material leave are also secured by legislation in force. It is necessary to highlight that violence of workers' rights as well as any form of discrimination against women may lead to administrative and criminal responsibility.

Although Uzbekistan prohibits violence against women and girls, there is no reliable data on domestic violence in Uzbekistan where many victims remain silent for fear of bringing shame to their families.

It should be noted that Uzbekistan has experienced an increase in domestic violence since the outbreak of COVID-19. Alongside the economic hardships which have resulted in income

and job losses in many households, there has been an increase in the rates of physical, verbal, emotional, economic, and sexual abuse against women and girls.

According to the Ministry of Internal Affairs, local law enforcement in Uzbekistan issued more than 8,430 protection orders to ensure security of domestic violence victims between January to October 2020. Out of these, 4330 experienced physical abuse, while around 3,200 suffered emotional abuse (World Bank, 2021). The number of unreported cases is expected to be much higher. In over 7,600 cases, women and girls in Uzbekistan experienced violence within their own families and in almost 5,920 of these cases, the aggressors were the husbands.

Survey results reveals that women are expected to perform domestic chores in their families. While the men are the providers and are more involved in the purchase of food, non-food items and animal feed etc in bazaars and towns.

Homosexual relations are prohibited in Uzbekistan and restricted by Article 120 of the Criminal Code on "Sodomy".

5.4.9. Community health and safety

In the past 30 years, Uzbekistan has implemented healthcare reforms in rural areas. Some improvements include increasing sanitation levels in hospitals and healthcare availability, allowing for all patients to get better care. Overall, the under-5 mortality rate has decreased by 50%, and healthcare access and quality (HAQ) grew from 50.3 to 62.9 from 1990 to now. Despite the complex situation with providing of high-quality medical services, the country has relatively high life expectancy 75.1 years including 77.4 years for women and 72.8 years for men. These parameters for Surkhandarya Region are 77.3 years for women and 72.9 for men.

5.4.10. Infrastructure and services

Uzbekistan is doubly landlocked (as similarly, landlocked countries surround it) and suffers from deteriorating road infrastructure and cumbersome logistics processes. In 2018, the country ranked 99th out of 160 countries in its logistics performance. The low ranking (120th) for timeliness of international shipments is attributable mainly to Uzbekistan's landlocked location and inadequate logistics facilities and processes. The ranking for quality of infrastructure remains low (77th) in 2018, although an improvement from 99th in 2016²⁴. The share of roads in poor condition is rising, and many are highly trafficked roads.

There are gas, water and wastewater pipelines, underground and overhead communication cables as well as Power lines along the road that supply with gas, electricity and potable water living community along the road.

Relocation of all identified public utility structures should be done before the start of construction works. The scope/scale of affected utilities are subject for finalisation of design.

Gas infrastructure.

Gas pipeline and several gas compression stations are located along M-41 road. Based on SHNK (Standards for construction) 2.04.08.-13, i.e., chapter 4-60 should be followed while projecting/planning and construction of roads, highways and railways. Consultations

²⁴ World Bank. 2018. The Logistics Performance Index and its Indicators. Washington, DC.

conducted with representatives of district representatives of Hudud gas revealed that conducting construction works near or at locations of underground gas pipelines is possible. Meantime, above ground gas pipelines as well as gas shields should be relocated. Furthermore, any gas pipelines within the corridor that need to be moved shall be conducted by a licenced contractor of the gas company itself. To avoid compromising the road improvements quality, the PIU and Contractor will need to liaise with the gas company to ensure critical path scheduling is followed in terms of scheduling movement of gas lines.

Overall, the majority of overground gas pipelines will not be affected in case of road rehabilitation with maximum extension of road width up to 15 meters.

Photo 13: Gas Infrastructure along Project site



Gas pipeline over the road in Kumkurgan district (1531km)



Underground gas pipelines in Termez district (1607km)



Gas pipeline over the road in Kumkurgan district (1531km)



Underground gas pipelines in Termez district (1617km)

Water infrastructure

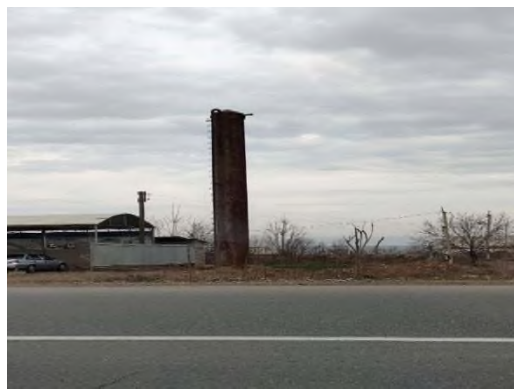
A water pipeline and water towers also runs along the M-41 road. At some places the water pipeline was visible over the road and water towers are very close to the road.

Based on Order of Ministry of Construction No 439 dated on 2019 as well as Construction norms (KMK) No2.04.02-19 health protection zone for water pipelines with diameters with more than 1000mm should be 20 meters from each side of pipeline. Technical condition is pending.

Photo 14: Water Infrastructure along Project site



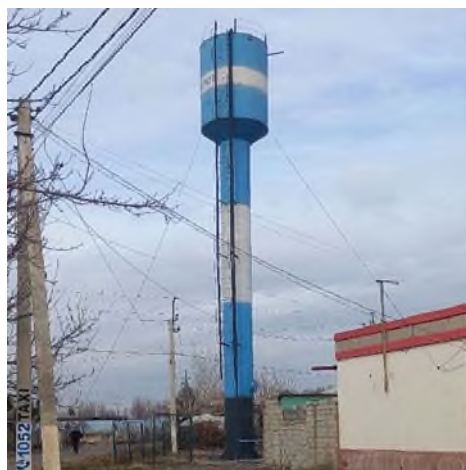
Water tower



Water tower in Kumkurgan district (1535km)



Water tower (on the right side of the road-1525km)



Water tower in Termez district

Network infrastructure

Underground network cables are buried along the M-41 road. The signs indicating its location are located on the surface.

Photo 15: Network cables along Project site



Communication cable in Kumkurgan district (15272km)



Existing underground cable in Dzharkurgan district (1591-1598km)



*Existing underground cable in Termez district
(1618km)*



*Existing underground cable in Dzharkurgan
and Termez district (1599-1619km)*

Electrical infrastructure

Transmission and distribution lines are located adjacent to the M-41 road, and intersect the road at some locations; also, there are several transformation boxes and substations along the road.

Consultations with relevant departments of National Electric Grids of Uzbekistan (NEGU) determined that there are 2 types of OHTL regional (main) and local ones.

Photo 16: Electrical infrastructure along Project site



*OHTL tower 110 kW in Termez district (will not
be affected) – 1616km*



OHTL route



*Transformer box in Kumkurgan district -
1535km*



*Transformer box in Kumkurgan district -
1530km*

Railway infrastructure

At the section 1537-1539 km, M41 road runs between the South Surkhan Reservoir and the Tashkent-Dushanbe railway line. The railway runs directly adjacent to the road in some locations also. Railway roads has several intersections with project road. There are several railway parts that goes in close parallel with project road and 2 railway sites that go under bridges of the road.

According to the information obtained regarding railway the following details were clarified:

- ❖ The planned road passes between Termez – Denau stations where passenger, goods trains as well as high speed trains commute;
- ❖ All kinds of construction materials, groceries and different types of fuels are transported;
- ❖ The railway crosses Termez city, Termez, Kumkurgan districts. However, no specific timeline for the trains exists;
- ❖ Buffer zone for Elbayan section should be considered as 15 metres;
- ❖ According to Urban development norms and rules (ShNQ) No. 2.07.01-03 section on Urban Development Planning and Development in Urban and Rural Residential Areas the followings should be taken into account:
 - In accordance with article 126, sanitary protection zone for residential buildings is considered as 100 metres, so they can be located considering HPZ distance;
 - In accordance with article 127, it is allowed to place roads, garages, car parks, service stations, warehouses, and communal facilities within HPZ but outside the railway buffer.
- ❖ In order to increase train operations on the Elbayan railway section, renovation works of the existing railway is planned.

Photo 17: Railway infrastructure along Project site



1540 km - The project road runs along irrigation canals and the railway



1551 km – There is the railway on the left. Extension to the right side.



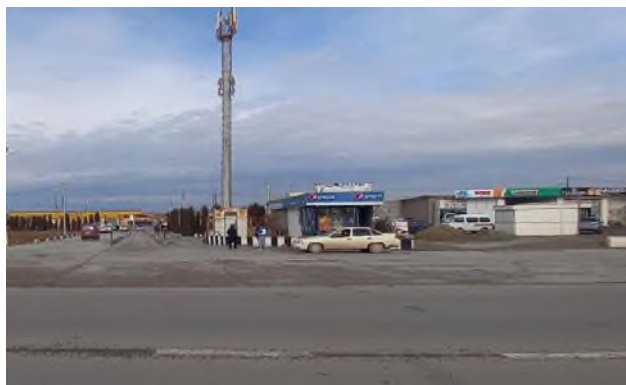
1524 km - Railway station Elbayan (left side)

Cellular towers

3 cellular towers were observed during site visit on January 16-20. 1 out of 3 towers might be affected due to the widening of road. Consultations revealed that identified towers belong to “Coscom” LLC and “Unitel” LLC. During consultations conducted with “Coscom” LLC it was responded that the information requested is strictly confidential and further consultations regarding existing potentially affected towers can be conducted by arranging face to face meeting.

Consultations conducted with “Unitel” LLC revealed that tower belonging to “Unitel” LLC located 11-12 metres from the road edge. Furthermore, it was highlighted that sanitary protection zone equal to 7 metres from the towers should be considered during construction works. It was stated that for any issues related to resettlement (if any) of towers head office located in Tashkent city should be consulted.

Photo 18: Cellular infrastructure along Project site



5.4.11. Cultural Heritage

Cultural heritage includes tangible and non-tangible, generally in terms of structure and beliefs/practices, respectively. This section identifies some of these areas that the project shall consider, especially through avoidance in detailed design and during construction.

According to WB ESS 8, tangible and intangible cultural heritage should be identified and protected to avoid adverse impacts on cultural heritage items that may be recognised to be an integral part of the continuity of cultural practices locally, regionally or internationally.

Surkhandarya Region is an area of rich and diverse cultural and historic heritage. The Surkhan-Darya region and northern Bactria is particularly significant in the Bronze Age, Early Iron Age and Kushan periods. The area had long-distance contacts, connecting to Bactra in Afghanistan via Termez and to Sogdian centres via the 'Iron Gate' pass to the north at Derbent.

The methodology for the archaeology and cultural heritage baseline assessment was based on identifying the Project Area of Influence (AoI), conducting a desk-top literature review and assessing the sensitivities of potential archaeological and cultural heritage sites.

The desk-based Study Area for cultural heritage considers known archaeology and cultural heritage receptors in the wider area in order to provide context and to understand archaeological potential. It includes:

- ❖ The National List of Tangible Cultural Heritage Properties (State Register of Monuments) for Surkhandarya Region – Sariasiya, Denau, Shurchi, Kumkurgan, Jarkurgan and Termez Districts²⁵;
- ❖ Historical and modern topographic mapping, including U.S. Army Map Service Series N502²⁶ and US Defense Mapping Agency Series 1501 Air mapping²⁷ and Soviet 1:100,000 scale Military Topographic Mapping;
- ❖ GoogleEarth Pro satellite imagery dated from 1985 to 2021. CORONA satellite imagery is not yet readily available in the Arkansas University CORONA Atlas of the Middle East²⁸ and strips have not been acquired as the data has been reviewed by previous archaeological researchers²⁹; and

²⁵ Cabinet of Ministers Resolution No. 846 "On the Approval of the National List of Tangible Cultural Heritage Properties" (October 4, 2019). Available at: <https://lex.uz/docs/-4543266> Accessed 26 October 2021

²⁶ 1952 Termez, Sheet NJ 42-9. Scale: 1:250,000. Western Siberia Series N502, U.S. Army Map Service. Available at: http://maps.lib.utexas.edu/maps/ams/western_siberia/txu-oclc-6559336-nj42-9.jpg

²⁷ 1955/1986/1992 Termez, Uzbekistan, Sheet NJ 42-9. Scale 1:250,000. US Defense Mapping Agency Hydrographic/Topographic Centre, Washington. Series N502. Available at: <https://maps.lib.utexas.edu/maps/jog/russia/txu-oclc-224096234-nj42-09.jpg>

²⁸ <https://corona.cast.uark.edu/>

²⁹ Stančo, L & Tušlov, P. (eds.) (2019) Sherabad Oasis: Tracing Historical Landscape in Southern Uzbekistan. Reports of Czech-Uzbekistani Archaeological Mission in southern Uzbekistan Volume 2. Karolinum Press, Prague

- ❖ Relevant regional and period archaeological and landscape studies, dissertations and readily available historical articles.

Although there is a great deal of literature – and even more unpublished research – the georeferencing, orthography and naming of sites identified during the Soviet period and in the State Register is poor and it has not proved possible to reliably link State Register sites to sites identified by other researchers, to Soviet mapping or to satellite imagery. A definitive, ground-truthed GIS for the area is still in preparation.

Identification of cultural heritage objects was carried out by Consultant with relevant stakeholders as well as through site observations at Scoping (November-December, 2023) and ESIA stage (October, 2025). Consultations with organisations in charge of cultural and archaeological heritage revealed one archaeological site between project districts that has national as well as local importance. An historical monument called by the local people “the bridge of Alexander the Great” although it’s historical association is not proven. The proposed design of road expansion already takes into account the proximity of such site and is not expected to impact them directly. Chance find procedures will be incorporated in the ESMP, and chance find clauses will also be incorporated in work contracts requiring contractors to stop construction.



Photo 19: Alexander the Great Bridge

No internationally recognised or legally protected cultural heritage areas have been identified. It is anticipated that any superficial or buried archaeological sites within the Project Area are likely to be classed according to IFC criteria as ‘replicable cultural heritage’ (IFC, 2012), and can be mitigated by appropriate archaeological investigation, recording and dissemination.

At the same time, the possibility of archaeological finds cannot be ruled out. Archeological finds are most often found at the stage of construction works. In the case of archaeological finds, special notices will be issued and, if necessary, excavations will be stopped and their protection respected. The procedure for handling archaeological finds includes the identification, notification of discovery, documentation and handling of archaeological finds in accordance with national legislation and, if necessary, international practice and local customs.

Cemeteries

Along with cultural monument/statues, one cemetery was observed along the Project site. Based on Islam culture, near cemetery there is a mosque to hold funeral ceremony. There are also other mosques that are not connected to cemeteries that may be affected. During

the construction phase, contractors shall refrain from construction near to mosques, cemeteries and other cultural heritage areas during events.

As per the feasibility design, the widening of road affects the old cemetery in Kumkurgan district that will require relocation of several graves and fence (Photo 20). In case the extension of existing road is required as per the final design, which might result to relocation of graves, necessary inspection with representatives of regional/district department of sanitary and epidemiological agency will be conducted, as some of graves observed at cemeteries are dates with recent years (2014, 2010).

In case of relocation of graves, issuance of necessary permits from the relevant authority will be required, upon consultation with the communities and their agreement on relocation of graves. In accordance with the permit, the local authorities will provide the assistance to the identified alive relatives of the buried people for the relocation of remains. The relocations of unidentified graves will be conducted by the local hokimiyats with participation of elders and religious leaders.



Photo 20 The fence of cemetery in Kumkurgan district (1525 km) which will be affected by the Project

Based on legislation in force, i.e., The Law of Republic of Uzbekistan No276 “On Burial” dated 27.12.2010 and Resolution of Cabinet of Ministries No101 “On measures to implement the law of the Republic of Uzbekistan on Burial and funeral ceremonies” regional and district administration/khokimiyats are in charge for local cemeteries.

Resolution of CoM No 101 prescribes followings for cemeteries:

- ❖ Cemeteries are not subject to demolition and can be moved in the prescribed manner only by decision of the state authorities of the district (city) in the event of a threat of constant flooding, landslides and other natural disasters (Paragraph 18);
- ❖ The closing of the cemetery is carried out by the decision of the khokim of the district (city) after the allotment of a new land plot for a new cemetery in accordance with the established procedure, if there is no other functioning cemetery of the corresponding religious denomination in this settlement (Paragraph 19);
- ❖ The use of territories where cemeteries were previously located is permitted after 20 (twenty) years from the date of their transfer. In this case, these territories can only be used for planting decorative green spaces. The construction of buildings and structures in these territories is prohibited (Paragraph 23);

- ❖ Reburial of the remains of the dead is allowed no earlier than one year from the moment of burial in sandy and slightly clayey soils, and no earlier than three years from the moment of burial in damp soils, where the processes of decomposition and mineralization are slowed down (Paragraph 39).

The sanitary and epidemiological service issue a conclusion on the possibility of extracting the remains and transporting them to another place of burial upon presentation of a certificate from a medical institution on the cause of death, taking into account the epidemiological situation in the area.

As a result, final design of road, and expected constructional works near or at cemeteries should be agreed with local khokimiyats and relevant departments of Sanitary agency. The process of construction works in cemeteries will be monitored by these organisations.

Consultation with regional Imam khatib (head of religions department) in December, 2023 revealed that depending on the need case and providing meaningful justifications for extension of road, religious council can review the request and provide “fatva” (permission) for extension of the existing road. In particular, there will be a need to get a consent of close relatives to relocate graves, and results of observation of sanitary epidemiological department.

It should be noted that any relocation impacts on tangible heritage sites may be avoided through a slight change in the road alignments and/or reduction in sanitary protection zone. However, in some of the built-up areas, observed during site inspections, land from heritage areas (ie. Cemeteries etc.) may be the better acquisition option, especially in cases where residences and businesses would otherwise be affected.

Department of construction of Surkhandarya region informed that HPZ for cemeteries varies from 50 up to 500 meters depending on type of cemetery. For closed cemeteries (surrounded by walls) HPZ can be 50 meters in places free of living settlements, near living settlements it should be up to 100 meters.

For cemeteries which overall area is from 20 up to 40 hectares HPZ zone is established as 500 meters, with less that 20 ha - 300 meters. In area of HPZ for cemeteries it is restricted to construct building for living and public use.

Cemeteries are under management and monitoring of local khokimiyats. Final decision on current Project allocation (i.e., if there is a need for land allocation belonging to cemeteries) should be decided based on outcomes of public hearings.

Feedback received from local communities and representatives of district khokimiyats as well as departments of Sanitary and Epidemiological wellbeing suggest avoiding any construction and disruption of cemeteries’ areas.

5.4.12. Social infrastructure

House Residences

Along the existing road a number of houses were observed at varying distances to the M-41. Some of the houses are separated from road by land plot where owners construct greenhouses, cultivate agricultural crops and fruit trees. Some houses are separated from M-41 by wall. Such practice is used for safety purposes. Site observation at Scoping and ESIA stages also observed a lot of cases when living houses are located in close location to the road (app in a distance of 2-5meters).

Photo 21: Houses with different location to the road



Closest houses to the M-41 route



Houses located at distance to the M-41 route

Commercial business

Having commercial business along the road is one of the most profitable type of business. During the site observation various types of commercial business were observed. In particular the most popular and wide spread of business are private fuel stations as well as small container shops.

Small shops are located in the buffer zone of road, i.e., next to the road. It was determined during consultations with owners of small shops that local municipality allows them to construct movable shops, so in case of road extension it would be easy to relocate them. Almost all types of such shops operate 24/7.

In addition to small movable shops, there are many informal sellers that sell vegetables and fruits in the buffer zones of existing road. Fuel stations are located a bit further. Majority of them are gas filling station. Site observations and consultations with owners of fuel station resulted that gas pipelines to supply stations with gas are located from back side of station. There are no gas pipelines that comes from existing road side.

Along with fuel gas stations and small shops, there are various commercial building that oriented on providing car repair services, groceries, food stores. In addition, there many cases of construction of new buildings for commercial purpose.

During construction activities, there may be interruption to businesses in terms of accessibility for potential customers. As part of mitigation measures, the resettlement and land acquisition framework "Entitlement Matrix" shall include a compensation requirement for business losses to temporary access restrictions and the ESMP provides for, as much as possible, allowing continued accessibility for businesses, residents and farms during construction.

Photo below illustrates types of commercial activities along the road.

Photo 22: Commercial activities along the road



Petrol/gas stations



Supermarket



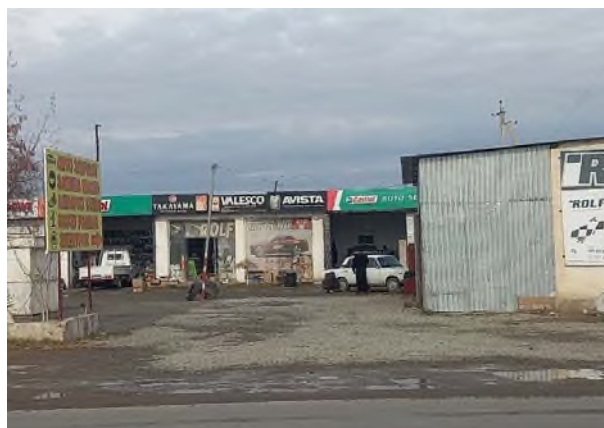
Shop



Car shops



Hotel



Car Service Center



Among the other social infrastructure there are public and private hospitals, banks and offices of governmental organisations, private commercial, supermarkets as well as industrial companies that are located along the buffer zone of existing road.

Photo 23: Photos of public infrastructure along road and AOI



Hospital for Infectious Disease



Private medical clinic



College



Polyclinic



Bank



Traffic police in Kumkurgan district

5.4.13. Vulnerable groups

Women headed households, widows, households headed by women with physically challenged family members, single elderly women living alone, in the state have been identified as the vulnerable groups.

In Surkhandarya region, 8.6% of the total households are headed by females which are slightly lower than the national average rate of 10.9% (Census 2020). The broad reasons for the vulnerability are characterized by (i) the absence of a male head due to widowhood, divorce, separation and desertion, (ii) migration of male members for long periods, (iii) loss of economic function by resident males due to severe unemployment, disability, illness and male reluctance to work, and (iv) house with no mature sons.

The table below presents various social statuses within project communities along with their respective proportions and total counts. 4.30% of the population have experienced the loss of their breadwinner and 0.93% of the population comprises single-parent households, highlighting the prevalence of single parenting within the communities. 13.44% of the population falls under the category of low-income families, indicating a significant portion of the community facing financial constraints. A notable portion of the population benefits from children-related financial support, with 15.27% receiving benefits for children under 2 years and 24.29% receiving benefits for up to 14 children. Persons with disabilities account for 12.89% of the population, and 8.75% of the population receives disability pensions, indicating a prevalence of disability-related support systems.

In total, out of 335.5 thousand people living in project communities, 12.5% of them are considered as socially vulnerable people.

Table 45: Social status of the population in project communities, %

Social status of the population	Total number of population	%
Number of families who lost their breadwinner	1801	4,30 %
Number of single mothers/fathers	390	0,93 %
Number of lonely elderly people	74	0,18 %
Number of low-income families	5626	13,44 %
Number of families receiving children benefits under 2 years of age	6393	15,27 %
Number of families receiving children benefits up to 14 people	10170	24,29 %
Number of recipients of financial benefits	847	2,02 %
Number of large families with many children	6699	16,00 %
Number of persons with disabilities	5398	12,89 %
Number of disability pension recipients	3664	8,75 %
Number of women in difficult living conditions	55	0,13 %
Number of citizens participated in the Second World War and people equalized to them	92	0,22 %
Number of people participated in the elimination of the Chernobyl nuclear disaster	657	1,57 %
TOTAL	41 866	100 %

Source: Passports of AOI communities. All data in all communities is provided according to its passports

Table 46 Summary of Route Reconnaissance Observations

Location / Section	Observations			Preliminary Assessment
	Physical	Biological	Socio-cultural	
Km 1525-1530	Hujapaik River Bridge	- Hujapaik River - The road passes through an established area of agriculture	- Elbayon village, Shurchi district Private houses - Cemetery. There will be demolition on one side. - Private business and private houses - Petrol station	Care will be needed to minimise disruption during construction Consider a noise barrier to protect residents Detailed design should ensure adequate distance from the graveyard.
Km 1530-1547	Irrigational channels Kumkurgan Canal Bridge Sherabad Canal Bridge	- Sherabad Canal - Kumkurgan Canal - Reservoir zone - The road passes through an established area of agriculture - Green spaces, perennial trees and agricultural, irrigated land along the road	- Alexander the Great Bridge (Cultural Heritage) - Zaribdor village - School № 21 - Petrol stations	RAP should ensure adequate compensation for losses Care will be needed to minimise disruption during construction
Km 1548 - 1553	Rail crossing (Railway overpass) Bridge	Flat agricultural land, predominantly turned over to wheat and cotton production. Some grazing. Irrigated lands with canals and drainage collectors There are plantations of coniferous and mulberry trees along the road	Petrol stations	No major constraints in widening the road along this section are expected, though adequate attention should be given to access/resettlement as detailed design. Existing irrigation and maintaining of crossing is important
Km 1553-1605	- Bridge over Surkhandarya river from right to left bank - Zang Canal Bridge	- Zang Canal - Surkhandarya river - Planted trees along the road	- Dharkurgan city, District Center - Okkurgan village - Ismoiltepa village	RAP should ensure adequate compensation for losses Care will be needed to minimise disruption during construction

Location / Section	Observations			Preliminary Assessment
	Physical	Biological	Socio-cultural	
			- Private business and private houses - School № 65, № 63	Consider a noise barrier to protect residents
Km 1606-1622	Bridge over Surkhandarya river	- Surkhandarya river - Mature planted trees line much of the route along this stretch. - The road passes through an established area of agriculture	- Manguzar village, Termez district - Clinic	RAP should ensure adequate compensation for losses Care will be needed to minimise disruption during construction

6. ANALYSIS OF ALTERNATIVES

The present project forms a part of the Ministry of Transport of RUz and is a component project of an overall strategic programme to improve the country's transport links and therefore boost economic development. Due to the basis of the project being a sectoral development strategy, the assessment of "no project" scenario, types of pavement and design of interchanges has been carried out. The project has been considered and investigated for several alternatives to reduce the environment and social impacts. The alternatives assessed were not limited to environment and social aspects, but assessment also included the technical and financial impacts of different options. The conclusions have been incorporated into the project design and implementation arrangements.

Despite there being no requirement for an analysis of alternatives to the project, it should be pointed out that at present several other projects that either upgrade or widen the existing road are already underway in Surkhandarya region. To leave the M-41 sections of road as it currently is would result in it being a weak-point along the main transport corridor, unable to cope with increasing traffic demands, and all logic points toward the need for the project, as described in the introductory chapter to this report.

Below the analysis of two existing alternatives through comparison of positive and negative impacts that can be observed at the pre-construction, construction and operation stages have been compared. Assessment of each alternative has been conducted through evaluation of existing and arising issues, and possible mitigation hierarchy, which will be required to avoid, reduce or compensate possible adverse effects and enhance beneficial impacts.

6.1. "NO-PROJECT" SCENARIO

"No project" or "do nothing" scenario has been identified as a first alternative.

Bank slope conditions are currently relatively stable, however, may be impacted by extraction of sand and gravel collection in the riverbeds along the road and by storm water during rainy season. In the areas near existing bridges, the slope conditions are not good and threaten the current state of the bridges, constructed more than 40-50 years ago. The riverbeds have very high level of siltation, especially notable near bridges.

Natural drainage system is impacted in the result of cumulative impacts, associated with human encroachment and development of industry along the road. Existing drainage infrastructure is outdated and damaged. Many bridges need not only repairing, but replacement. At the same time, there is also effect from the road on water quality, mostly associated with collection of construction materials and washing of cars in the rivers/canals.

Soils are not very much impacted in the result of existing road operations, although exposure of dust in many sites is very high. Solid waste management along the road is another issue, which obviously impact environment around, including soils, in high degree, first of all, in the result of lack of waste management.

Population infrastructure and services is a valued component, which usually improved with road construction due to access to many services and benefits. Currently the urban centers are crowded and there is a need in improvement of road planning and design that to avoid adverse impacts on the existing settlements and infrastructure, high level of transportation in urban centers and high project costs. Current service structures along the road are mostly developed by private structures, they are not well planned and organized. The project area can be characterized by high level of migration, especially among youth, looking for job.

There is a good job market in the project area, and not many proposals for employment and business opportunities.

Economy and well-being: is a valued environmental and social components, which is usually benefits from road development. There is a problem of youth migration from the area due to lack of employment and business opportunity within the project area. Although, the existing road supports the number of existing jobs and small businesses, the lack of such opportunities results in the gender and social inequalities. Current road safety issues are unsolved along existing road and mostly relevant to the lack of road infrastructure and special facilities such as bus stops, signs, bus stations, cross-road structures, over-road passes, etc. One of the existing issues is a very poor management of road-sides and facilities, causing high level of pollution along the road. There are no enough infrastructures and special services for visitors to rest, for example, there is a lack of sanitation facilities.

Thus, the current conditions of the existing road do not respond to the modern standards of transportation and sustainable road concept, including safe and efficient transportation, presence of adequate road infrastructure and sufficient services for drivers and passengers. Besides, current conditions of the road do not take into accounts needs for pedestrians, bicycles and motorbikes. This road does not respond also to the needs for the regional economy development, in particular, relevant to facilitation of urban growth and industry development.

To conclude, without this project, various goals of national and regional governments would not be achieved. Economic development and people's life would significantly benefit only if this project could be implemented. Therefore the 'no-project' is not a viable option.

6.2. PROJECT ALTERNATIVES

The second scenario is upgrading of existing 2-lane road into 4-lane highway, replacement of existing road infrastructure in accordance with modern standards, incorporation mitigation measures along the road ensuring natural processes and responding to socio-economic needs, and construction the new bridges instead of outdated old.

Bank slope conditions might be impacted during bridge construction in the result of extraction materials for construction with slope erosion and other associated adverse impacts on rivers, water quality, fish and aquatic habitats. Mitigation measures should consider opportunity for collection of construction materials, at least, on distance in several kilometers from the area of construction. Appropriate mitigation measures also should be ensured to prevent negative impacts on environment in the result of material extraction after road upgrades for domestic needs. Taking into account the fragility of the sedimentary soils, the bio-engineering measures are needed in the bridge area to prevent bank slope destabilization and erosion in the result of transport operations.

Natural drainage system might be severely impacted in the result of new road construction or upgrades. First of all, the road construction may cause disruption and blockage of natural drainage systems and even change the water-flow, resulting in the threat of severe flooding in the rainy season. Updated and well-designed drainage systems are needed to replace existing outdated culverts, small bridges and ditches, over-grown by thick layer of grass preventing free water flow movement. Taking into account, that in several project areas the existing road is located closely to the railway, the interaction between impacts or cumulative impacts are likely in such cases. They should be prevented through coordinated planning of drainage systems ensuring water flow through all planned linear infrastructures. Water pollution is more likely during road and bridge construction. This issue may be solved through

timely prepared Construction Environmental Management Plans and proper management and utilization of liquid and solid wastes during construction.

Soils might be impacted during road upgrades and bridge construction due to stockpiling of materials and establishment of quarries. There are also threats of hazards due to spoil or chemical material disposal and construction wastes. However, all those temporary impacts on soil may be mitigated through selection of appropriate sites, protection of fertile top-soil, soil rehabilitation after construction work. Due to quite high level of landcover in the project area, there is opportunity to find appropriate places for quarries and stockpiling without or with minimal impact on valuable fertile soils along the road.

Population infrastructure and services: will be mostly benefited from upgrades of existing highway due to improved transportation and road facilities, road safety and higher road standards. At the same time, the present road passes several highly-populated urban centers and road upgrades will require acquisition of expensive assets. Besides, high-speed transportation in the city-centers will create the safety threat (road accidents) and high air pollution due to car combustion. Therefore, consideration of by-pass options will be beneficial in such cases. The **Ошибка! Источник ссылки не найден.** shows 2 options that were considered. Road upgrades provide opportunity to plan necessary road facilities, responding to needs of travelers and beneficial for development of local economies. Upgrades of the road will provide more opportunities for the users, especially vulnerable groups. At the same time, there is a chance of conflict between worker-outsiders and local communities. So, the priority for employment in the road development project should be given to local people, especially to youth that to increase local capacity (through training and knowledge sharing) and decrease migration pressure.

Economy and well-being: is also usually benefited from the road development. Upgrades of project M-41 sections will create employment opportunities for local people with such benefits as skill enhancement, increased economic income generation activities and some others. At the same time, there is a threat of adverse effects on vulnerable groups, such as Gender Base Violence. Social management plans should include awareness and mitigation measures to prevent negative impacts on vulnerable groups, ensuring gender equality, opportunities for women employment and other associated measures. Other issues are road safety and impact on health and sanitation, especially during road works. This issue should be reflected in the management plans through providing of relevant training and instructions to all workers, ensuring safe environment during construction, individual protective measures (masks, casks, gloves, etc.), and first-aid kit in the labour camps. During upgraded road operations, the improved road infrastructure and facilities will ensure better safety for motorists and passengers with adequate speed and other signs, places for bus stops, underpasses and overpasses for pedestrians, livestock and wildlife.

Thus, the road upgrades may bring many beneficial and many adverse impacts, which should be measured and evaluated that to assess the current conditions and emerging issues, supporting the needs in the road upgrades and consideration of site-specific solutions for areas, which will require avoiding construction due to their values, nature or scale of impacts.

Analysis of Valued Environmental and Social Components for two alternatives proves that “do nothing” alternative is not a solution in the conditions, when the road was already constructed more than 50 years ago and not only does not respond to the needs of development, but can affect environment and society due to destruction of the outdated infrastructure.

The M41 road plays a key role in the region's transport network, connecting it in all directions – north, south, east and west. If the M41 becomes inaccessible, the resilience of the regional transport system will be significantly reduced, as alternative routes pass through more challenging terrain and are susceptible to climate-related hazards such as floods, landslides and earthquakes.

Having established the need for the project and accepted that it must go ahead, an alternative options within the parameters of the project design have not been examined, as the existing road is the most favourable design in terms of environmental and social issues, as well as engineering feasibility and economics. The principal issue with respect to alternatives for this project is that of the proposed bypasses.

6.3. ALTERNATIVES OF PAVEMENT

Usually, two main pavement alternatives are considered for the project implementation; asphalt vs concrete. Both options have their advantages and disadvantages. Concrete is more durable than asphalt and may outlast asphalt lifetime by 2-4 times, less prone to dips and ruts and therefore more suitable to handle higher truck traffic, and more resistant to freeze-thaw cycle damages.

Concrete is considered a greener material than asphalt, as less pollution is produced in its production and vehicles achieve better fuel efficiency running on concrete pavement. Concrete is also produced from limestone, which is widely available. Perhaps the biggest disadvantage of concrete is high initial cost and repairs are more tedious and expensive, in addition to difficulties in winter maintenance.

Asphalt, on the other hand, is less costly and being black in color allows it to trap heat from the sun which assists in the quicker snow melt and moisture evaporation.

Asphalt and concrete surfaces were considered for rehabilitation of M-41 (1525-1622 km section). At present, the roads in Uzbekistan are being constructed and reconstructed with asphalt-concrete pavement, which serves 10-15 years and requires repair after the first 4-5 years of use. Although the cost of cement concrete coating is 15-20 percent higher, its operational life is 2-3 times longer and maintenance costs are three times less. At the same time, Uzbekistan has witnessed significant growth in cement production in recent years. The Government has also decided to gradually convert newly constructed and reconstructed roads of state importance to cement concrete coating. See Table 47 for the comparison of asphalt and cement pavements.

Table 47: Comparison of Alternatives of Pavement

	Alternative 1- Concrete pavement	Alternative 2- Asphalt-concrete pavement
Engineering features	Cement concrete B30 / Btb 4.0 – 27 cm Skinny concrete - 20cm Gravel and sand top coat - 25 cm Gravel and sand bottom layer - 25 cm	Fine-grained asphalt concrete grade 1 – 6 cm Coarse grade asphalt 1- 9 cm Skinny concrete - 20cm Gravel and sand - 40 cm
O&M frequency and cost	10-12 years, low cost of maintenance and operation	3-4 years. high cost of maintenance and operation
Environmental impacts	- reduces fuel consumption, thus emits less air pollution; - not responsive to heat; - does not emit toxic gases when heated;	- responsive to heat; - emit toxic gases when heated - prone to rutting

	Alternative 1- Concrete pavement	Alternative 2- Asphalt-concrete pavement
	- reduces the risk of cars slipping on a wet track - not prone to rutting	
Resource	- Cement (Local) - Gravel (Local) - Sand (Local)	- Bitumen (Imported from foreign countries) - Gravel (Local) - Sand (Local)
Land occupation	Batching plants require less land and can be located in small area.	Needs land for asphalt plant
Climate resilience	Concrete pavements are less susceptible to water damage, but at risk from expansion beyond the capacity of joints in high temperatures.	There are extremes of both high and low temperatures, asphalt can be more susceptible to both fatigue cracking due to cold temperature embrittlement, and deformation due to high temperature softening. This effect of extremes can significantly reduce the durability and therefore the longevity of asphalt on a road.

In the light of above comparison, Alternative 1- concrete pavement is the recommended option for the main road, being more feasible alternative with less impacts on environment, resources and land use. Alternative 2- asphalt-concrete pavement has been selected for interchanges considering the easier way for construction.

The preference to use concrete was mainly based on durability, ability to handle heavier loads that characterizes the existing and projected traffic and being more resistant to freeze-thaw cycles which is typical climate in the project area. The concrete pavement was selected by Design Institute for implementation of the project road based on the environmental and technical advantages and policy of Government of Uzbekistan.

7. ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

7.1. Introduction

This section of the ESIA details the Projects potential impacts and proposes mitigation measures to limit any negative impacts identified. The first items discuss the types and phases of the impacts. The report then presents the impacts and mitigation in detail for the Project in the subsections as follows:

- ❖ Physical Resources, including:
 - Geology & Soils
 - Air Quality
 - Hydrology
 - Geohazards
- ❖ Biological Resources, including:
 - Flora
 - Fauna
 - Protected Areas
- ❖ Socio-Economic Resources, including:
 - Noise
 - Vibration
 - Waste Management
 - Traffic and Transportation
 - Land acquisition and livelihood restoration impacts
 - Socio-economic and gender aspects
 - Community Health, Safety and Security
 - Road Safety
 - Emergency Response
 - Occupational Health and Safety
 - Labour and working accommodation

7.2. Impact Phases

This impact assessment and mitigating measures cover the entire cycle of the project activities, from design, pre-construction, construction and operation and maintenance. The coverage of each of this sub-project phases is defined as follows:

- ❖ Design – This is the period of the detailed design.
- ❖ Pre-construction Phase – this period is the time that the 'Notice to Proceed' is given to the Contractor until commencement of construction.
- ❖ Construction Phase - the period from the completion of the Pre-construction activities time until the issuing of the 'Certificate of Completion'.
- ❖ Operation and Maintenance Phase – This final period is the time from completion of works.

The key feature of the three Project activities that mitigate the overall adverse impact is the fact that all Projects will be confined within the existing road alignment.

7.3. Type of Impacts

Potential impacts from projects such as road improvement projects may be classified as:

- ❖ Direct Impacts - i.e., those directly due to the project itself such as the conversion of land previously used for agricultural purposes to transport use. Direct impacts also include the impact of construction expenditures in the local economy.
- ❖ Indirect Impacts – i.e., those resulting from activities prompted by the project, but not directly attributable to it. The use of rock for the improved roadbeds, for example, has an indirect impact of increasing the demand for crushed rock and increased borrow operations.
- ❖ Cumulative Impacts – i.e., impacts in conjunction with other activities. A single road improvement may not exert a significant environmental impact, but if several roads comprising a network are developed in the same area, or are combined with agricultural reform programs in the same general area, the cumulative or additive effect could be large.

Impacts in all three categories may be either:

- ❖ Short-term – i.e., impacts which occur during road construction and affect land use, air quality and other factors. Many of these impacts, however, will be short-lived and without long-lasting effects. Even the effects of some relatively significant impacts such as borrow pits, for example, may be eventually erased if appropriate mitigation actions are taken. Many potential short-term negative impacts can be avoided or otherwise mitigated through proper engineering designs and by requiring contractors to apply environmentally appropriate construction methods. or;
- ❖ Long-term – i.e., road impacts that could, for example, affect regional land use and development patterns and regional hydrology and flooding if roads are poorly designed. Long-term negative impacts can also result from the loss of agricultural land to other land uses; air and water pollution; problems associated with scattered borrow pits; and haphazard growth.

Both short-term and long-term impacts may be either beneficial or adverse. Short-term positive impacts will include, for example, the generation of employment opportunities during construction period. Long-term benefits will include enhanced development opportunities, improved transport services, easier access to commercial and service facilities; faster communications and commodity transport; improved access to markets and growth centers and increased services and commercial facilities.

7.4. Related to Assessment and Management of E&S risk and impact (ESS 1)

7.4.1. Cumulative Impact

A cumulative impact can be described as: “The combination of multiple impacts from existing projects, the proposed project, and anticipated future projects that may result in significant adverse and/or beneficial impacts that cannot be expected in the case of a standalone project.”

The baseline conditions do not indicate any possibility of significant cumulative impacts. Similarly, no other infrastructure projects, that could give rise to cumulative impacts, are expected during the road project implementation.

The extension and improvement works of project road will be carried out within the existing ROW and with significant land acquisition and tree cutting and habitat disturbance are assessed to have substantial to high risks and impacts that are largely construction-related and short-term. There will be land acquisition mainly for construction site establishments and

road widening works and some physical and economic displacement on encroachers along the RoW. Other impacts during construction include increased traffic flow and traffic-related accidents and social issues related to increased labor influx such as gender-based violence and child labor, blockage of natural drainage, runoff water, siltation, pollution of water resources and soil.

Positive cumulative impacts of the project are expected to outweigh any negative cumulative impacts. With no new capital investment in the highway road M41, section 1525-1622 km (97 km) in Surkhandarya region would have to undergo the challenges of all future traffic flows, which are expected to increase given the envisaged future development in the area. This would create a significant environmental and social disturbance on the existing communities residing along the present alignment. There would be sharp increases in noise and vibration and air pollution. Not implementing the project will also have social implications. Road users, local communities and pedestrians would have to contend with an increased level of health and safety risks as a result of higher traffic flow. Crossing the road would become more hazardous and the roadside communities would be physically segregated between the different sides of the road. Traffic congestion would increase, and the economic cost of traffic jams is likely to impose a negative externality on the local economy. Overall the quality of the environment and social conditions would deteriorate along the road corridor in the no project scenario. With the project, road conditions will improve, health and safety will also improve and the implementation of safety design features of the road, including imposition of traffic speed limits and signages. There will also be reduction in travel time and trading of goods is expected to increase and be made more efficient.

No other existing, proposed and anticipated future road projects have been identified that may result in cumulative impacts to the Project area. In addition, construction and operation of the road has not been identified as a key factor for the future development of projects that may have significant environmental and social impacts. The project is a rehabilitation project which intends only to upgrade the existing road.

However, the Project may lead to induced impacts, including, for example:

- ❖ Conversion of agricultural land to commercial, industrial and residential property, this in turn may lead to:
 - Increased population living within the corridor which may lead to stress on social services, such as schools, hospitals, etc.
 - Required upgrading or expansion of utilities, such as electricity supply.
 - Stresses on water availability, specifically groundwater.

7.5. Relating to Labor and Working Conditions (ESS 2)

7.5.1. Occupational Health and Safety

This section discusses the impacts of the Project on workers' rights and occupational health and safety during construction and operation of the Project and associated mitigation measures to be adopted.

The main Project-related activities that may result in OHS issues are:

- ❖ Accidents involving the use of heavy equipment.
- ❖ Accidents involving construction vehicles.
- ❖ Accidents due to lack of, or poor application of, personal protective equipment (PPE).
- ❖ Poor sanitary conditions at camps and work sites.
- ❖ Lack of first aid and medical facilities.

- ❖ Falls from heights;
- ❖ Electrocutions;
- ❖ Excavation.

Workers' rights including occupational health and safety need to be considered to avoid accidents and injuries, loss of man-hours, labor abuses and to ensure fair treatment, remuneration and working and living conditions. These issues need to be considered not only for workers who are directly employed by the Project but also sub-contractors.

7.5.1.1. Potential impacts

Construction phase

The Project is expected create at least 180 – 200 direct employment opportunities during the peak of the construction period, the duration of which is currently unknown. The majority of workers will be engaged by the Contractor and will consist of an unskilled, semi-skilled to skilled workforce.

The expected impacts on worker rights and H&S because of construction, activities and Project operation are as follows:

- ❖ Risk to workers H&S due to hazardous construction activities; and
- ❖ Violation of workers' rights.

Construction activities will involve the operation of heavy equipment and trucks, working at height, construction traffic, use of electric devices, handling of hazardous materials and other hazardous activities. Due to the nature of the activities being undertaken during construction, worker H&S is a key risk with the potential for accidents that may result in injuries and fatalities as well as lost man-hours.

Summary Impacts

Table 48 provides an assessment of the significance of potential OHS impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 48: Potential Workers Rights and OHS Impacts

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Accidents involving workers	Contractors staff / subcontractors	M	M	L	M	MOD	ST	SMALL	M	POSS	M
C	Workers rights ignored.	Contractors staff / subcontractors	M	L	L	L	MIN	ST	SMALL	L	POSS	L

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.5.1.2. Mitigation & management measures

Table 49Table 52 outlines WBG ESHG³⁰ and feasible and cost-effective measures to prevent or minimise OHS impacts during the construction and operational phases

Table 49: OHS mitigation and management

Project phase	Mitigation and management measures
Construction	An Occupational Health and Safety (OHS) Plan will be prepared and updated as required by the Contractor to manage worker safety. The Contractor shall ensure that the OHS plan is strictly implemented through his Health and Safety Officer. In addition, the Contractor will provide a series of safety training courses and meetings as follows: ❖ Initial Safety Induction Course: All workmen will be required to attend a safety induction course before they are allowed access to the work site. ❖ Periodic Safety Training Courses: Periodic safety course will be conducted not less than once every two months. The courses will cover job roles& responsibilities as well as exposed hazards. All Contractor (and any sub-contractor) employees will be required to participate in relevant training courses appropriate to the nature, scale and duration of the works. Training courses for all workmen on the Site and at all levels of supervision and management. A list of training participants names and time-stamped photographic evidence of the training will be provided by the Contractor to the PIU for his records. ❖ Safety Meetings: Regular safety meetings will be conducted on a monthly basis. The PIU will be notified of all safety meetings in advance. The PIU may attend in person or by representative at his discretion. The minutes of all safety meetings will be taken and sent to the PIU within seven (7) days of the meeting and will include a list of participants names and time-stamped photographic evidence of the training.
	The Contractor will regularly inspect, test and maintain all safety equipment (including firefighting equipment), scaffolds, guardrails, working platforms, hoists, ladders and other means of access, lifting, lighting, signing and guarding equipment. Lights and signs will be kept clear of obstructions and legible to read. Equipment, which is damaged, dirty, incorrectly positioned or not in working order, will be repaired or replaced immediately by the Contractor. Workers will be provided (before they commence works) with of appropriate PPE suitable for their work such as safety boots, helmets, gloves, protective clothes, goggles, and ear protection at no cost to the workers. In addition to the above, the following general OHS measures shall be implemented by the Contractor: ❖ All construction plant and equipment used on or around the Site will be fitted with appropriate safety devices. These will include but not be limited to: ▪ Effective safety catches for crane hooks and other lifting devices, and ▪ Functioning automatic warning devices and, where applicable, an up-to-date test certificate, for cranes and hoists. ❖ Zones with noise level above 80 dBA must be marked with safety signs and appropriate PPE must be worn by workers above 85 dBA. ❖ Kitchens at road worksites ❖ Rooms for rest with ventilation at road worksites ❖ Portable toilet facilities for workers at road work sites will be provided. ❖ Fencing on all areas of excavation greater than 2m deep will be installed along with warning signs. ❖ Supports will be fitted in all excavated areas.

³⁰ <https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-occupational-health-and-safety-en.pdf>

Project phase	Mitigation and management measures
	❖ Do not enter confined space unless additional measures have been implemented, including gas detection. ❖ Ensure sufficient fresh air supply to confined work spaces. ❖ Workers will be provided with specific training relating to confined spaces. ❖ Keep air inlet filters clean and free of dust and microorganisms. ❖ Ensure reversing signals are installed on all construction vehicles. ❖ Implement fall prevention and protection measures whenever a worker is exposed to the hazard of falling more than two meters, falling into operating machinery or through an opening in a work surface. Note: fall prevention/protection measures may include, if unavoidable, the installation of guardrails with mid-rails and toe boards at the edge of any fall hazard area, proper use of ladders and scaffolds by trained employees, use of fall prevention devices, including safety harnesses and lanyard travel limiting devices to prevent access to fall hazard, fall protection devices such as full body harnesses, etc. ❖ Mark the areas where risk of injuries from falling objects exist with rope or flagging to minimize risks and injuries. ❖ Provide spotters. Employ flag persons to control traffic when construction equipment is entering or leaving the work area. ❖ A suitably staffed and equipped health clinic for all workers is to be provided on site. ❖ First aid kits will be provided at all work sites. The Contractor shall keep a log of both training records and safety incidents including near misses. Workers' Rights - For the development of the Project the Contractor shall: ❖ Set targets for local employment based on initial assessment of the labor market for unskilled and semi-skilled work force. ❖ For unskilled the Contractor shall use a 'ballot' system to ensure that employment is fair and not weighted to connected people for unskilled roles. ❖ Repatriation of locals through recruitment measures will use online resources. ❖ Provisions in the Contractors contract are to include as far as practicable items to address the collective bargaining, retrenchment, and worker accommodation and non-employee worker gaps, to ensure that ILO and Lender requirements are met. At a minimum, the Contractor shall ensure the following measures are followed: ▪ The development and implementation by the Contractor of Human resources policies to hire, train, assess, and reward the project workforce. These policies should prevent any form of discrimination in the workplace and ensure that all employees are treated fairly and equally. ▪ Policies should exclude the use of child or forced labor in the project, and that national and international requirements for non-employee workers and supply chain workers are also reflected in these policies. ▪ A grievance mechanism for workers will need to be provided for the workforce to be able to raise reasonable workplace concerns. The Contractor will inform the workers of the grievance mechanism at the time of hiring and make it easily accessible to them. ▪ The workers will additionally not be restricted from joining or forming workers organizations or from bargaining collectively, and the Contractor will not discriminate or retaliate against workers who form or join collectives or bargain collectively. All employees will receive at least the minimum wage as defined by Uzbek legislation. All workers will have contracts describing their job description and conditions of work, and will have the contents explained to them. A Service Provider will be subcontracted to provide an HIV Awareness Program to the Contractor's Personnel and the Local Community. The HIV Awareness Program will be repeated at intervals not exceeding four months.

Project phase	Mitigation and management measures
	The Contractor will hire a team of Health and Safety Specialists to implement and manage the tasks listed above. Sub-Contractors - All Project sub-contractors will be supplied with copies of the CESMP. Provisions will be incorporated into all sub-contracts to ensure the compliance with the CESMP at all tiers of the sub-contracting. All subcontractors will be required to appoint a safety representative who will be available on the Site throughout the operational period of the respective sub-contract unless the PIU approval to the contrary is given in writing. In the event of the PIU approval being given, the PIU, without prejudice to their other duties and responsibilities, will ensure, as far as is practically possible, that employees of sub-contractors of all tiers are conversant with appropriate parts of the CESMP. To implement the above items the sub-contractor will designate a qualified environmental, health and safety personnel.

Residual Impacts

The residual significance post mitigation is summarised in Table 50. The assessment has indicated that OHS impacts during the construction and operational phase would be of low significance

Table 50: OHS residual impact significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Accidents involving workers	High	Correct implementation of the mitigation and management measures will ensure that residual impacts in the construction phase are Low.	Moderate
C	Workers rights ignored.	Moderate	No significant residual impacts anticipated.	Low

7.5.1.3. Monitoring

None required other than observational monitoring outlined in the ESMP.

7.5.2. Labour and Working Accommodation

This section discusses impact assessment of labour and working conditions.

Local residents and commercial structures are considered as sensitive receptors, since project might seek for hiring locals for construction works and the direct AOI for labour impacts identified for the planned works is defined as the project footprint.

7.5.2.1. Potential impacts

Labour impacts can be experienced by workers working on the project and by community members considered 'local' (in this case assumed to mean up to 15 km from the Project site - but to be further defined by the Main Contractor). Potential labour impacts during the construction, and operation period include:

- ❖ Job creation and increased local spending in the local economy (positive);
- ❖ Poor working terms and conditions affect worker wellbeing (including forced and child labour);
- ❖ Gender-based violence and harassment (GBVH) in the workplace affecting worker wellbeing;

Working accommodation risks are associated with safety issues, such as medical check-ups on an annual basis, sanitary and hygiene norms, etc.

Construction phase

All construction workers, and particularly local and migrant workers can be vulnerable to projects not providing adequate working conditions, some key risks can include:

- ❖ Insufficient personal protective equipment (PPE);
- ❖ Not providing a contract or other related documentation that clarify worker rights;
- ❖ Withholding of personal documents or passports;
- ❖ Lack of payment or insufficient payment (often related to overtime hours or night work);
- ❖ Excessive working hours, and/or lack of breaks and rest periods; and
- ❖ Unsuitable accommodation.

Uzbekistan has a record of forced and child labour (particularly in the cotton industry, with a small incidence of forced labour in construction work under the traditional hashar system). However, it has ratified the ILO conventions on forced labour, minimum age and worst forms of child labour. The incidence of forced and child labour has reduced significantly in recent years, and it is not a high risk in this type of project which employ workers through national or international companies (rather than community level organizations which may employ the hashar system), it will also require more skilled labour, which would not be able to be sourced from the local communities as forced labour.

Workers are also at minimal risk of human rights abuses and harassment. There is no evidence that the Project will impact gender-based violence and harassment (GBVH), or that the Project is in a location where GBVH is prevalent. However, there are gender disparities at a community level, and this will need to be reviewed by the Main Contractor during construction.

Working accommodations would need regular checks associated with workers' health and safety as well as local rules and regulations to avoid any violence or local laws.

Operation phase

No impact is expected.

Impact summary and assessment of significance

Table 51 below provides an assessment of impact to labour and working accommodation and the proposed mitigation measures that are discussed in the rest of this section.

Table 51: Potential Impacts of labour and working accommodation

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Labour and procurement	Local residents	H	M	M	-	M	MT	INT	MED	DEF	H
C	Workers' accommodation	Workers	H	M	H	-	M	MT	INT	MED	DEF	H
C	Workers' health&safety	Workers	H	M	H	-	M	MT	INT	MED	DEF	H
C	GBVH	Local female	M	M	M	-	M	ST	INT	MED	POS	M

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.5.2.2. Mitigation & management measures

Table below outlines feasible and cost-effective measures to prevent or minimise impact to labour and working accommodation.

Table 52: Labour and working accommodation mitigation and management

Project phase	Mitigation and management measures
Pre-Construction	❖ Prepare Labour and procurement plan to set up a policy for hiring local residents. ❖ Prepare Working accommodation plan to establish rules for placing accommodation for workers.
Construction Phase	❖ Identify villages that will be considered 'local' for the purpose of local hiring (suggested villages up to 15 km from the Project site). ❖ Discuss with khokimiyats and local community the employment and procurement contracts available, in order to manage expectations (as there will not be a lot of jobs available). ❖ Prioritize employment of community members where possible. ❖ Prioritize procurement of goods from local communities where possible. ❖ Induction on health and safety and environmental mitigation will be held with each worker before starting work and with updates regularly. ❖ Conducting special briefings and/or on-site training for the Sub-contractors and workers on the environmental requirements of the Project. ❖ Residents shall be consulted prior to construction on the temporary locations of public services, such as bus stops, pedestrian and access to mosques, schools, and other institutions, causing least impact on livelihoods. ❖ Awareness to residents about potential impacts from road construction, how the contractor will minimize impacts and if the resident chooses, how they can further reduce impacts (of noise and dust etc. within their own houses).
Operational Phase	Not expected

Residual Impacts

The residual significance post mitigation is summarised in table below. Significance of impact can vary depending on the final design of road.

Table 53: Labour and working accommodation

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Labour procurement and	High	Minimal significant residual impacts if mitigations are complied.	Medium
C	Workers' accommodation	High		Medium
C	Workers' health&safety	High		Medium
C	GBVH	Medium		Low

7.5.2.3. Monitoring

The following table provides the monitoring requirements for labour and working accommodation.

Table 54: Monitoring Requirements for labour and working accommodation

Monitoring	Parameters	Frequency	Location	Responsibility
Construction				
Labour procurement and	n/a	Once in a month during the construction period	Along the Project site	CAR/Contractor
Workers' accommodation	n/a	Once in a month during the construction period	Along the Project site	CAR/Contractor
Workers' health&safety	n/a	Once in a month during the construction period	Along the Project site	CAR/Contractor
GBVH	n/a	Once in a month during the construction period	Along the Project site	CAR/Contractor

7.5.3. Emergency Response

This section discusses the impacts of these facilities during the construction phase of the Project and associated mitigation measures to be adopted.

Sensitive Receptors

Temporary camps and ancillary facilities include numerous activities that could lead to emergencies. For example, operating a concrete plant comprises an element of risk of fires and explosion. Movement of heavy goods vehicles on the road containing dangerous goods also possess a potential risk of emergency situations. The key sensitivities are the Contractors staff, and to a lesser extent the local community, depending on how close they live and work to the potential area of risk.

7.5.3.1. Potential impacts

Emergency situations may arise during the construction phase of the Project, for example, fires and explosions (through poor management and storage of fuels and chemicals). Emergencies could also occur on the road during the operational phase e.g. accident involving truck filled with chemicals. Accidents may also occur when working close to utilities, specifically electrical lines (above and below ground).

Summary Impacts

Table 55 provides an assessment of the significance of potential emergencies before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 55: Potential Impacts

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Fires, explosions, etc, at site.	Nearby communities/ Contractors staff	M	H	L	M	MOD	L/F	SMALL	M	POSS	M
C	Utilities (electrical lines, etc.)	Nearby communities/ Contractors staff	M	H	L	M	MOD	L/F	SMALL	M	POSS	M
O	Fires, explosions, etc, at site.	Nearby communities/ Contractors staff	L	H	L	M	MOD	MT	SMALL	M	UN LIKE	M

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.5.3.2. Mitigation & management measures

Table 56 outlines WBG ESHG ³¹ and feasible and cost-effective measures to manage emergency situations during the construction and operational phases.

Table 56: Emergency Response mitigation and management

Project phase	Mitigation and management measures
Construction	❖ The Contractor will be responsible for preparation of an Emergency Response Plan (ERP) which will include sections relating to: ▪ Containment of hazardous materials;

³¹ <https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-community-health-and-safety-en.pdf>

Project phase	Mitigation and management measures
	▪ Oil and fuel spills; ▪ Fire, gas leaks and explosions; ▪ Work-site accidents; ▪ Community /civil unrest and strike action; and ▪ Earthquake and other natural hazards. ❖ The plan will detail the process for handling, and subsequently reporting, emergencies, and specify the organizational structure (including responsibilities of nominated personnel). The plan will be submitted to the PIU for approval. ❖ The plan will also include specific measures for working in areas close to utilities and the requirement for the locations of all electrical lines (above and below ground) to be identified prior to the start of the Project.
Operation	The CAR shall be responsible for the preparation of an ERP for the operational phase of the Project.

Residual Impacts

Table 57: Residual Impacts for Emergency Response

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Fires, explosions, etc, at site	Medium	A properly prepared and implemented ERP should ensure that residual impacts are not significant.	No significant residual impacts
O	Fires, explosions, etc, at site	Low	The risk of major emergencies on the road is considered to be low. However, an operational phase ERP is considered to be prudent.	No significant residual impacts

7.5.3.3. Monitoring

Implementation of the plan will be monitored by the PIU. Any emergencies, and how they were handled, will be reported in monthly progress reports by the Contractor to the PIU. The PIU will also provide periodic monitoring of the Contractors works throughout construction to ensure the ERP is implemented effectively.

7.6. Relating Resource Efficiency and Pollution Prevention and Management (ESS 3)

7.6.1. Geology & Soils

Sensitive Receptors

- ❖ Agricultural land within the Project corridor that will be cleared for permanent or temporary use.
- ❖ Agricultural, or productive land next to construction zones.

7.6.1.1. Potential Impacts

Pre-Construction & Construction Phase

Potential impacts to soils during the construction phase include:

Damage and/or loss of topsoil - the impact may occur in case the topsoil is not removed; mixed with subsoil and/or other material during and after removal. Impact on topsoil outside the boundaries of the RoW may also happen - the topsoil not subject to removal may be compacted by heavy vehicles, scattered during transportation to temporary stockpiling site as well as lost by wind and water erosion when in stockpiles. The quality of topsoil may deteriorate if the stockpiles are not managed properly.

Erosion - It is possible, that without adequate protection measures soil erosion could occur on road embankments and bridge embankments. It is also possible, that stockpiles of soil located close to surface waters could infiltrate the water courses during heavy rainfall and cause siltation of the rivers.

Contamination due to spills or hazardous materials - Potential soil contamination is a possibility resulting from poorly managed fuels, oils and other hazardous liquids used during the project works as well as poorly managed waste (solid and liquid waste streams) in the camps.

Borrow Pits - Several borrow pits have been identified in the FS. They are available for use by the Contractor depending on the Contractor's precise requirements. The Contractor will not own or have an interest in the ownership of these borrow pits, the Contractor merely enters into a contract with the owner/operator of the borrow pit to buy specified amounts to an agreed specification. Notwithstanding the above, the Contractor shall provide some level of oversight on these facilities as described in more detail below.

Contamination Due to Spills or Hazardous Materials - Potential soil contamination is a possibility resulting from poorly managed fuels, oils and other hazardous liquids used during the project works.

Impact summary and assessment of significance

Table 58 provides an assessment of the significance of impacts to soils before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 58: Potential Impacts to Soil

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Soil contamination via spills and leaks of hazardous liquids from construction camps	Soil / Water bodies / Ground water	L	M	L	L	MOD	M/F	SMA	M	DEF	M
C	Management of contaminated land	Workers and disposal sites	L	H	L	M	MAJ	LT	INT	H	POSS	H
C	Loss of Topsoil	Nearby communities / Terrestrial wildlife	L	M	L	-	MOD	MT	SMA	M	DEF	M
C	Operation of borrow pits	Soil / Water bodies / Ground water	M	M	M	M	MOD	MT	INTE	M	DEF	M
C	Salt pollution	Soil / Water bodies / Ground water	M	M	M	M	MOD	LT	SMA	M	POSS	M
C	Sand movement	Pavement / road users	L	M	L	-	MOD	LT	SMA	M	UN	L

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.6.1.2. Mitigation & management measures

Table 59 outlines WBG ESHG³² and feasible and cost-effective measures to prevent or minimize impacts to soil during all Project phases.

Table 59: Soil mitigation and management

Project phase	Mitigation and management measures
Design	Designs shall ensure that the Project will not encroach upon petrol stations and a minimum 5m buffer between the boundaries of the petrol stations is observed. Ensure that measures are included in the design to prevent the movement of sand onto the road in the desert part of the Project road.
Pre-construction	The Contractor shall prepare, as part of his C-ESMP, a Soil Erosion, Reinstatement & Landscape Management Plan. The plan shall describe topsoil stripping procedures and rules, topsoil stripping depth and volumes, topsoil stripping supervision, transportation and stockpiling requirements, stockpile location, topsoil stockpile design, stockpile management, erosion hazard and erosion control, runoff drainage/diversion, soil protection measures at the storage area, maintenance of the stockpile and topsoil application procedure. In addition, the Contractor shall, as part of his Pollution Prevention Plan include a specific section relating to spill management. The plan shall provide details of procedures, responsibilities, resources, documentation and reporting requirements, training provisions for relevant staff, etc. to avoid spills of hazardous substances and to effectively respond to such incidents. Recommendations provided in the ESIA must be considered.
Construction	<u>Topsoil</u> - The following measures will be applied to limit impacts to topsoil: ❖ Topsoil will be stored within the RoW. ❖ Sites for temporary storage of the topsoil must be selected prior to commencement of works with due regard to environmental norms and conditions on the sites and approved by local administration and PIU. The area must be flat, located away from any surface water body, protected from runoff and erosion. ❖ In order to avoid or mitigate impact on topsoil and other impacts caused by accidental fuel/oil spills, poor management of waste and/or polluted runoff, the operation ground must be established with consideration of environmental safety measures, as presented below: • Ground clearance must be minimized. • Topsoil must be removed from all areas required for permanent and temporary needs of the project. • To avoid loss of the productive soil layer, all suitable topsoil and other material shall be saved and stockpiled separately for the future recultivation of the area. • Unwanted materials from topsoil such as roots of trees, rubble and waste removed prior to stockpiling. • Stockpiles of removed topsoil must be properly designed/shaped and managed³³; – stability of the stockpile will be achieved through preservation of 'safe' slope inclination and diversion of runoff from the area. • Topsoil and subsoil must be stored separately until reuse.

³² www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-contaminated-land-en.pdf

³³ Subsoil pile must have a natural angle of slope of up to 40° depending on texture and moisture content but, if stable stockpiles are to be formed, slope angles will normally need to be smaller. For stockpiles that are to be grass seeded and maintained, a maximum side slope of 1 in 2 (25°) is appropriate. If the soil is to be stockpiled for more than six months, the surface of the stockpiles should be seeded with a grass/clover mix to minimise soil erosion and to help reduce infestation by nuisance weeds that might spread seed onto adjacent land. Sites of temporary storage of excess material will be agreed with the local municipalities.

Project phase	Mitigation and management measures
	• To ensure stability, the soil piles shall not be higher than 2 meters. • The piles must be placed and managed so as to avoid erosion and washing off. Drainage trenches around the piles must be provided. <u>Erosion</u> - During construction, the Contractor will be responsible for ensuing material that is less susceptible to erosion will be selected for placement around bridges and culverts. In addition, he will ensure re-vegetation of exposed areas including; (i) selection of fast growing and grazing resistant species of local grasses and shrubs; (ii) immediate re-vegetation of all slopes and embankments if not covered with gabion baskets; (iii) placement of fiber mats to encourage vegetation growth. The PIU and the Contractor will both be responsible for ensuring that embankments are monitored continuously during construction for signs of erosion particular after a strong rainfall for signs of erosion. <u>Soil Pollution</u> – The following measures shall be applied to prevent and limit the extent of soil pollution: ❖ Any temporary fuel tank (if contractor decided to have small stock of fuel on the site) shall be placed in a covered area with berms or dikes to contain any spills. Capacity of containment must be 110% of capacity of the tank. Any spill shall be immediately contained and cleaned up with absorbent material. ❖ Areas using bitumen shall be constructed on impervious hardstanding to prevent seepage of oils into the soils. No bitumen drums or containers, full or used, shall be stored on open ground. ❖ Onsite repairs /maintenance/fueling activities shall be limited. Priority shall be given to offsite commercial facilities. If impossible, a designated area and/or secondary containment for the on-site repair or maintenance activities must be provided. ❖ On-site vehicles and equipment shall be inspected regularly for leaks and all leaks shall be immediately repaired. Incoming vehicles and equipment shall be checked for leaks. Leaking vehicles/equipment shall not be allowed onsite. ❖ Secondary containment devices (drop cloths, drain pans) shall be used to catch leaks or spills while removing or changing fluids from vehicles or equipment. Drip pans or absorbent materials shall be provided. On small spills absorbent materials shall be used. ❖ All valves and trigger guns shall be resistant to unauthorized interference and vandalism and be turned off and securely locked when not in use. ❖ The site will be cleaned regularly, littering will be prohibited. ❖ Waste collection area will be sited to avoid receiving a substantial amount of runoff from upland areas and draining directly to a water body. <u>Soil Compaction</u> – The Contractor will confine operation of heavy equipment within the RoW, as much as possible, to avoid soil compaction and damage to privately owned land. If private lands are disturbed, the contractor should promptly inform the owner and agree on the ways to remedy the situation. Soil compaction may be reduced by strict keeping to temporary roads, camp/operation ground boundaries. <u>Borrow Pits</u>. The road construction activities may need significant quantities of soil, which need to be obtained from borrow areas. These borrow areas may cause a number of adverse impacts, including loss of fertile soil, damage to cultivation fields, soil erosion, devaluation of land value, and safety hazards. ❖ Borrow areas will not be selected inside cultivation fields; ❖ Borrow areas will be kept up to 1 m deep; ❖ Borrow areas will be restored to minimize safety hazards, blockage of routes, or devaluation of land. ❖ Crushed stone, gravel, and sand should be imported from specially designated quarries (having licenses for the extraction of building materials); ❖ In quarries, regulatory requirements for environmental protection must be followed;

Project phase	Mitigation and management measures
	❖ When carrying out construction work, transportation of construction materials should be carried out strictly along the designated routes, in order to minimize the possibility impacts on receptors. <u>Petrol Stations</u> – The Contractors ESO will be present for any site clearance and excavation works in areas close to petrol stations. Should any soil contaminated by oil be observed the Contractor shall cease works and prepare a Method Statement for the management of contaminated soil in the identified area. The method statements shall be submitted to the PIU for approval before any further works are undertaken. Any contaminated soil must be disposed of according to GoU waste regulations.
Operation	Use of environmentally friendly solutions for ice on the roads, such as those suggested in the Manual of Environmental Best Practices for Snow and Ice Control.

Residual Significance

The residual significance post mitigation is summarised in Table 60. The assessment has indicated that impact to soil due to the construction and operational phase would not be significant.

Table 60: Soil residual impact significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Soil contamination via spills and leaks of hazardous liquids from construction.	Medium	Mitigation measures, if applied correctly, will ensure that there are no significant residual impacts	Not Significant
C	Management of Contaminated land	High	Avoidance of petrol stations should ensure there are no significant impacts. As a precautionary approach monitoring of these areas shall also be completed during construction phase and any issues identified managed through method statements approved by PIU.	Not Significant
C	Loss of Topsoil	Medium	If the mitigation measures suggested are implemented, the residual impacts of the Project will not be significant.	Not Significant
C	Operation of borrow pits	Medium	Only licensed borrow pits will be used and they will be audited prior to use to ensure they are suitable for use. Residual impacts will not be significant.	Not Significant
O	Salt pollution	Medium	Use of alternative ice breaking methods will ensure that impacts are not significant.	Not Significant

7.6.1.3. Monitoring

None apart from the observational monitoring outlined in the ESMP and any subsequent monitoring requirements identified by method statements for contaminated land.

7.6.2. Air Quality

This section discusses emissions of atmospheric pollutants and greenhouse gases during construction and operation of the Project and associated mitigation measures to be adopted.

Sensitive Receptors

During the construction phase sensitive receptors will mainly be residents affected by dust, and to a lesser degree by combustion emissions. It is possible that some agricultural crops and local greenhouses could also be affected by dust. During the operational phase the main receptors will be residents affected by dust and combustion emissions.

7.6.2.1. Potential impacts

Increases in dust or fugitive emissions can have a negative impact on the local air quality (AQ) as well as the health of workers or residents. The health effects include dust getting into eyes and mouth (workers, residents), increased AQ particles in the atmosphere, nuisance through surface soiling affecting local ecology and where relevant cultural features.

Construction phase

Release of Exhaust Gases - During construction, the release of combustion gases will mostly be from vehicles transporting materials and equipment to site and potentially from mobile sources such as mobile generators in the construction camp site. These may increase concentrations of atmospheric pollutants (NO_x, PM, CO and SO₂) locally to a limited extent and over a short time. Construction vehicles will be mobilized from the camp sites. Combustion emissions generated between the camp and construction zones are an unavoidable consequence of the construction phase.

Dust - The principal sources of dust and particulate emissions during construction will be:

- ❖ Excavations and earthworks,
- ❖ Particulate dispersion from operation of the batching plant;
- ❖ Vehicle movements on unpaved, or compacted surfaces; and
- ❖ Particulate dispersion from uncovered truckloads.

Dust resulting from excavations and earthworks typically comprises large diameter particles, which settle rapidly and close to the generation source.

In the case of this Project, there are residents within 350m of the Project site boundary. As such, there is the potential for impacts relating to dust emissions because of construction works upon these receptors. However, the magnitude of dust impacts from construction works will depend on the wind speed and wind direction as well as levels of precipitation at the project site.

In addition to vehicle movements on unpaved surfaces, dust generation from truck movements and particulate dispersion from uncovered truckloads would only occur where mitigation measures are not effectively implemented at the site, or by contractors bringing materials to the site. Uncovered trucks may be subject to losses of material where the containment is not effective (e.g., spills), or where wind or other air turbulence may disturb

the contents and result in dispersion of materials. Such impacts have the potential to degrade local air quality in the immediate area of such movements.

In the instance of this Project, there are residential and commercial receptors within 50m of the route to be used by construction vehicles and as a result there is potential for impacts the receptors within 50m of the routes to be used by construction vehicles include residential and commercial receptors and there is potential for impacts relating to dust generation or particulate emissions because of increase vehicle movement on these routes.

Odor - Construction equipment and vehicles may create odorous emissions, which would also be a potential nuisance to the communities adjacent to work sites. There is also the potential for release of odor to the immediate surrounding areas from inappropriate containment and coverage associated with wastewater holding/septic tanks at construction camps. Any such impacts are likely to be temporary and limited to the proximity to the construction site boundaries.

Emissions of Volatile Organic Compounds (VOC) - Small quantity of fuels, paints, solvents and other volatile substances are likely to be required during the construction phase, which will be stored in secure areas within the construction camps. If not adequately contained, such substances have the potential to result in the dispersion of volatile emissions to the immediate air shed. Given that the storage of such volatile substances will be in small quantities, any potential impacts will be temporary and limited to the immediate surrounding area, likely to be within the Project site or near the construction boundaries. No significant impacts are anticipated.

GHG emissions - During the construction phase, GHG emitters (in addition to existing traffic) will be stationary combustion of diesel fuels of construction vehicles and equipment (direct). Also, there will be GHG emissions generated by material supply, waste disposal, which could not be estimated due to lack of knowledge.

The Project FS includes detailed calculations regarding emissions from a number of construction sources. The FS concludes that *'outside of the industrial site all parameters will not exceed the quotas established by the bodies of the State Committee for Ecology of the Republic of Uzbekistan'*. However, this ESIA includes measures to ensure that air quality impacts are managed in line with best practice.

Operation phase

The main source of air pollution during the operational phase will be vehicles moving on the highway. The main pollutants are: CO; NO_x; hydrocarbons (HC); SO₂; carbon dioxide (CO₂); and particulate matter (PM_{2.5} and PM₁₀)³⁴. These compounds can damage health and/or the environment. The concentration of pollutants generated by vehicles depends on factors such as the number, type and speed of vehicles. The effect of air pollution on local people depends on the distance between them and the road, wind direction, topography and other factors. The main direct effects are in the area closest to the road as the rapid dispersion and dilution of exhaust gases quickly reduces their concentrations to levels at which risks are minimal.

It is safe to say that as the traffic volumes increase on the Project road, so will the levels of air emissions, such as NO₂, CO and CO₂. However, given the existing low levels of NO₂ and CO in the Project corridor, it is considered unlikely that they will rise above the national standards in the future. It could also be suggested that within the next ten to fifteen years

³⁴ O₃ and SO₂ emissions are predicted to be at negligible levels

electric cars will start to play a major role in the transport sector and as such this would serve to limit the potential increases in vehicle emissions such as NO₂, CO and CO₂.

Impact summary and assessment of significance

Table 61 provides an assessment of the significance of potential air quality impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 61: Potential Impacts to Air Quality

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Release of exhaust gases	Nearby communities and workers	H	M	L	L	MAJ	ST	SMA	M	DEF	M
C	Dust	Nearby communities and workers	H	H	M	M	MAJ	ST	SMA	M	DEF	M
C	Odor	Nearby communities and workers	L	L	L	-	MIN	ST	SMA	L	POSS	L
C	VOCs	Nearby communities and workers	L	M	L	L	MOD	ST	SMA	L	DEF	L
C	Traffic Emissions	Nearby communities	H	H	M	L	MAJ	LT	SMA	M	UN	L
C	Greenhouse Gas (GHG) Emission	Local communities and biodiversity Passengers and other road users	H	H	M	M	MAJ	ST	SMA	M	DEF	M
O	Greenhouse Gas (GHG) Emission	Local communities and biodiversity Passengers and other road users	H	H	M	L	MAJ	LT	SMA	M	UN	L

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.6.2.2. Mitigation & management measures

Table 62 outlines WBG ESHG³⁵ and feasible and cost-effective measures to prevent or minimise AQ impacts during the construction and decommissioning phases.

Table 62: Air Quality mitigation and management

Project phase	Mitigation and management measures
Design	Road shoulders shall be constructed with a sealed surface.
Pre-construction	Management Plans - The Contractor will, as part of his Construction Environmental and Social Management Plan (CESMP), prepare and implement a Pollution Prevention Plan. The Plan will include measures to limit air pollution during the construction phase of the Project. The plan will detail the actions to be taken to minimize dust generation (e.g., spraying un-surfaced roads with water (including the types of equipment, sources of water, locations for watering and schedule), covering stockpiles, etc.) and will identify the type, age and standard of equipment to be used and will also provide details of the air quality monitoring program for baseline and routine monitoring. The Plan will also include contingencies for the accidental release of toxic air pollutants. The Contractor is also responsible for the preparation of a Health and Safety Plan. The Plan, required as part of the CESMP, will include contingencies for the accidental release of toxic air pollutants. Permits - any new borrow pits, concrete batching plant, rock crushing facility and asphalt mixing plant will be the subject of separate environmental application under the responsibility of the Contractor. The PIU will ensure that no such facility becomes operational without the required permits. Siting of Facilities and Equipment – Locations for borrow pits, rock crushing facilities, concrete batching yards and asphalt plants will require approval from the PIU during the Pre-construction phase (in addition to any national permitting requirements). Efforts will be made to ensure that these facilities are as near to the Project Road as practical to avoid unnecessary journeys and potential dust issues from vehicle movements during construction works on unpaved roads in urban areas. At the same time, to prevent impacts arising from asphalt plants, construction camps, batching plants and rock crushing plants, will be prohibited within 500 meters of any residential area or sensitive receptor (school, hospital, etc.) and at least two kilometers from protected areas where possible, to avoid impacts to protected areas. The locations of these facilities will be indicated within the Contractors CESMP.
Construction Phase	Siting of Facilities and Equipment – Stationary emission sources, if used (e.g., portable generators, compressors, etc.) shall be positioned as far as is practical from sensitive receptors. At a minimum generator should be more than 50m from receptors. Release of Exhaust Gases and Fugitive Emissions - Equipment and vehicles will be regularly maintained in accordance with the manufacturer's recommendations to maximize fuel efficiency and help minimize emissions. Preferentially the Project will use fuel that has low sulfur content of 0.1%, where practical and available within Uzbekistan. Controlled or uncontrolled burning of waste will not be allowed. There will be pre-requisite requirements of site vehicles to ensure no black smoke before entering site and that any identified machinery or vehicles with black smoke will require maintenance and reassessment before it is returned. Dust - Measures that will be adopted to help prevent dust problems from occurring include:

³⁵ <https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-air-emissions-and-ambient-air-quality-en.pdf>

Project phase	Mitigation and management measures
	❖ Dust control measures will be implemented on the main construction zones and haul routes and to 500 m from the camp and plant entrances. ❖ The Contractor will be required to have an adequate supply of bowzers and carry out watering for dust control at least once every two hours in these locations: in dry weather with temperatures of over 25°C, or in windy weather. Avoid overwatering as this may make the surrounding muddy. The plan for watering will be adjusted based on areas identified during works as being significant dust areas. ❖ Vehicle movements will be restricted to defined access routes and demarcated working areas (unless in the event of an emergency). ❖ A strict Project speed limit of 20km/hr. will be enforced for Project vehicles using unmade tracks and within Project construction zones. ❖ Vehicles carrying fine aggregate materials will be sheeted to help prevent dust blow and spillages. ❖ Earthwork operation will be suspended when the wind speed exceeds 20km/h in areas. <u>VOCs</u> - Hazardous materials stored and used on site with potential gas emissions (e.g., Volatile Organic Compounds) will be in well-ventilated, but secure low-risk areas, away from major transport routes and away from the site boundary (where possible). Volatile fuels and chemicals (including hazardous wastes) will be stored in sealed containers. On site storage of large quantities of volatile fuels will be avoided, equally prolonged exposure to direct sun and heat will be avoided. Fires and material burning will not be allowed on the Project site. Chemical storage areas will be purpose built and well maintained. A data log of all chemicals with MSDSs will be provided at the storage facility within easy access. <u>Greenhouse Gas (GHG) Emission-</u> Emissions generated in construction phase can be mitigated by following but not limited measures: ❖ Do not keep open vehicles when they are not used, ❖ Develop a management plan to use resources efficiently, ❖ Use recycled materials, ❖ Comply waste management hierarchy: prevent at source, reuse, recycle and recover, ❖ Organize trainings and workshops for site staff about resource use and waste management. ❖ Recommendations for fuel efficient machinery ❖ Carbon offset by planting trees ❖ Prevent activities that increase GHG emissions
Operational Phase	None Required, other than routine monitoring of Air Quality along the road as outlined below.

Residual Significance

The residual significance post mitigation is summarized in Table 63. The assessment has indicated that Air Quality impacts due to the construction and decommissioning phase of each Project would not be significant.

Table 63: AQ residual significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Release of exhaust gases	Low	Several mitigation and management measures are proposed for air quality. In addition, the measures outlined in other sections of this report relating to access roads, camps, plant, etc. Shall also reduce the potential for air quality impacts occurring. As such, if the mitigation measures are implemented as per the ESMP, the residual impacts of the Project construction phase will not be significant, or in the case of dust, of low significance.	Not Significant
C	Dust	Medium		Low
C	Odor	Low		Not Significant
C	VOCs	Low		Not Significant
C	Exhaust gases and particulate matter	Low	Improvements to the road condition should reduce the levels of resuspended particulate matter on the road. Sealing shoulders should further reduce the levels of dust generated by traffic movements along the road.	Not Significant

7.6.2.3. Monitoring

The following table provides the air quality monitoring requirements for the Project.

Table 64: Air Quality - Monitoring Requirements

Monitoring	Parameters	Frequency	Location	Responsibility	Costs
Construction					
Sanitary Facilities and Hazardous Materials Stores	Odor and VOCs	Daily olfactory observations – as part of maintenance and inspection checks. Daily inspection of Hazardous materials storage areas for any leaks or emission of VOCs	All sanitary facilities. All hazardous material, chemical and fuel stores.	Contractor	Part of Contractors staff costs
Air quality	PM10, PM2.5, CO, NOx, SO2	Monthly and in response to complaints from residents.	At baseline monitoring locations where works are on-going or routine construction Traffic movement is on-going or at locations of complaints. At batching plants and rock crushing plant.	Contractor	
Operational Phase					

Air quality	PM10, PM2.5	Annually	At baseline monitoring locations	CAR
-------------	----------------	----------	--	-----

7.6.3. Hydrology

Sensitive Receptors

The Project Road crosses multiple irrigation channels, drainage channels, rivers and streams as described in the baseline section of the ESIA. These surface waters are sensitive to pollution and degradation to varying degrees depending upon their classification with Surkhandarya being the most sensitive to the Project activities.

Groundwater users are not prominent in the Project area, as most people are connected to piped water systems which provide potable and domestic water. However, groundwater wells are present in some locations and as a precautionary measure they should be classified as sensitive receptors if they are being used as potable water, or for domestic use.

7.6.3.1. Potential impacts

Design Phase

Drainage - Design errors could lead to portions of the drainage network operating below the required standard (e.g., culverts are not long enough, or poorly sized wing walls) and lead to erosion of embankments, road washout, flooding, inadequate flow of water to and from agricultural land and dangerous driving conditions. Further, the road drainage system needs to be coordinated with the district drainage system to ensure that road run-off can discharge away from the road in the public drainage system without flooding neighbouring land and properties and that existing drainage channels are not removed or replaced without alternative drainage channels incorporated into the design.

Pre-Construction & Construction Phase

Siting - Improper siting and design of construction camps and ancillary facilities (In particular concrete batching plant and rock crushing plant) can have negative impacts to hydrology, both surface and groundwater, through improper disposal of contaminated liquid waste and spills of hazardous liquids.

Bridge Construction - Discussions between the ESIA Team and the FS Team indicate that bridge spans will range between 23m and 33m. Surface water crossings more than these distances will require bridge piers to be constructed within the riverbed. Bridge construction activities may increase silt load in the river during construction at bridge sites and may result in accidental spillage of concrete and liquid waste into the river thereby impacting upon the biodiversity of the rivers and channels.

Blockage of or Damage to Canals and Drainage Channels - The road construction activities particularly near the irrigation canals and drainage channels and also the bridge construction activities can potentially cause damage to the side slopes of the canals and drainage channels and even block them. The piling of construction may require diverting of water or temporary cofferdam in the canals and drainage channels. The damage to or blockage of irrigation canals can cause reduction of water availability for irrigation purposes thus causing loss of agriculture produce. Similarly, any damage or blockage of drainage channels can cause local flooding, adversely affecting the road as well as the nearby cultivation fields.

Hazardous Liquids - From the construction activities, there will be significant use of fuel and lubricant and other hazardous liquids such as paints. Without standardized materials handling and storage protocol in place, spills and contamination of groundwater and soils is possible. Other impacts to groundwater could occur from the washing out of concrete mixers onto bare soils and a lack of oil and grease interceptor tanks in camp drainage systems.

Water Use - Contractor should prepare Water Management Plan as part of CESMP with detailed description of measures for protection of water quality. The Plan should identify the sources of the potential water pollution and develop the measures for avoidance or otherwise minimizing the impacts to water quality. The plan should include the details for instrumental monitoring of the potentially affected water bodies and other sources of water.

The Contractor should ensure that all required permits have been gathered prior to the excavation of any borehole. The final locations of the extraction points (for both technical and potable water) will require the approval of the PIU prior to the start of extraction to ensure that over extraction of water resources does not happen, this will include the requirement for the Contractor to provide a water balance indicating the amount of water available from the source and technical water requirements. In addition, all relevant water abstraction and discharge permits will need to be in place and reviewed by the PIU prior to the start of construction.

Approximately 15 m³ of potable water per day will be required. Potable water will be provided to camps in reusable bottles - no single use bottles will be permitted. Potable water will be tested regularly throughout the construction period to ensure it meets the drinking water standards of GoU.

Fisheries - No fisheries have been identified within the Project area, or residents that rely on fishing as a livelihood. As such no impacts to livelihoods or fisheries or activities downstream are anticipated.

Operation phase

In rare circumstances there could be a major spill of oil / fuel from tanker trucks. Such spills could impact significantly on the Surkhandarya River and other surface water courses given the proximity of the road to these surface water courses in many locations along the alignment. Drainage of run-off from bridge decks could also flow directly to the rivers if correct drainage is not installed on the bridges. This could be a problem if the bridges have accumulated oils and grease during dry periods and they are suddenly washed out during heavy rainfall. Further, the issue relating to inadequate design may result on localized flooding in portions of the Project area.

Impact summary and assessment of significance

Table 65 provides an assessment of the significance of hydrology impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 65: Potential Impacts to Hydrology

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Water Use	Nearby communities	L	L	L	L	MIN	M/F	SMA	L	DEF	L
C	Backwater Effect	Nearby communities	L	M	M	-	MOD	LT	SMA	M	POS	M
C	River sedimentation	Nearby communities / Aquatic wildlife	L	M	M	M	MOD	M/F	INT	M	POS	M
C	Water pollution from construction camps, construction waste, etc.	Nearby communities and workers	L	M	L	M	MOD	M/F	INT	M	POS	M
C	Contamination from spills from trucks	Nearby communities and workers	L	M	M	M	MOD	MT	INT	M	UN	L

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.6.3.2. Mitigation & management measures

Table 66 outlines WBG ESHG³⁶ and feasible and cost-effective measures to prevent or minimize impacts to hydrology during the construction and operational phases.

Table 66: Hydrology mitigation and management

Project phase	Mitigation and management measures
Pre-construction	To prevent impacts to surface and groundwater, the Contractor shall prepare the following plans relevant to hydrology: ❖ Pollution Prevention Plan. The plan must provide details on wastewater (sewage) volume, disposal scheme, and information on capacity and type of wastewater treatment facility, location of the discharge point/points with indication of coordinates. A discharge permit will be sought from the relevant agency and Maximum Allowable Discharge Limits will be set which the project must then comply with. ❖ Bridge Construction Plan outlining the schedule of bridge construction and environmental management measures for each bridge location, including protection of biodiversity.

³⁶ <https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-water-conservation-en.pdf>

Project phase	Mitigation and management measures
Construction Phase	To avoid or mitigate impact during pre-construction and construction activities, works should be performed with due consideration of environmental safety measures: ❖ Strictly implement approved Pollution Prevention Plan. <u>Fueling and Storage:</u> ❖ Should any temporary fuel tank be available, it must be located within at least 100m from the riverbed. The tank must be placed in covered areas with berms or dikes installed to intercept spills, if any. Any spill should be immediately localized and cleaned up with absorbent materials. ❖ Onsite repairs /maintenance and fueling activities should be limited. Priority should be given to offsite commercial facilities. If impossible, a designated area with secondary containment for possible spills for on-site repair or maintenance activities must be provided. These areas shall be located away from drainage channels and surface water bodies (distance between the maintenance site and the river should be at least 100m). ❖ Check integrity of fuel/hazardous substances containers for integrity. Undertake necessary repair or replacement if required. ❖ Store materials in containers suitable for the purpose. Ensure that containers bear clear eligible labels. The same applies to containers for short term storage of used oil. ❖ Store all materials above flood level. ❖ Avoid fueling/maintenance of machinery and vehicles on the bare ground. ❖ Only contained areas can be used. Locate the maintenance/fueling sites (if planned to have on the site away from watercourses and wetland areas. Distance of not less than 100m must be preserved. ❖ Provide septic tanks for the camp sites servicing less than 150 employees. ❖ Contract authorized company to remove the liquid waste regularly. For larger sites, provide multiple septic tank facilities, or package wastewater treatment plants. <u>Vehicle Maintenance:</u> ❖ On-site vehicles and equipment shall be inspected regularly for leaks and all leaks shall be immediately repaired. Leaking vehicles/equipment shall not be allowed on-site. ❖ Secondary containment devices (drop cloths, drain pans) shall be used to catch leaks or spills while removing or changing oils from vehicles or equipment. For small spills, absorbent materials must be used. ❖ Park construction machinery/vehicles and storage areas not less than 50m from the riverbed. <u>Wastewater Discharge:</u> ❖ Discharge of any untreated water into the surface water body must be strictly prohibited. Treated water discharge must comply with the project water quality standards. ❖ Portable toilets shall be provided at all work sites. <u>Cement and Concrete:</u> ❖ Discharge of cement contaminated water must be avoided as cement pollution results in high alkalinity and raises the pH, which can be toxic to aquatic life. ❖ Provide areas where concrete mixers can wash out leftover concrete without polluting the environment. This may be in the form of a lined settling pond. ❖ Prior to discharge, alkaline water from the concrete batching area shall be settled and neutralized. <u>Stockpiles and Runoff:</u>

Project phase	Mitigation and management measures
	❖ Materials and waste must be stockpiled so as to avoid erosion (in stockpiles less than 2 m in height and with a slope gradient of less than 25%) and washing off into the river. Drainage trenches must be established to divert surface runoff from the site. ❖ To prevent runoff contamination, paving should be performed only in dry weather. ❖ Due to the design solution direct discharge of the runoff in surface water is reduced to minimum. ❖ Locate stockpiles away from any watercourse or wetlands, outside drainage lines. Protect stockpiles from erosion. <u>Spills and Leaks:</u> ❖ Ensure availability of spill cleanup materials (e.g., absorbent pads, etc.) in the areas where accidental spills may occur. ❖ Place clean up material in easily accessible locations. ❖ Use drip pan beneath equipment likely to leak fuel and/or oil and/or during fueling or changing oil. <u>Waste Management and Training:</u> ❖ Contract authorized company for hazardous waste disposal. ❖ Train construction personnel in soil and water protection measures, handling of fuels, spill control and response procedures and requirements. <u>Water Use:</u> ❖ Although no specific impacts to water use are anticipated, where practical direct extraction from the Surkhandarya should be limited and water supply from central water supply systems used during the construction phase. As part of this process the Contractor should prepare a Water Management Plan which sets out water sources and volumes to be used during the construction phase and also any opportunity for resource efficiency and conservation. <u>Bridges:</u> ❖ Strictly implement the Bridge Construction Plans for each bridge. ❖ Provide spill kits in worksites around rivers. ❖ Ensure no vehicle refuelling occurs within 50 meters of any surface water course. ❖ Provide silt fences, sediment barriers or other devices to prevent migration of silt during construction within streams. ❖ Carry out bridge construction works without interrupting the traffic on existing roads with the provision of suitable diversions. ❖ Ensure no waste materials are dumped in the river, including re-enforced concrete debris. ❖ Place generators more than 20 meters from the river. ❖ Ensure that no concrete waste from concrete mixers is dumped in the river/canals. ❖ Provide areas where concrete mixers can wash out leftover concrete without polluting the environment. This may be in the form of a lined settling pond at each bridge site. Drivers will be informed of these locations and the requirements to use these settling ponds on a routine basis by the PIU. Dried waste from the settling ponds can be used as backfill for culverts, etc. ❖ Carefully collect all polystyrene (from expansion joints) so that it does not litter the local environment. ❖ Where coffer dams are envisaged, ensure that water removed from the coffer dams during the course of works is diverted to a sedimentation pond before final disposal in the river. Periodic monitoring of the water in the sedimentation pond is also required. ❖ Ensure that no hazardous liquids are placed within 10 meters of the river.

Project phase	Mitigation and management measures
	❖ Provide portable toilets at bridge construction sites to prevent defecation by workers into the river/canals.
Operational Phase	During the operational phase of the Project the RD shall follow the recommended measures below. ❖ Ensure clean up and waste removal from carriageway and roadsides. ❖ Maintain integrity and permeability of storm water drainage system to avoid blockage, overflow and direct discharge of untreated runoff into the rivers. ❖ Ensure maintenance and timely clean-up/removal of sediments accumulated in bridge deck runoff treatment facility. ❖ Check quality of the sediments (list of parameters to control include: heavy metals, petroleum products) prior to making decision on the method of disposal. If contamination detected – use licensed contractor to deal with the waste. ❖ Perform maintenance paving of the road sections and bridge decks only in dry weather to prevent runoff contamination. ❖ Use staging techniques to reduce the spread of paving materials during the repair of potholes and worn pavement. These can include covering storm drain inlets and manholes during paving operations, using erosion and sediment controls to decrease runoff from repair sites, and using drip pans, absorbent materials and other pollution prevention materials to limit leaks of paving materials and fluids from paving machines. ❖ At drainage discharge points, including interceptor tanks, reinstatement with native wetland plant species in discharge locations to remediate the water and provide soil stability.

Residual Significance

The residual significance post mitigation is summarised in Table 67. The assessment has indicated that hydrology impacts due to the construction and operational phase would not be significant.

Table 67: Hydrology residual significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Water Use	Low	Water extraction will be minor, no residual impacts are anticipated.	No significant Residual impacts
C	River sedimentation	Medium	If the mitigation measures suggested are implemented, there will be no significant residual impacts.	No significant Residual impacts
C	Water pollution from construction camps, construction waste, etc.	Medium	If the mitigation measures suggested are implemented, there will be no significant residual impacts.	No significant Residual impacts
O	Contamination from spills from trucks	Low	No significant impacts to surface or groundwater are anticipated during the operational phase of the Project.	No significant Residual impacts

7.6.3.3. Monitoring

The following table provides the hydrology monitoring requirements for the Project.

Table 68: Hydrology - Monitoring Requirements

Monitoring	Parameters	Frequency	Location	Responsibility	Costs (unit costs)
Construction					
Surface Water Quality	Parameters according to national standards	Weekly during bridge construction (assume 6 months).	All active bridge construction zones	The PIU shall hire certified laboratory to perform the monitoring activities.	200 USD
Camp Discharge Water (if applicable)	pH; Suspended Solids; BOD5; COD; Coliforms; Nitrate (NO3); Phosphate (PO4); Oil and Grease	Monthly during construction	All active bridge construction zones	The PIU shall hire certified laboratory to perform the monitoring activities.	200 USD

7.6.4. Geohazards

Sensitive Receptors

No specific Project activities are anticipated to affect geohazards, but the following geohazards may impact upon the Project:

- ❖ Seismic events
- ❖ Floods - discussed specifically under the topic of climate change

No landslides or mudslides have been identified in the Project corridor that may impact upon the Project.

Project structures, such as bridges and culverts could be damaged by seismic activity.

7.6.4.1. Potential impacts

All Phases

The project is in a seismically active area. The Detailed Design Consultants are anticipated to have experience of designing roads in seismically active areas and will ensure that all designs are compliant with the relevant seismic standards of the GoU.

The project will require significant amount of geological resource such as gravel and sand to be extracted from the quarries and borrow pits. However, these resources are abundant in the project area and quarry operation will not result in any kind of depletion of geological resources. The project is located in a seismically active area and project design complaint with the relevant seismic standards (KMK 2.01.03-23). The Detailed Design Consultants are anticipated to have experience of designing roads in seismically active areas and will ensure that all designs are compliant with the relevant seismic standards of the GoU. No project activity is expected to cause any seismic consequences.

Impact summary and assessment of significance

Table 69 provides an assessment of the significance of potential geohazards before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 69: Potential Geohazard Impacts

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
O	Seismic events	Project infrastructure	L	H	L	-	MIN	LT	SMALL	MIN	L	L

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.6.4.2. Mitigation & management measures

Table 70 outlines WBG ESHG³⁷ and feasible and cost-effective measures to prevent or minimize impacts caused by geohazards during the construction and operational phases.

Table 70: Geohazards mitigation and management

Project phase	Mitigation and management measures
Design	Ensure that all Project components are designed and constructed in accordance with national design standards for earthquakes

Residual Significance

The residual significance post mitigation is summarised in Table 71. The assessment has indicated that geohazards during the construction and operational phase would not have significant impacts to the project.

Table 71: Geohazards residual significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Seismic events	Low	No residual impacts anticipated.	No significant Residual impacts

7.6.4.3. Monitoring

None required

³⁷ <https://www.ifc.org/en/insights-reports/2000/general-environmental-health-and-safety-guidelines>

7.6.5. Noise

Sensitive Receptors

Residents and educational and health facilities within the Project corridor are those most sensitive to noise in both the construction and operational phases of the Project. Commercial properties are also sensitive to noise, although the guideline noise limits for commercial properties are much higher than residential areas indicating that their sensitivity is much lower.

The road passes through several settlements and as such noise levels from construction activities may be elevated above national noise standards during construction. In addition, significant noise impacts may result from long-term exposure to noise from construction facilities such as rock crushing plants and quarries where operational activities may last for the entire construction period.

No major changes in alignment are planned within urban areas. This is to ensure that resettlement and compensation payments are minimized. In these locations the minimum road widths will be applied as set out in the project description section, i.e., 17.8m. Current road widths in most urban areas (villages) range from approximately 10m to 12m meaning that roads will be widened approximately 2 - 3m on either side of the road. Most residential receptors are set back more than 10-15m from the roadside. Accordingly, in these areas the widened road will be approximately 7 to 8 m from properties.

7.6.5.1. Potential impacts

Construction Phase

Noise during the construction phase will mostly come from the operation of construction equipment.

There is limited information available on construction methods, plant and equipment before the Works Contract is awarded, but based on the anticipated scope of works it can be assumed that standard construction methods and equipment would be used for the civil works for rehabilitation and upgrading of the Project Road. Typical noise signatures of the different equipment for different construction activities are enumerated below.

The excessive levels of noise can adversely affect human health. Modeling results suggest that most of excess noise is expected during the construction phase due to intense work of machinery. For example, daytime noise level may in average increase from 53.5 dBA to 59.3 dBA for the closest locations along M-41. In some locations, the noise level may exceed 70 dBA. The temporary but significant increase of noise level during construction activities is anticipated for most of communities along M-41 road sections. For example, at Elbayan community, average noise level may increase from the current 57.2 dBA to 61.0 dBA (in view of the immediate vicinity of the railway station from the community). The mitigation measures for construction period are expected to reduce the level of construction noise, however, temporarily increase of noise in some locations is inevitable due to nature of construction activities. Typical noise levels generated by the equipment for different construction activities during the project implementation is in Table 72.

Table 72: The typical levels of noise from the road construction equipment

Equipment	Typical noise level (dBA) ³⁸
Dozer	81.7
Excavator	80.7
Grader	85
Roller	80.0
Rock Drill	81.0
Dump Truck	76.5
Paver	77.2
Concrete Mixer Truck	78.8
Jackhammer	88.9
Blasting	94.0
Piling	90.0
Boring Jack Power Unit	83.0

However, any impacts would be temporary in nature as construction activities move along the corridor and would be restricted to the daytime period meaning that no nighttime disturbance from construction works is anticipated. Construction activities will be strictly prohibited between 10 PM and 7 AM in the residential areas. When operating close to sensitive areas (within 250 meters) such as medical facilities, the Contractor's hours of working shall be limited to 8 AM to 6 PM. The Sanitary Regulation SanPiN No.0267-09 provides the noise limits which are consistent with the EHS Guidelines³⁹ as follows:

Table 73: Noise Limits in Uzbekistan (SanPiN No.0267-09)

#	Type of Receptor	La eq. dB(a)	
		7 am - 11 pm Day	11pm - 7 am Night
1	The wards of clinics hospitals and sanatoriums wards, including surgery rooms	35	25
2	Doctor's offices	35	35
3	Classrooms, teacher's rooms, conference halls, libraries reading rooms in educational establishments	40	40
4	Inside the residence houses, sleeping rooms of the hospitals and sanatoriums	40	30
5	Rooms of the hotels and campings	45	35
6	Dining halls of the restaurant cafes, bars	55	55
7	Area of markets and shops, passenger's hall of airports.	60	60
8	The areas directly adjoining the residential houses, boarding homes for elderly and disabled people.	55	45

Operation phase

Traffic forecasts provided by the Project FS indicate that traffic volumes will not double between 2021 and 2040. Doubling of traffic generally leads to an increase of more than 3

³⁸ The given noise level is given near the source of noise.

³⁹ World Bank Group, 2007. Environmental, Health, and Safety General Guidelines. Washington, DC.
<https://www.ifc.org/wps/wcm/connect/29f5137d-6e17-4660-b1f9-02bf561935e5/Final%2B-%2BGeneral%2BEHS%2BGuidelines.pdf?MOD=AJPERES&CVID=jOWim3p>

dBA which is a significant impact. It is noted that road widening will occur along the alignment, however, the main pavement widths will not increase more than 2.5m over the current 10m widths in urban areas (although no split on traffic volumes between the main pavement and local roads in urban areas has not been provided, they are not anticipated to contribute significantly to noise levels). However, using the predicted traffic forecasts provided in the Project FS, noise levels will only increase by 1dB by 2035 even with a 6m increase in road width (and by 3dB by 2040). Given the above the predicted noise levels during the operational phase should comply with the WBG guideline limits until 2040 at least.

Impact summary and assessment of significance

Table 74 provides an assessment of the significance of noise impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 74: Potential Noise Impacts

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Construction Equipment noise	Local residents and businesses /Schools/ Health facilities/ PCR	H	M	L	H	MAJ	ST	SMA	M	DEF	M
C	General work site noise	Local residents and businesses /Schools/ Health facilities/ PCR	H	M	L	H	MAJ	ST	SMA	M	DEF	M
C	Vehicle noise	Residents	None	-	-	-	-	-	-	-	-	NS

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.6.5.2. Mitigation & management measures

Table 75 outlines WBG ESHG⁴⁰ and feasible and cost-effective measures to prevent or minimize impacts of noise during the construction and operational phases.

Table 75: Noise mitigation and management

Project phase	Mitigation and management measures
Construction	During the construction phase the Contractor will be responsible for the following: ❖ Time and Activity Constraints, i.e., operations will be scheduled to coincide with periods when people would least likely be affected; work hours and work days will be limited to less noise-sensitive times. Construction activities will be strictly prohibited between 10 PM and 7 AM in the residential areas. When

⁴⁰ <https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-noise-en.pdf>

Project phase	Mitigation and management measures
	operating close to sensitive areas (within 250 meters) such as medical facilities, the Contractor's hours of working shall be limited to 8 AM to 6 PM; ❖ Use temporary noise barriers while working in sensitive locations in case accident of allowable limits is expected. Placing the barrier close to the source proves to be effective. ❖ Give notice as early as possible to sensitive receptors for periods of noisier works such as excavation. Describe the activities and how long they are expected to take. Keep affected neighbours informed of progress. ❖ Within normal working hours, where it is reasonable to do so: ▪ schedule noisy activities for less sensitive times. ▪ provide periods of respite from noisier works (for example, periodic breaks from jackhammer noise). ▪ The weekend/evening periods are important for community rest and recreation and provide respite when noisy work has been conducted throughout the week. Accordingly, work should not usually be scheduled during these times. ❖ All mechanical plant is to be silenced by the best practical means using current technology. Mechanical plant, including noise-suppression devices, should be maintained to the manufacturer's specifications. Internal combustion engines are to be fitted with a suitable muffler in good repair. ❖ Maintenance tools, machines and equipment so that they are in good conditions. When some wrong is found, they must be fixed immediately in order to reduce noise from the equipment. ❖ Fit all pneumatic tools with an effective silencer on their air exhaust port. ❖ Install less noisy movement/reversing warning systems for equipment and vehicles that will operate for extended periods, during sensitive times or in close proximity to sensitive sites. Occupational health and safety requirements for use of warning systems must be followed. ❖ Turn off plant when not being used. ❖ All vehicular movements to and from the site to only occur during the scheduled normal working hours, unless approval has been granted by the PIU. ❖ Keep good conditions of trucks that use to transport construction materials so they cause no loud noise and control the truck speed, to be not exceeded 40 km/hr when driving through communities, and not exceeded 80 km/hr when driving on highways. ❖ Where possible, no truck associated with the work should be left standing with its engine operating in a street adjacent to a residential area. ❖ Provision of noise protection kits such as ear plug, earmuff, for workers who are working in the area with noise level is higher than 85 dB(A). It is designated as a regulation that workers must wear protection kits in case of working in a noisy area.
Operation	Noise levels during the operational phase are not anticipated to increase by more than 3dBA above the ambient noise levels. No specific mitigation measures are therefore required for the operational phase.

Residual Significance

The residual significance post mitigation is summarised in Table 76. The assessment has indicated that noise impacts due to the construction and operational phase would be of low significance.

Table 76: Noise residual impact significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Construction equipment noise	Medium	It may not be possible to eliminate all construction phase noise however, the proposed mitigation measures should help reduce the significance of impacts to a low level that will only be experienced temporarily during daytime periods.	Low
C	General work site noise	Medium		

7.6.5.3. Monitoring

The following table provides the noise monitoring requirements for the Project.

Table 77: Noise - Monitoring Requirements

Monitoring	Parameters	Frequency	Location	Responsibility
Construction				
Construction	dBA (Laeq)	Monthly and in response to complaints from residents.	At all baseline noise monitoring locations	Contractor

7.6.6. Vibration

Sensitive Receptors

Residents and structures within the assessment boundary are the key sensitive vibration receptors.

7.6.6.1. Potential impacts

Vibration from construction activities is a cause concern to the community. The effects of vibration varies and depends on the magnitude of the vibration source, the particular ground conditions between the source and receiver, presence of rocks or other large structures in the area. The intensity, duration, frequency and number of occurrences of a vibration all play an important role in both the annoyance levels caused and the strains induced in structures. The effects of vibration can be assessed as:

- ❖ General annoyance, sleep disturbance, etc;
- ❖ Potential cosmetic damage to properties; and
- ❖ Potential structural damage to properties.

Vibrations can be categorized in several ways as follows:

- a) continuous vibrations in which the cyclic variation in amplitude is repeated many times;
- b) transient vibrations in which the cyclic variation in amplitude reaches a peak and then decays away towards zero relatively quickly;
- c) intermittent vibrations in which a sequence (sometimes regular, sometimes irregular) of transient vibrations occurs, but with sufficient intervals between successive events to permit the amplitude to diminish to an insignificant level in the interim periods.

Construction phase

At this stage, the main source of vibration will be originated during the removal of the existing road pavement, slope cutting and laying a new road pavement. Vibrating, impacting, rotating, and rolling construction equipment is used for soil excavation, modification, and improvement.

Machinery with dynamic loads and blasting are sources of construction vibrations. The source of vibration and vibration level consequently will be different at the preparatory works and construction activity stages. The vibration originated in the preparatory works phase will be the case during the accomplishment of the following works

- ❖ Pile driving
- ❖ Dynamic compaction
- ❖ Demolition, removal and disposal of existing culverts
- ❖ Removal of and any other natural or artificial objects.
- ❖ Removal of the existing asphalt cover.
- ❖ Construction of bridges
- ❖ Laying a new road.
- ❖ Making a new pavement layer.

No blasting is foreseen within urban areas.

Operation phase

Highway traffic during the operational phase is not likely to have any measurable impact on structures or on comfort. Only in very extreme circumstances, highway traffic induced ground-borne vibrations may cause minor superficial or architectural damage (such as cracking of plaster or cracking of drywall joints). Highway traffic induced ground-borne vibration can be perceptible in very extreme circumstances. However, typically, the feeling of vibration reported by residents living near highways is due to low frequency sound levels produced by trucks that can cause resonance of light exterior or interior building and room elements.

Impact summary and assessment of significance

Table 78 provides an assessment of the significance of vibration impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 78: Potential Vibration Impact Significance

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Construction equipment vibration (vibratory roller)	Residents / structures	L	M	M	L	MED	ST	SMA	L	POSS	M
C	Piling	Residents / structures	None	-	-	-	-	-	-	-	-	NS

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	General worksite vibration	Residents / structures	None	-	-	-	-	-	-	-	-	NS
O	Vehicle movement vibration	Residents / structures	None	-	-	-	-	-	-	-	-	NS

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.6.6.2. Mitigation & management measures

Potential vibration impacts are assessed and actions to mitigate them are recommended in Table 79:

Table 79: Vibration mitigation and management

Project phase	Mitigation and management measures
Construction	In the first instance, this ESIA recommends that a minimum 7m buffer be maintained between the road edge and structures. This should ensure that impacts from vibrator rollers do not cause damage to properties. However, this ESIA takes a precautionary approach to vibration and the following procedures have been developed which must be followed by the Contractor. <u>Condition Surveys</u> - Not later than 28 days before the commencement of construction works, the Contractor and the PIU will carry out joint condition surveys of all buildings within 20m meters of the road alignment that, in the opinion of the PIU might be affected by vibration resulting from the Contractor's construction operations. The surveys shall be conducted in the presence of and with the permission of the property owners. The findings of the building condition surveys shall be recorded in the reports that shall contain the following information, as a minimum: ❖ Building address and location; ❖ A description of the building condition and any cosmetic and/or structural damage; ❖ Sketches and photographs showing the location and extent of any damage; ❖ High resolution video recordings of the surveyed buildings; and ❖ Verification of the report by the building owner. <u>Construction Vibration Management Plan</u> – Within 28 days of the Commencement Date, the Contractor shall submit to the PIU for review and approval a written Construction Vibration Management Plan (CVMP) detailing the procedures for vibration monitoring and control. <u>Vibration Monitoring</u> - The Contractor shall establish a vibration monitoring and control system in accordance with the CVMP approved by the PIU, and measure vibrations resulting from its construction operations at predetermined points, in accordance with the CVMP. The Contractor shall monitor vibration during significant vibration-producing construction activities as determined by the PIU. This monitoring shall consist of

Project phase	Mitigation and management measures
	a continuous recording of the maximum single-component peak particle velocities for one-minute intervals. Monitoring shall be undertaken at the location of the receptor. During the monitoring, the Contractor shall document all events that are responsible for the measured vibration levels and submit the documentation to the PIU. All vibration monitoring data shall be recorded contemporaneously and plotted continuously on a graph by the data acquisition equipment. Each graph shall show time-domain wave traces (particle velocity versus time) for each measurement location with the same vertical and horizontal axes scale. <u>Alternative Construction Methods</u> – Where the results of the vibration monitoring show that the specified construction vibration limit is reached at a particular location, the Contractor shall suspend the construction activities that generate the excessive vibration at such location, notify the PIU and with the approval of the PIU take mitigative actions necessary to keep the construction vibration within the specified limit. This may, for example include: ❖ The use of low roller vibration settings and performing compaction without vibration. ❖ Provide temporary vibration barriers in sensitive locations.

Residual Significance

Table 80: Residual Vibration Impacts

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Damage to structures caused by vibratory rollers	Low	Real time monitoring of sensitive sites and implementation of the procedures outlined above including measures to review and change construction methods based on monitoring results during construction should ensure that no significant impacts from vibration are anticipated during the Construction phase.	No significant residual impacts

7.6.6.3. Monitoring

Per the Construction Vibration Management Plan (CVMP).

7.7. Related to Community Health and Safety (ESS 4)

7.7.1. Community health, safety and security

Sensitive Receptors

During the construction phase sensitive receptors will mainly be residents, in particular children attending local schools and kindergartens. These risks and impacts include followings but not limited to:

- ❖ Dust, noise, and vibration from construction vehicle transit;
- ❖ Increasing of diseases due to the workers influx;
- ❖ Operation and movement of heavy construction machinery and vehicles;

- ❖ Traffic and transportation of Project workers and Project components could impact people living along the roadways;
- ❖ Temporary labour influx causing strain on local services;
- ❖ Conflict between community members and working personnel;
- ❖ Access for residents along the road site.

7.7.1.1. Potential impacts

Increased level of dust and noise may have negative impact on health of local communities as well as to the workers of agricultural farm workers and operating commercial building workers.

Construction phase

For all road sections the distance from the nearest communities to the Project site considerably short, thus leading to significant health, safety and security issues with community members entering the direct AOI. Construction phase, may pose a hazard to local communities' health, property, animals etc. Community vulnerability may be exacerbated by the low level of literacy and education in the area.

There will be some groups within the local communities that will be more vulnerable to risks than others, or they may have difficulties in receiving Project benefits. These include women, disabled, elderly, illiterate and youth.

Temporary labour influx of people (either for work, or with the hope to obtain work) can cause overload local infrastructure (e.g., hospitals, markets). Local infrastructure may not be well equipped, in particular to deal with incidents that may arise during the construction and operation of the road. It can also put community members at risk of conflict with workers or at greater risk of contracting communicable diseases.

The location of worker accommodation is not defined yet. As the introduction of workers in the vicinity of local communities has the possibility of increasing GBVH between workers and community members, it should be located far from the nearby villages to the extent possible, to avoid conflict between workers and community members.

Operation phase

There are no activities that will occur during the operation phase that will specifically impact community members, unless there will be road safety measures properly installed.

Impact summary and assessment of significance

Table below provides an assessment of the significance of potential community health, safety and security impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 81: Potential Community Health, Safety and Security Impacts

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Health & safety issues for vulnerable community groups	Nearby communities and workers	H	H	L	-	MAJ	ST	SMA	MED	DEF	M
C	Traffic and transportation	Nearby communities and workers	H	H	M	-	MAJ	ST	SMA	MED	DEF	M
C	Labour influx	Nearby communities	L	L	L	-	MIN	ST	SMA	LOW	POS	L
C	Conflict between Communities and workers	Nearby communities and workers	M	M	M	-	MOD	ST	SMA	LOW	DEF	L
C	Overload of local infrastructure	Nearby communities and workers	M	M	M	-	MOD	ST	SMA	LOW	POS	L
C	Community H&S	Nearby communities	H	H	M		MOD	LT	SMA	MED	UN	L

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.7.1.2. Mitigation & management measures

Table below outlines measures to prevent or minimise impacts associated with community health, safety and security during the construction and operation phases.

Table 82: Community health, safety and security mitigation and management

Project phase	Mitigation and management measures
Design	Final road design should be approved considering close location of communities as well as public utilities
Pre-construction	Management Plans - The Contractor will, as part of his Construction Environmental and Social Management Plan (CESMP), to include specific measures related to Community health and safety during the construction phase of the Project. The plan will detail the actions to be taken to minimize various impacts (such as noise, air pollution, labour influx, etc) to local communities during the Project construction. CESMP should also include prevention methods to avoid damage or disturbance to public utility infrastructure. In case it is affected and need for relocation, all activities associated with relocation of public utilities should be conducted before start of construction works. Health and Safety Plan – The Plan shall address all aspects of protecting the community from impacts caused by labour and influx of labour and conversely protection measures of labour, if circumstances are foreseen (e.g. any security issues etc.)

Project phase	Mitigation and management measures
	Furthermore, separate Safety training should be conducted with teachers at sections of road where schools and kindergardens are located to ensure children's safety. The following sessions/trainings are suggested: 1) The PIU/Supervision Consultant, with contractor, to provide awareness training to teachers, to pass on to the Children 2) The PIU/Supervision Consultant, with Safety authorities (normally police), to train communities (even gender disaggregated) through awareness programs about road safety. 3) The PIU/Supervision Consultant, with Safety authorities (normally police), to provide awareness training to teachers, to pass on to the children. Emergency Management Plan - Developed to identify potential, foreseen emergency risks and provide details on how the risks will be reduced and actions in cases of an Emergency event, be they natural disaster or anthropogenic events.
Construction	Not required
Operation	Not required

Residual Significance

Even after implementing the above-listed monitoring and management plans, the health and safety impacts on local communities cannot be fully mitigated. It will be necessary to monitoring health and safety aspects to ensure that mitigation measures are effectively and strictly enforced.

Table 83: Health, safety and security residual significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Health & safety issues for vulnerable community groups	Medium	Several mitigation and management measures are proposed for community H&S.	Not Significant
C	Traffic and transportation	Medium		Low
C	Labour influx	Medium		Low
C	Conflict between communities and workers	Medium		Low
C	Overload of local infrastructure	Medium		Low
C	Community H&S	Low	Improvements to the road condition should reduce the levels of health and safety risks to local communities	Low

7.7.1.3. Monitoring

The following table provides the community health, safety and security monitoring requirements for the Project.

Table 84: Community health, safety and security monitoring requirements

Monitoring	Parameters	Frequency	Location	Responsibility
Construction				

Monitoring	Parameters	Frequency	Location	Responsibility
Health & safety issues for vulnerable community groups	n/a	Quarterly	Near living communities with closest location to construction works	CAR / Contractor
Traffic and transportation	n/a	Quarterly	Near living communities with closest location to construction works	CAR/Contractor
Labour influx	n/a	Quarterly	Near living communities with closest location to construction works	CAR/Contractor
Conflict between communities and workers	n/a	Quarterly	Near living communities with closest location to construction works	CAR/Contractor
Overload of local infrastructure	n/a	Quarterly	Near living communities with closest location to construction works	CAR/Contractor
Operational Phase				
Occupational health and safety during maintenance	n/a	Quarterly	Near living communities with closest location to construction works	CAR/Contractor

7.7.2. Road safety

This section discusses issues that will affect road safety on the project road during the design phase, construction phase and operational phase of the Project. It offers mitigation measures to be adopted.

Sensitive Receptors

International experience shows that the risk of a serious casualty crash is between 3-5 times greater in a work zone than on other sections of the road network. During the construction phase therefore, sensitive receptors will mainly be road workers and road users who are involved in crashes.

During the operational phase the main receptors will be drivers of motor vehicles as well as pedestrians (mostly nearby residents) who need to cross the road or walk along the road.

7.7.2.1. Potential impacts

Increased speeds can lead to increases in serious and fatal crashes, unless significant road safety efforts are made during the design, construction, and operation phases of this road. Casualty crashes impose an enormous cost on the Uzbek community.

Design phase

The best and most economical time to eliminate safety concerns from a new road project is during the design phase.

Roadside hazards including bridges and open drains - present bridge standards in most CAREC countries have a bridge cross section that has blunt ended concrete barriers facing approaching vehicles at each end of the bridge. The blunt ends of these are dangerous. In addition, most times the paved should ends at the bridge, although it is safer for all road users to continue it across the structure. Attention should be given to designing safer bridge cross sections, modelled on European or US designs.

Open drains are often used in Uzbekistan, but these are roadside hazards that cause an errant vehicle to rollover. The Clear Zone concept should be used to guide designers how far from the traffic lane any roadside hazard should be before it can be accepted as “safe”: Roadside drains should be located outside the clear zone, or else covered.

Pedestrian safety - urban and rural - pedestrians are a large group of road users in rural parts of Uzbekistan. They have a need to walk along this road and they have a need to cross this road. The proposed footbridges and proposed footpath and Pedestrian (Zebra) Crossings will be inadequate to satisfy the safety needs of the pedestrians. Footbridges are disliked by most pedestrians as they increase the time and distance needed to cross a road.

The proposed median barrier will limit the places where pedestrians may cross this road (except for those young enough and agile enough to climb over). While the intention to prevent head-on collisions is good, thought should be given to locations where pedestrians need to cross the road.

An open median is a preferred option, offering pedestrians the opportunity to cross one carriageway at a time and to use the median as a storage refuge. At the same time, providing

Pedestrian (Zebra) crossings across 2 lanes of high-speed traffic is not supported for safety reasons. Openings in the safety barrier, and “Pedestrian” warning signs, are suggested.

The CAREC Road Safety Engineering Manual 4 (Pedestrian Safety) offers useful advice for assisting pedestrians to cross and to walk along road such as this. It should be used by designers to guide their efforts for pedestrian safety.

Speed management including traffic calming for urban areas - there is a need to inform drivers of the maximum speed limit at places where a limit changes, and again at repeater distances along the route. This route passes through many urban areas. In some of these, the traffic will need to be “calmed” or slowed to reduce its adverse safety impacts on the residents. Traffic calming usually involves large gateway signs (Welcome to Village and a 40km/h speed restriction sign), road humps at (approximately) 100m spacing, and roundabouts at suitable intersections. When electronic speed enforcement becomes mainstreamed in Uzbekistan, it may be able to take over the role that humps and roundabouts need to perform now.

Construction phase

Shielding of deep excavations - The road works may require deep (2+m) excavations. The bridge works may also involve deep drops close to the traffic lanes. Where traffic must pass within a few metres of these roadside hazards, it will be necessary to use portable safety barriers to fully shield the excavation. Such barrier must comply with the following requirements:

- ❖ Long enough to fully shield the full excavation and both approaches.
- ❖ Correctly linked together to form a strong barrier that will prevent penetration by an impacting vehicle.
- ❖ Safe end terminals.

Educational Facilities – During the construction phase specific attention will be given to the many schools that are located adjacent to the Project road. The Contractor will place warning signs outside of each school to alert construction vehicles of their locations and to be aware of children crossing the road in these areas. In addition, at least two weeks before construction starts within the vicinity of any of the schools along project road, the Contractor will be responsible for informing the School of the works program and schedule so that the school can inform pupils of the impending works and to be vigilant throughout the construction

program. If warranted, the Engineer may recommend that the Contractor places protective barriers in-front of school entrances to prevent children rushing out from the school gates into the path of construction vehicles or works. When working in the immediate vicinity of a school, the Contractor will cease works for at least 30 minutes before school starts and after it closes to allow children to leave the area safely and to allow parents safe access to collect their children.

Speed management - Appendix NO. 1 to Cabinet of Ministers Resolution No. 370 of December 24, 2015) recommends a 40km/h speed limit through road works. This involves the placement of speed restriction signs at the beginning of the advance warning zone, followed by repeater signs at intervals of no more than 2km through the work zone. Police enforcement of speeding in the work zone will be important for driver compliance. Discussions should take place with the Police at the earliest time, and before construction starts, to seek their assistance.

Movement of construction vehicles - Construction vehicles tend to be large, noisy and heavily loaded. They will present a high risk to the safety of pedestrians who use this road during the construction phase. To minimise this risk, it is recommended that the Contractor trains all truck drivers (as well as all workers in general) in the essentials of road safety. Topics to be included in the training should include:

- ❖ the national road rules, and the need for truck drivers especially to comply with all speed restrictions (particularly the 40kmh road works speed restriction).
- ❖ Instructions for how truck drivers should look for pedestrians, especially school children, and to travel more slowly when they are seen.

Operation of mobile construction plant - this equipment is large and slow moving. It is essential that road users are guided away from this plant while it is operational, and that speeds are managed to 40kmh or less. The use of “spotters” to walk beside the plant and to guide road users and plant operators is advised. Such spotters should be trained, should wear reflective high-visibility personal protective equipment (PPE) and be alert to road users who are not complying with road rules. Spotters need to be at a safe distance, maintain eye contact with the operator and have hand radio contact with operator at all times.

Correct personal protective equipment for all workers - all road workers should be provided with high-visibility personal protective equipment (PPE) that is suitable for the climate. PPE is the final, important element to help prevent a road worker from being struck by a vehicle. All other parts of the Traffic Management Plan must be correctly installed and maintained, but PPE is an essential element for all workers while on the work site.

Operation phase

The improvement of the road pavement will increase operating speeds on this road. Higher speed increase the risk of a crash occurring and also the consequences of a crash when it does occur. It will be important therefore to ensure that actions are taken during the design phase to ensure that the road will be as safe as practical for all road users during the operational phase.

There is an obligation on the highway authority to provide a road that is safe for all the expected road users. For example:

Safety barriers will require specialized design and consideration. The present Uzbek norms no longer meet good international standards for safety barriers.

- ❖ The proposed median barrier will prevent pedestrians from crossing.

- ❖ The provision of footbridges will be an unsatisfactory option, one that is disliked by pedestrians, expensive and will likely be underutilized.
- ❖ The proposed bridge cross sections have roadside hazards (the blunt ends of the concrete barriers). Safer cross sections are available and should be used.

Delineation of rural roads is essential for safe movement, especially at night. The FS Report does not refer to delineation (reflective guide posts, chevron alignment markers, tactile edge lines and thermoplastic line marking) but this will be a vital safety initiative that will be needed on the rehabilitated roads.

Impact summary and assessment of significance

Table 85 provides an assessment of the significance of potential road safety impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 85: Potential Impacts to Road Safety

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Unsafe designs	Road users including pedestrians	H	H	L	L	MAJ	ST	SMA	M	DEF	M
C	Lack of approved TMP's	Road users including pedestrians	H	H	M	M	MAJ	ST	SMA	M	DEF	M
C	High speeds	Nearby communities	H	H	H	H	MAJ	ST	SMA	L	DEF	M
C	Lack of pedestrian facilities (or blockages to desired paths)	Nearby communities and workers	H	M	H	L	MAJ	ST	SMA	L	DEF	M
O	Run-off-road crashes	Road users	H	H	H	L	MAJ	LT	SMA	M	DEF	M

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.7.2.2. Mitigation & management measures

Table 86 outlines measures to prevent or minimise road safety impacts during the design, construction, and operational phases.

Table 86: Road safety mitigation and management

Project phase	Mitigation and management measures
Pre-construction	Traffic Management Plans (TMP) - The Contractor will prepare a set of Traffic Management Plans and send these to the Committee for Roads for checking and

Project phase	Mitigation and management measures
	approval - and to ensure all approvals from the police. The number of TMP's needed will depend on the staging of the works propose by the Contractor. A TMP should be developed for each section of road and for each stage of work in that section that is expected to last for more than one month. The Contractor is also responsible for the appointment of a Health and Safety Manager, who will be responsible for ensuring that site foreman check that the requirements of the TMP's are correctly in place (morning and evening), that missing signs and delineators are replaced on the same day, that the "after care" signs are installed when work ends for the day/week, and that all/any road crashes/incidents are recorded.
Construction	Setting up, and maintaining, approved Traffic Management Plans – the Contractor shall ensure that the approved Traffic Management Plan is established for each work site. ❖ Safety signs will be included in the design warning people not to attempt to cross the four-lane section of the road without using dedicated crossing areas. ❖ Place warning signs outside of each school to alert construction vehicles of their locations and to be aware of children crossing the road in these areas. ❖ At least two weeks before construction starts within the vicinity of one of the schools along project road, the Contractor will be responsible for informing the School of the works program and schedule so that the school can inform pupils of the impending works and to be vigilant throughout the construction program. ❖ Consider additional traffic safety measures close to schools, including reduced speed limits (maximum 40 kilometers per hour) and traffic calming measures such as speed bumps. ❖ Construct pedestrian walkways in urban areas, specifically in the four lane section of the road. Signs - all road signs used shall have a reflective sheeting on a metallic plate and shall conform to national standards for size, colour, shape, words and symbols. ❖ The Contractor shall be required to have an adequate supply of spare signs, traffic cones, delineators, and safety barriers to replace any that go missing from the site, or are damaged, for any reason. ❖ Traffic cones and delineators - there will be a need to guide drivers through or past work sites in a safe and orderly manner. The paths to be used by drivers from each direction are to be clearly delineated with forgiving, highly visible traffic cones, bollards, and other forms of nationally agreed delineation. ❖ Road works speed limit - the speed limit used in the work sites will comply with Appendix NO. 1 to Cabinet of Ministers Resolution No. 370 of December 24, 2015). ❖ A 40kmh speed limit shall apply through the work zones. ❖ an inspection of the speed restriction signs along with the rest of the TMP layout shall be undertaken twice daily by the Contractors Health and Safety Manager. The HSM shall keep clear records of any change or deficiencies in the TMP at any time.
Operation	The Highway Authority is to maintain the road, with a focus on items that impact road safety. These include: ❖ Ongoing maintenance of road signs and line marking. ❖ Maintenance of delineation, especially tactile edge lines, in rural areas. ❖ Maintenance of safety barriers.

7.7.2.3. Monitoring

The following table provides the road safety monitoring requirements for the Project:

Table 87: Road Safety - Monitoring Requirements

Monitoring	Parameters	Frequency	Location	Responsibility
Design				
Undertake road safety audits of the detailed design	Compliant with Appendix NO. 1 to Cabinet of Ministers Resolution No. 370 of December 24, 2015)	During detailed design	Whole route	CAR
Cross sections	1.5m wide paved shoulders. Tactile edge lines in rural areas. Gaps in median barriers for pedestrians	During detailed design	Whole route	CAR
Roadside hazards including bridges and open drain	A Clear Zone of 9m (rural) and 4m (urban) be used to guide designers	During detailed design	Whole route	CAR
Pedestrian safety - urban and rural	Compliant with APPENDIX NO. 1 to the Cabinet of Ministers Resolution No. 370 of December 24, 2015	During detailed design	Whole route	CAR
Speed management including traffic calming for urban areas	In agreed urban areas where residents are at greatest risk from high-speed vehicles	During detailed design	Whole route	CAR
Construction				
Safety through the work site.	Compliant with the Appendix NO. 1 to Cabinet of Ministers Resolution No. 370 of December 24, 2015) for TMP's.	Twice daily inspections of the Traffic Management Plans set up at each work zone.	All work zones.	Contractor via the appointed HSM
Safety of workers	Correct wearing of suitable (according to risk) personal protective equipment	Twice daily inspections to be undertaken at the same time as the inspections of the TMP set up.	At all locations where works are on-going on roads or at asphalt plants, borrow pits and depots.	Contractor
Shielding of deep excavations	Portable safety barrier, correctly joined, sufficiently long, with approved end terminals.	Twice daily inspections of the barriers and excavations	All work zones.	Contractor via the appointed HSM
Speed management	Vehicles remaining below 40km/h in work sites	Intermittent	Entire route in work zones	Police Contractor
Movement of construction vehicles	Trucks to maintain speed below 40km/h	Intermittent	Entire route in work zones	Police Contractor
Operation of mobile Construction plant	Sotters to be used to ensure vehicles and	Intermittent	Entire route	Contractor

Monitoring	Parameters	Frequency	Location	Responsibility
	pedestrians are kept clear of plant.		in work zones	
Correct personal protective equipment for all workers	Every worker to wear suitable high-visibility PPE while on the road.	Daily	Entire route in work zones	Contractor
Operational Phase				
Pedestrian safety	Compliant with Appendix NO. 1 to Cabinet of Ministers Resolution No. 370 of December 24, 2015)	N/A	Entire route	Highway authority
Speed management including traffic calming for urban areas	Speed restriction signs used and maintained at regular spacings. Traffic calming maintained.	N/A	Entire route, and urban areas	Highway authority

7.7.3. Waste Management

Sensitive Receptors

Construction waste from camp sites and ancillary facilities will be managed and disposed of according to national regulations by state licensed companies. There will not be any nearby receptors that would be impacted directly by waste disposal from the site as long as national waste management regulations are followed. Management of waste at work sites within the Project corridor can be more challenging and local communities and the environment can be affected by improper management and disposal of liquid and solid wastes which could result in localized pollution of soils, surface water and groundwater. In this instance the groundwater protection zones are particularly vulnerable.

7.7.3.1. Potential impacts

Construction phase

If construction waste, from camp sites, ancillary facilities and work sites is not managed correctly, it can lead to numerous impacts on the environment and the local community. As examples; illegal dumping of inert waste, e.g. waste concrete, can be unsightly, washing out of concrete mixers close to rivers can have impacts to water quality, poor storage and disposal of hazardous liquids can lead to contamination of soils and groundwater. Uncontrolled discharges of sewage and “grey water” (e.g., from washrooms and canteens) from construction sites and worker’s camps may cause odors and pollute local water resources. As well as being a cause of complaints by the local population, this may lead to contravention of local regulations and fines being imposed on the Contractor. The Project FS provides an estimate of waste types and volumes to be generated by the Project as follows:

- ❖ Construction waste - the reinforced concrete structure and road-building waste material is 172tons. Waste belongs to the 4th hazard class.
- ❖ Used tires. Waste of used tires (hazard class 3) will be collected at a special site and handed over to recyclables.
- ❖ Spent batteries. All waste (hazard class 2) will be collected in a specially designated place and handed over for processing.
- ❖ Waste of used automotive oils. Used automotive oils are delivered to the refinery for processing. Waste belongs to the 2nd hazard class.

- ❖ Scrap of ferrous metal. According to the forecast data of the enterprise, the amount of ferrous metal waste generated can reach 2 tons / year. Waste belongs to the 5th hazard class.
- ❖ Food waste. Waste belongs to the 5th hazard class.
- ❖ Domestic waste. Waste belongs to the 4th hazard class.

Operation phase

Roadside litter may accumulate along the new road and in the rest areas. This type of litter generally comprises food waste, plastic and paper wrappers, plastic water bottles, etc., this roadside litter is extremely unsightly and can become caught up in rivers, trees and bushes making the waste difficult to remove. Uncollected roadside waste may attract vermin, entrap or poison animals in their habitats. Litter is also a road hazard that may occasionally contribute to accidents.

Impact summary and assessment of significance

Table 88 provides an assessment of the significance of soil impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 88: Potential Waste Management Impacts

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Improper management and disposal of solid / liquid waste	Local community / agricultural land	M	M	L	M	MOD	MF	SMALL	M	POSS	M
C	Improper management and disposal of hazardous waste	Local community / agricultural land	M	M	L	M	MOD	MF	SMALL	M	POSS	M
C	Roadside litter	Local community and environment	M	L	L	L	MIN	LT	SMALL	L	DEF	L

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.7.3.2. Mitigation & management measures

Table 89 outlines WBG ESHG⁴¹ and feasible and cost-effective measures to prevent or minimize waste management impacts during the construction and operational phases.

Table 89: Waste Management mitigation and management

⁴¹ <https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-waste-management-en.pdf>

Project phase	Mitigation and management measures
Pre-construction	❖ The Contractor will prepare, as part of his C--ESMP, a Waste Management Plan. The Plan will include measures to limit impacts of waste during the construction phase of the Project. The plan shall include the following items listed below (construction). ❖ Complete and asbestos survey for the project including pipework and buildings for presence of asbestos or asbestos containing material before removal of pipework and demolition of properties subject to acquisition.
Construction	<u>General Measures</u> ❖ To ensure waste management is adequately controlled during both the construction phase of the Project, the Contractor will be responsible for ensuring that the waste hierarchy is followed including prevention, minimization, reuse and recycling. ❖ The impact of waste generation on environment during construction will be mitigated by proper storage, maximum reuse and recycling of waste and timely removal of unusable waste to agreed location according to national waste management regulations. ❖ The Contractor has an obligation to provide regular training of staff in waste management issues. <u>Recycling</u> ❖ All recyclable waste (plastic, metal, paper, etc.) will be sorted on source and ❖ sent for recycling where facilities for recycling of these materials exist. <u>Liquid Waste</u> ❖ Provide septic tanks for the camp sites servicing less than 150 employees. ❖ State authorized company to remove the liquid waste regularly. For larger sites, provide multiple septic tank facilities, or package wastewater treatment plants. Measures for liquid waste management are outlined in the section relating to surface water and groundwater above. <u>Domestic and Inert Waste</u> ❖ Collect domestic waste in containers fitted with lids to avoid attraction of scavengers, scattering around. The lid will also protect waste from rain and snow. ❖ Remove domestic waste to the nearest landfill under agreement with state authorized waste management companies. ❖ Provide garbage bins and facilities within the project site for temporary storage of domestic solid waste and construction waste. ❖ Waste storage containers will be covered, tip-proof, weatherproof and scavenger proof. ❖ Ensure that wastes are not haphazardly dumped within the project site and adjacent areas. <u>Hazardous Waste</u> ❖ At worksites and camps where hazardous waste is generated the Contractor will ensure compliance with the following safety measures: ▪ Use containers suitable for each type of waste; ▪ Prohibit use of damaged containers. Check integrity of containers – regularly; ▪ Mark containers adequately specifying the waste types; ▪ Provide secondary containment for hazardous waste liquids; ▪ Do not mix various waste streams. ❖ Hire state authorized contractor for hazardous waste removal and keep agreements with hazardous waste management company's active. ❖ Keep copies of waste manifests on site. Keep a record of waste on-site and waste removed. <u>Spoil Disposal</u>

Project phase	Mitigation and management measures
	❖ Where spoil material is generated, the Contractor will be responsible for preparation of a Method Statement for Spoil Disposal, including site specific plans for spoil disposal areas.
Operation	Waste from the road alignment will be removed during scheduled maintenance by the road maintenance teams.

Residual Significance

The residual significance post mitigation is summarised in Table 90. The assessment has indicated that waste management impacts associated with the construction and operational phase would not be significant.

Table 90: Waste Management residual impact significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Improper management and disposal of solid / liquid waste	Medium	In general, if the mitigation measures suggested are implemented there will be no significant residual impacts.	No significant residual impacts
C	Improper management and disposal of hazardous waste	Medium		No significant residual impacts
O	Roadside litter	Low	Impacts without mitigation are not anticipated to be significant.	No significant residual impacts

7.7.3.3. Monitoring

None other than observational monitoring outlined in the Project ESMP.

7.7.4. Traffic and transportation

This section discusses impact assessment from increased traffic and transportation to local receptors, i.e., socio-economic, health and safety aspects as well as possible affect to local infrastructure, including cultural heritage.

Sensitive Receptors

During the construction phase local living communities as well as agricultural and farming activities can be impacted due to the increased traffic and transportation both during constructional and operation phases.

7.7.4.1. Potential impacts

Restriction and temporary unavailability of road use may lead to decrease of income for business structures, loss of jobs for workers of these commercial buildings, increase of expenses for local communities due to the use of alternative roads and agricultural products.

Construction Phase

Activities during construction phase which may lead to traffic related impacts include:

- ❖ Partial or complete blockage of roads and junctions for varying periods to construct roads near the residential streets or public infrastructure. Thus, this may lead to the traffic flow increase on other alternative roads;
- ❖ Increased congestion, risk of accidents, and diversion of traffic onto unsuitable alternative routes;
- ❖ Potential temporary disruption of services, including public utility on secondary through roads in the communities, such as public transport and delivery.

Since the existing M-41 roads is the main road that interconnects districts of Surkhandarya region, as well as with neighbouring regions, traffic flow is already intensive. Moreover, close location of agricultural farm, public infrastructure (schools, kindergarten), including public utilities and cultural heritage objects, as well as commercial structures may significantly impact in case of road rehabilitation and extension.

Local structures (residential, public and commercial) may experience disturbance of local supply services such as gas, electricity and water supply, if local utility assets can be accidentally damaged due to construction/excavation works. Agricultural and commercial structures may suffer in terms of good supply/logistics aspects.

Operation phase

No major impact is expected from Project during operation phase except more intensive traffic due to the improved conditions of the road after construction stage.

Impact summary and assessment of significance

Table 91 below provides an assessment of the significance of potential increased traffic and transportation impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 91: Potential Impacts to socio-economic aspects

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Partial or complete blockage of the road	All receptors along the road	H	M	M	-	MAJ	ST	INT	MED	DEF	M
C	Increased congestion / risk of accidents	All receptors along the road	H	H	M	-	MAJ	ST	INT	MED	POS	M
C	Impact/damage to public utilities and cultural heritage	Nearby communities and commercials	M	M	M	-	MAJ	ST	INT	MED	POS	M
C	Impact to supply chain and logistics for existing commercials	Nearby commercials	H	M	MAJ	-	MAJ	ST	INT	MED	DEF	H
O	Increase of traffic flow due	All receptors	M	M	M	-	MOD	LT	MED	LOW	POS	L

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
	to the improved conditions of road	along the road										

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.7.4.2. Mitigation & management measures

Table below outlines feasible and cost-effective measures to prevent or minimise impact from increased traffic and transportation to socio-economic state of sensitive receptors during the construction and operation phases.

Table 92: Traffic and transportation mitigation and management

Project phase	Mitigation and management measures
Design	❖ Consider optimal final design of the road that can minimize road works that would cause traffic disruption.
Pre-construction	❖ ESMP and Specification to require works contractors to prepare a Traffic Management Plan which will maintain traffic flow with minimum possible disruption and delay. The contractual requirements will be commensurate with conditions on site, smaller and residential roads. ❖ Conduct public communication campaigns to warn of disruption at and risks pre-construction stage. ❖ Public transport disruptions will be announced together with nearby alternative stop and pick-up locations.
Construction	❖ Implementation of Traffic Control Plan to achieve compliance with current best practice for public and worker health and safety, such as flagmen, barriers / barricades, detours etc to CoR Contract satisfaction); ❖ Ensure availability of alternative roads for current movement, or equivalent measures (e.g., keep one line open while constructing another one); ❖ Perform a road condition assessment prior to and following the core construction period to assess damage to road infrastructure that can be attributed to project construction. Repair damage as appropriate, i.e. mak good; ❖ Conduct public communication campaigns to warn of risks and disruption at pre-construction stage; ❖ Develop drivers code of conduct.
Operation	Traffic control measures, such as speed, road furniture, visible signage etc, in accordance with Uzbekistan regulations.

Residual Significance

The residual significance post mitigation is summarised in table below.

Table 93: Increased traffic and transportation residual significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Partial or complete blockage of the road	Medium	Significant traffic disruption cannot be eliminated.	Medium
C	Increased congestion / risk of accidents	Medium		Medium
C	Impact/damage to public utilities and cultural heritage	Medium		Medium
C	Impact to supply chain and logistics for existing commercials	Medium		Medium
O	Increase of traffic flow due to the improved conditions of road	Low	None identified	No significant impact

7.7.4.3. Monitoring

The following table provides the monitoring requirements for increased traffic and transportation impacts.

Table 94: Monitoring Requirements

Monitoring	Parameters	Frequency	Location	Responsibility
Construction				
Partial or complete blockage of the road	n/a	Quarterly	Along the road	CAR/Contractor
Increased congestion/ risk of accidents	n/a	Quarterly	Along the road	CAR/Contractor
Impact/damage to public utilities and cultural heritage	n/a	Quarterly	Near living and commercial receptors	CAR/Contractor
Impact to supply chain and logistics for existing commercials	n/a	Quarterly	Near commercial receptors	CAR/Contractor
Operation				
Increase of traffic flow due to the improved conditions of road	n/a	Quarterly	In places close to living communities	CAR

7.8. Related on land & assets (ESS 5)

7.8.1. Land acquisition and livelihood restoration impacts

Depending on the final design the scale of resettlement may vary from Substantial to High. This section discusses land acquisition and livelihood restoration impacts assessment in relation to local receptors located along the road.

Sensitive Receptors

Project site is highly modified area and different types of receptors were identified. Land acquisition (both permanent and temporary) may affect the following receptors:

- ❖ Residential houses;

- ❖ Commercial structures;
- ❖ Trees and agricultural crops;
- ❖ Cultural heritage objects;
- ❖ Public utilities;
- ❖ Public infrastructure.

Reconnaissance surveys were undertaken along the existing road alignment. The summary of preliminary resettlement impacts is provided at Table 95.

Table 95: Preliminary resettlement impacts

District	Tree cutting (pcs)		Demolition of buildings			Land	
	Low-value	Valuable	Residential	Non-residential	Business	Agricultural land, (HA)	Non-agricultural land, (HA)
Termez	32	575	-	-	1	0	0,01
Djharkurgan	175	2379	4	2	26	53,29	0,63
Kumkurgan	19	123		1	9	0	0,07
TOTAL	226	3077	4	3	36	53,29	0,71

Loss of Land and Assets

The M41 road upgrading works will have some significant negative impacts on land and assets loss. The major likely affected assets include private land and structures. Out of total 70 households to be affected by the project 7 residential households (10%) are likely to be affected by losing private structures and lands, 36 commercial structures (51%) and remaining 27 affected households (39% farm lands) are likely to be affected by losing their leased land.

Project Affected Residential Structures

The M41 road upgrading works will have significant negative impacts on residential structures auxiliary structures inside the households. In total, the expected impact of the project is 6 PAHs (1 AHs will lose the land plot only).

Project Affected business structures

The project will affect 36 business structures and auxiliary structures of 36 APs. Out of them, there are 32 bus stop shops and 4 auxiliary structures of businesses.

Project Affected Private Structures

A total of 38 private structures along the M41 road section need to be acquired for the road construction and improvement works. The affected structures include 6 number of residential structures and 36 commercial structures. Most of the affected structures are modern and semi-modern types.

Temporary Use of Land

Temporary use of land will be required during road construction for contractor's campsites, labor force campsites, quarry sites, crusher plant and stock piling yard etc. Public land will be used for this purpose as much as possible.

All above mentioned receptors may be impacted by permanent and temporary land acquisition, depending on the final design of road.

7.8.1.1. Potential impacts

Following impacts are expected due to the land acquisition and livelihood restoration:

- ❖ Income reduction of commercial and agricultural receptors due to the limitation of road use (temporary);
- ❖ Economic displacement of local business structures;
- ❖ Loss of trees and crops;
- ❖ Physical displacement;
- ❖ Relocation of cultural heritage objects;
- ❖ Relocation of public utility assets.

Construction phase

Income reduction due to temporary restrictions to road - local business structures, agricultural field, informal sellers, as well as other road users, whose livelihood activities associated with current road use. Their income may decrease due to the temporary restriction or blockage of road for construction period. Informal sellers and container shops should be relocated temporary until the construction activities end.

Economic displacement - depending on final design of road, removal of commercial structures and acquisition of land plots from agricultural farm can be required.

Physical resettlement - depending on final design of road, resettlement of local affected people and demolishing existing residential houses can be required.

Loss of trees and crops - rehabilitation of road will require relocation/removal of wood trees located along the existing road (planted for landscaping). Number of trees that are subject to relocation/removal as well as size of crop loss is subject to final design of the road.

Relocation of cultural heritage - objects of cultural heritage may be subject to relocation depending on the final design of the road. There might be a need for land acquisition from local cemetery, which in turn leads to reburial of graves.

Relocation of public utilities - there are various types of public utility assets that are located in close proximity to the road, in particular gas and water pipelines, optic fibre and communication cables, power lines. Impact to these assets are subject to final design of road.

Operation phase

No livelihood issues are anticipated during this phase.

Impact summary and assessment of significance

Table 96 below provides an assessment of the significance of potential land acquisition and livelihood restoration impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 96: Potential impacts to land acquisition and livelihood restoration

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Income decrease	Commercial and agricultural receptors	H/M	M/H	M/MAJ	-	M/MAJ	ST	INT	MED	DEF	M
C	Economic displacement	Commercial and agricultural receptors	H/M	M/H	M/MAJ	-	M/MAJ	LT	INT	MED	POS	M
C	Physical resettlement	Nearby communities	H/M	M/H	M/MAJ	-	M/MAJ	ST	INT	MED	DEF	H
C	Trees and crop damage	Trees and agricultural crops	H/M	M/H	M/MAJ	-	M/MAJ	ST	INT	MED	DEF	H
C	Relocation of cultural heritage	Cemeteries, monuments, sculptures	M/L	M/H	M/MAJ	-	M/MAJ	LT			POS	M
C	Relocation of public utilities	Gas/water pipelines, power lines, communication cables	H/M	M/H	M/MAJ	-	M/MAJ	LT			DEF	M

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.8.1.2. Mitigation & management measures

Table below outlines feasible and cost-effective measures to minimise impact from land acquisition and livelihood restoration to sensitive receptors during the construction and operation phases.

Table 97: Mitigation and management for land acquisition and livelihood restoration

Project phase	Mitigation and management measures
Design	❖ As far as possible/practical undertake Project design to avoid impact all structures (including a buffer around sensitive areas). ❖ Prepare RAP that defines the responsibilities of the Project in relation to land acquisition and resettlement
Pre-construction	❖ Complete all land acquisition and resettlement requirements per the RAP prior to the commencement of construction. Since CAR delegates all actions associated with resettlement and livelihood restoration to relevant khokimiyats, PIU should ensure that WB ESS 5 requirements are followed during RAP process.

Project phase	Mitigation and management measures
Construction	Project developer should keep GRM with PAPs and local communities during the project construction phase. However, all resettlement actions should be completed before commencement of any constructional activities.
Operation	Not expected

Residual Significance

The residual significance post mitigation is summarised in table below.

Table 98: Land acquisition and livelihood restoration

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Income decrease	Medium	Impacts will be of low significance after mitigation	Medium
C	Economic displacement	Medium		Medium
C	Physical resettlement	High		Medium
C	Trees and crop damage	High		High
C	Relocation of cultural heritage	Medium		Medium
C	Relocation of public utilities	Medium		Medium

7.8.1.3. Monitoring

The following table provides the monitoring requirements for land acquisition and livelihood restoration impacts.

Table 99: Monitoring Requirements

Monitoring	Parameters	Frequency	Location	Responsibility
Construction				
Income decrease	n/a	Quarterly during the construction period	Along the Project site	CAR/Contractor
Economic displacement	n/a	At least once in 2 years to ensure that income/businesses are restored	Along the Project site	CAR/Contractor
Physical resettlement	n/a	At least once in three years to ensure that livelihoods are restored	Along the Project site	CAR/Contractor
Trees and crop damage	n/a	Quarterly during the construction period	Along the Project site	CAR/Contractor
Relocation of cultural heritage	n/a	Quarterly during the construction period	Along the Project site	CAR/Contractor
Relocation of public utilities	n/a	Quarterly during the construction period	Along the Project site	CAR/Contractor

7.8.2. Socio-economic and gender aspects

This section discusses impact assessment to current socio-economic state and gender aspects of local communities during construction and operation of the Project and associated mitigation measures to be adopted.

Sensitive Receptors

During the construction phase sensitive receptors will mainly be residents and their socioeconomic activities, in particular movement, business activities, daily activities etc, associated with using road as an access road. These risks and impacts include reduction of income due to restriction of movements, increase of expenses due to the using of alternative roads. Costs for agricultural products may increase because of high demand for workers at construction stage.

Demolition of buildings and structures along the entire length of the road will be carried out in the projected amount of 42 units, including 7 units of residential buildings and 35 units of non-residential buildings.

The census survey has identified and established the households that own assets or earn income on land required by the Project. The cut-of-date will be clearly disclosed to PAPs during consultation meetings and during one-on-one interviews for the census survey. Any persons moving into the Project area after the cut-off date will not be entitled for compensation.

No impacts are being expected during the operational phase.

7.8.2.1. Potential impacts

Restriction and temporary unavailability of road use may lead to decrease of income for business structures, loss of jobs for workers of these commercial buildings, increase of expenses for local communities due to the use of alternative roads and agricultural products.

Construction phase

During construction activities, there may be interruption to businesses in terms of accessibility for potential customers. As part of mitigation measures, "Entitlement Matrix" in the resettlement and land acquisition framework shall include a compensation requirement for business losses to temporary access restrictions and the ESMP should provide allowing continued accessibility for businesses, residents and farms during construction.

Furthermore, it should be noted that the majority of household members, aged between 18 and 41 years old, will be of working age during the road construction period. Therefore, given that the AOI will affect some businesses, many temporarily, during construction, it is recommended to source unskilled and skilled labour sourced locally along the Project road to the extent possible.

At the same time, the economic situation may moderately improve through improved road conditions, hence improved access to the M-41 highway and both domestic and international markets, where rate of locally grown or manufactured products can be exported and imported of needed products will pick up.

With regards to gender aspects following risks can be expected from project at construction stage:

- ❖ Wage differences between male and female holding the exact same position with male earning higher;
- ❖ Local women can be overlooked in a construction stage, i.e., considered only for low positions (e.g., cleaning, cooking etc.);
- ❖ Increase in labour and disposable income may lead to gambling, drinking and sexual promiscuity, albeit a very minor risk;

- ❖ Women may be impacted more during the restricted access to road during the construction stage due to their daily activities (e.g., child care, visiting schools, kindergartens markets, shops).

Among the positive impacts of Project for local socio-economic conditions can be considered followings:

- ❖ Employment opportunities during construction stage both for male and female;
- ❖ Water sources developed during construction;
- ❖ Increase of income for grocery and agricultural products.

Operation phase

No major impact is expected from Project during operation phase for socio-economic aspects of local communities.

Impact summary and assessment of significance

Table 100 below provides an assessment of the significance of potential socio-economic and gender aspects impact before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 100: Potential Impacts to socio-economic and gender aspects

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Loss of income by commercial structures	Nearby business structures	H	M	M	-	MAJ	ST	INT	MED	DEF	M
C	Loss of jobs by workers of Commercial structures	Workers of nearby business structures	H	H	M	-	MAJ	ST	INT	MED	POS	M
C	Cost increase for agricultural products	Nearby communities	-	-	-	-	MAJ	ST	INT	MED	POS	M
C	Increase of expenses by using alternative roads	Nearby communities	H	H	M	-	MIN	ST	INT	LOW	DEF	M
C	Gender impacts	Nearby communities	M	M	M	-	MAJ	ST	INT	LOW	POS	M

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.8.2.2. Mitigation & management measures

Table below outlines feasible and cost-effective measures to prevent or minimise impact to socio-economic state of sensitive receptors during the construction phase.

Table 101: Mitigation and management

Project phase	Mitigation and management measures
Pre-construction	<u>Management Plans</u> - The Contractor will, as part of his Construction Environmental and Social Management Plan (CESMP), prepare a plan on construction stages at different section of road. Thus, risk associated with loss of income, jobs and increase of expenses associated with use of alternative road will not have a big scale along the all 97 kilometres of existing road. Current plan should also consider involvement of local community members for constructional activities by providing job for skilled/unskilled workers to compensate the impacts caused to the construction stage. CESMP should also consider Gender section by focusing on followings: - a sexual harassment policy and appropriate, non-prejudicial grievance and investigation system; - separating male and female quarters, gender separate latrines and ablutions will be required.
Construction	While implementing CESMP, priority in giving local resident employment opportunities should be given as much as possible. Also, project should consider provision of on-the-job training before granting a job place.
Operation	Not required

Residual Significance

The residual significance post mitigation is summarised in table below.

Table 102: Socio-economic and gender residual significance

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Loss of income by commercial structures	Medium	Impacts will be of low significance after mitigation	Low
C	Loss of jobs by workers of commercial structures	Medium		Low
C	Cost increase for agricultural products	Medium		Low
C	Increase of expenses by using alternative roads	Medium		Low
C	Gender impacts	Medium		Low

7.8.2.3. Monitoring

The following table provides the monitoring requirements for socio-economic and gender aspects of the Project.

Table 103: Monitoring Requirements

Monitoring	Parameters	Frequency	Location	Responsibility
Construction				

Monitoring	Parameters	Frequency	Location	Responsibility
Loss of income by commercial structures	n/a	Quarterly	In places with commercial structures	CAR/Contractor
Loss of jobs by workers of commercial structures	n/a	Quarterly	In places with commercial structures	CAR/Contractor
Cost increase for agricultural products	n/a	Quarterly	In places with commercial structures	CAR/Contractor
Increase of expenses by using alternative roads	n/a	Quarterly	In places close to living communities	CAR/Contractor
Gender impacts	n/a	Quarterly	In places close to living communities	CAR/Contractor

The CAR will develop TOR for RAP Implementation Consultant in order to engage the services of a competent consulting firm to assist PIU in the implementation of the Resettlement Action Plan (RAP). The competent consulting firm's assignment is to ensure timely, appropriate and comprehensive implementation of the RAP in compliance with applicable legislation of both countries and the World Bank's ESS5 for the reconstruction of highway road M-41, section 1525-1622 km (97 km) in Surkhandarya region of the Republic of Uzbekistan. The RAP Implementation Consultant will closely work with CAR/Project Implementation Unit and E&S specialists and cooperate with the respective local authorities, responsible for land acquisition, resettlement and compensation in country.

The RAP Implementation Consultant shall be responsible for training and assistance to PAPs in establishing linkages with government programs. The RAP Implementation Consultant shall prepare an Income/Livelihood Restoration Plan based on the RAP. This consultant shall execute the Income/Livelihood Restoration Plan, ensuring vulnerable PAPs/PAHs are given special attention in accordance with the RAP. The Consultant shall train PAPs losing livelihoods on suitable income restoration programs, depending on the skills and interests of the PAPs. The Consultant shall assist the PAPs/PAHs to establish linkages with Government departments, district administration, etc., and ensure that the PAPs/PAHs are included in the development schemes, as applicable especially with reference to vulnerable groups. Such schemes may include but not be limited to social protection schemes for senior citizens, widows, schemes for women, female headed households and child headed households, schemes for physically challenged persons etc.

7.9. Relating to Bio-diversity & Living Natural Resources (ESS 6)

This section presents an assessment of the impacts of the proposed Project on terrestrial ecology and biodiversity within the Project. Mitigation for impacts are identified, and residual and cumulative impacts are addressed.

Sensitive Receptors

Most of the areas along the project sections have been heavily disturbed by human activities. The Project road passes through urban (23km) and semi-urban areas (18km), the majority of which is agricultural. About 55km is dominated by cropland and irrigated agricultural land. There are no known reports of threatened or endangered plant species or habitats. There are no natural forest lands along the entire RoW. There are, however, a lot of trees along existing road which intersect the RoW. The trees consist mainly fruit trees, spruce, mulberry trees and elm. A program for essential tree cutting to implement the Project should be developed with and approved by the Surkhandarya MEEPCC regional office. A total of 3 303 trees will be impacted. Compensation (in some cases replanting, where possible) for the commercial

value of the trees cut should be paid. Preliminary inventory was done by Design Institute. Total quality of not valuable trees is 226 and valuable trees - 3077.

7.9.1.1. Potential impacts

This section includes an assessment of impacts to designated sites, habitat and species of conservation importance. It does not include a specific assessment of generic impacts to biodiversity, e.g., impacts to vegetation along irrigation channels, however, mitigation measures to manage generic impacts are included in the Project ESMP.

No significant impacts to designated sites are anticipated due to the distance of the road from these areas. However, this ESIA includes measures to prevent encroachment into these areas by haul routes & borrow pits.

Pre-Construction & Construction Phase

Removal of Roadside Vegetation

Roadside shelterbelt areas are a rare and valuable natural asset in the generally uniform steppe landscape dominating the road corridor. Because of their intrinsic ecological benefits and values, roadside plants (especially large bushes and trees) should be maintained to the maximum extent possible, as they act as natural barriers absorbing sand and dust impacts, as well as natural barriers against snow storms, sand storms and noise. Roadside trees and bushes significantly enhance natural micro-habitats in an otherwise largely uniform and treeless landscape, whereby both birds and insects will be the major beneficiaries because of additional food, shelter and roosting possibilities. Roadside plantations will also contribute to a year-round aesthetical improvement of the landscape.

Both authorized and un-authorized cutting / replanting of roadside trees will affect the local ecological properties, expressed in habitat degradation and biodiversity losses. It will be medium-termed and moderate, as long as an adequate replantation program will be carried out and supervised. In many circumstances, habitat loss will invariably cause a permanent disappearance of certain species from this region, as replanting programs may fail due to the harsh climatic conditions and locally poor quality and quantity of irrigation waters.

Guiding principles for planning and proposed mitigation measures include: When there is a need for cutting / replanting existing roadside trees, planners might explore all feasible alternatives to either cut trees only on one side and widen the carriageway on the opposite side, or ensure that a compensatory replantation program will be put in place that would replant the felled trees at a ratio and species selection proportionate to the removed ones. PIU will prepare **Tree Management Plan** for Contractor. It will include a detailed inventory of the trees, assesses their structural integrity and risk, and provides a schedule of recommended maintenance activities like protection measures, and monitoring. A standard compensation plantation program shall aim at a compulsory planting for each felled tree 10 tree plants (min. height 1.2 m) of a variety of exclusively endemic species. Preferable choices shall include trees that have a broad range of floral functions and uses. None of such trees should be palatable for local grazers. Import of exogenous/alien plant species for replantation shall be strictly disallowed. During the detailed design a cutting plan will be prepared and included in the contract specifications. It needs to be approved by the responsible agency. The Contractor will be required to limit cutting and pay strict attention to the detailed design measure.

Construction phase

At the construction stage, the main factor for the deterioration of plant growth conditions will be dust emissions during loading and unloading, emissions of construction equipment. The most affected areas will be vegetation near construction sites is expected that the maximum concentrations of dust emissions will be observed at a distance of up to 30 m. Given the limited duration of construction and regular precipitation, the probability of accumulation of pollutants in/on the plant surface is reduced.

The disturbance factors for animals are noise, light exposure due to the work of construction equipment and vehicles within the construction site, access roads, and the presence of people on construction sites.

Some birds may abandon their nests and even nestlings. During the construction of the bridge and culverts, the increased turbidity may occur, which will lead to a deterioration of the habitat conditions of aquatic organisms. It is also possible to potentially contaminate surface water and bottom sediments with petroleum products from operating and maintenance equipment.

During the construction stage the death of individuals of small mammals, birds, amphibians, reptiles and hydrobionts may be possible. Within the watercourse beds and in the floodplain areas, the construction of bridges and the laying of culverts will represent disturbance for fish.

Operation phase

At the operation stage, the main sources of impact on vegetation cover will be emissions from motor vehicles and anti-icing reagents. The dispersion of anti-icing reagents outside the roadway can lead to soil salinization. The increase in total salinity leads to slower plant growth and morphological changes.

However, it is expected that most of the reagents will drain with the surface runoff in wastewater storage pits, in addition, the Project provides for a limitation of use of reagent depending on weather conditions.

At the operation stage there may be cases of death of individuals as a result of their falling on the road (mainly birds, small mammals and amphibians), but these cases are episodic. The road fence significantly reduces the risk of the death of animals. Subject to the implementation of the Project environmental measures, the impact is assessed as insignificant.

Table 104 provides an assessment of the significance of biodiversity impacts before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 104: Potential Impacts to Biodiversity

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Cutting trees	Cutting trees Roadside/ residents	H	L	M	H	MAJ	ST	SMA	M	DEF	M

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Impacts to general flora and fauna	General flora and fauna	M	L	-	-	MOD	ST	SMA	L	DEF	L
C	Degradation of riverbed habitat – Increased turbidity around bridge piers and downstream	Riverbed habitat	M	L	-	-	MOD	ST	SMA	L	DEF	L
C	Impacts to terrestrial fauna	General terrestrial fauna	M	L	-	-	MOD	ST	SMA	L	DEF	L

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.9.1.2. Mitigation & management measures

Potential impacts to biodiversity are assessed and actions to mitigate them are recommended as follows:

Table 105: Biodiversity mitigation and management

Project phase	Mitigation and management measures
Design	General Preparation of a Biodiversity Action Plan (BAP) for species of conservation importance (if applicable) Preparation of Tree Management Plan
Pre-construction	General Biodiversity Aspects ❖ A range of generic biodiversity management measures are outlined in the Project ESMP for the pre-construction phase. Designated Sites ❖ Ensure that no borrow pits, camp sites or ancillary facilities are located within 2km of designated sites. ❖ Ensure that no haul routes pass through designated sites. ❖ If some of the trees are still in the impact zone, replanting them at a safe distance in the same biotope in wet autumn period. Summer and winter periods are not optimal for trees after relocation, and spring is breeding period for birds. ❖ Mitigation will require action to ensure that losses are kept to a minimum. Bid/contract documents will specify roadside plantings and replacements as part of the road design and contain enforceable provisions in contract specifications to minimize plant loss.
Construction	❖ Maintenance of accidents involving wildlife during construction, including recordation of the types of species and locations, is recommended. ❖ Areas affected by the Project must be routinely observed to minimize the potential for avoidable impacts to wildlife.

Project phase	Mitigation and management measures
	❖ Storage of construction materials, products and structures on specially equipped sites; ❖ After the completion of construction work, temporarily disturbed areas are subject to reclamation with sowing of perennial grasses. ❖ Access roads will be defined before the beginning of the construction activities. Some of the public roads may need to be used for access. Driving out of the access roads by the construction vehicles taking part of the construction activities will not be allowed. ❖ Construction of fence to minimize accidents with animals; ❖ Limitation of speed, in order to limit emission of dust on non paved access roads and in order to limit the risk of accidents with fauna; Trees Trees will only be removed by the Contractor based on the MEEPCC permission letters, with the NES supervision, and construction workers must not remove trees for firewood or any other reason. CAR should prepare detailed Tree Management Plan. The Borrower (CAR) will be responsible for ensuring this plan is followed correctly, including the requirements for tree planting and tree maintenance during the construction phase and defects liability period.
Operation	❖ Storage of deicing agents using good management practices. ❖ Regular collection of waste from roadside; ❖ Monitoring of mitigation implementation according to the requirements of any BAP, i.e. road kill monitoring and fish population monitoring.

7.9.1.3. Monitoring

Construction phase monitoring will be undertaken by the Contractors Environment Safety Officer (ESO). The BMP will also outline any specific monitoring requirements relating to habitat and species of conservation importance.

7.10. Related on Impacts on Cultural Heritage (ESS 8)

7.10.1. Cultural heritage

Depending on the final design impact to the cultural heritage may vary from “Low” to “Medium”. This section discusses impact assessment to objects of cultural heritage located along the Project site.

Sensitive Receptors

Project site is highly modified area and along the road there were observed one cemetery and one objects of cultural heritage that have national and local importance. Scale of impact to identified cultural heritage may be different depending on the final design of road.

7.10.1.1. Potential impacts

Final design of road will dictate scale of impact to cultural heritage. There might be a need for land acquisition from cemetery, which will require reburial of graves located on impacted land. Moreover, there might be a need for relocation of monuments that have national and local importance.

Construction phase

It was identified one archaeological site between project districts - historical monument called by the local people “the bridge of Alexander the Great” (although it’s historical association is not proven) and one cemetery will need for land acquisition. According to FS, the road will be widened right up to the cemetery fence. The fence will need to be moved several meters. It will not require reburial of graves located on impacted land.

Consultation and conducted surveys with the local community has not identified any potential intangible cultural heritage that may be impacted by the proposed works.

Operation phase

No impact is expected.

Table 106 below provides an assessment of impact to cultural heritage before implementation of the proposed mitigation measures that are discussed in the rest of this section.

Table 106: Potential Impacts to cultural heritage objects

Phase	Potential Impact	Receptors	No. of Receptors Affected	Sensitivity of Receptors	Level of Public Concern	Risk of Exceeding Legal Threshold	Magnitude	Timeframe	Spatial Scale	Consequence	Probability	Significance
C	Damage to unidentified archaeological sites	Archaeological artifacts	M/L	M/H	M/MAJ	-	M/MAJ	ST	INT	MED	POS	M/L
C	Loss of land by cemeteries and reburial of graves	Cemeteries	M/L	H	M/MAJ	-	M/MAJ	LT	INT	MED	POS	M/L
C	Relocation of monuments	Monuments	M/L	M/H	M/MAJ	-	M/MAJ	LT	INT	MED	POS	M/L

O Not expected

Key: H: High / M: Medium / L: Low / MAJ: Major / MOD: Moderate / MIN: Minimum / H/F: High Frequency / M/F: Low Frequency / L/F: Low Frequency / LT: Long term / MT: Medium Term / ST: Short term / SMA: Small / INT: Intermediate / MED: Medium / DEF: Definitely / POS: Possible / UN: Unlikely. Cells shaded in blue are positive impacts.

7.10.1.2. Mitigation & management measures

Table below outlines feasible and cost-effective measures to prevent or minimise impact to cultural heritage objects.

Table 107: Biodiversity mitigation and management for cultural heritage objects

Project phase	Mitigation and management measures
Design	❖ Prepare Project design to avoid all known areas of cultural heritage and archaeological significance
Pre-construction	❖ Include requirements for a Chance Finds Procedure in the Project contract. Pls, see Annex 3

Project phase	Mitigation and management measures
Construction	❖ Establish a chance find procedure (that includes national and WB requirements as well as following GIIP) for the construction phase, or any phase that requires excavation works. ❖ Should items of cultural heritage be identified they should be managed in line with the chance find procedure. ❖ Conduct supervision of any constructional activities by local departments of Sanitary and Epidemiological Wellbeing in places near cemeteries. If land acquisition of cemeteries is required, all constructional activities should start before the reburial of graves and inspection of Sanitary and Epidemiological Agency
Operation	❖ Not expected

Residual Significance

The residual significance post mitigation is summarised in table below. Significance of impact can vary depending on the final design of road.

Table 108: Impact to cultural heritage

Phase	Potential Impact	Potential Impact Significance	Residual Impact	Residual Impact Significance
C	Damage to unidentified archaeological sites	Medium	Disturbance of unidentified and identified cultural heritage	Medium
C	Loss of land by cemeteries and reburial of graves	Medium		Medium
C	Relocation of monuments	Medium		Medium

7.10.1.3. Monitoring

The following table provides the monitoring requirements for cultural heritage.

Table 109: Monitoring Requirements for cultural heritage

Monitoring	Parameters	Frequency	Location	Responsibility
Construction				
Damage to unidentified archaeological sites	N/A	Once in a month during the construction period	Along the Project site	CAR/Contractor
Loss of land by cemeteries and reburial of graves	N/A	Once in a month during the construction period	Along the Project site	CAR/Contractor
Relocation of monuments	N/A	Once in a month during the construction period	Along the Project site	CAR/Contractor

8. STAKEHOLDER ENGAGEMENT AND PUBLIC CONSULTATION

This Chapter presents the objectives and findings of the initial public and stakeholder consultations which were conducted during the development of the present ESIA. The Chapter also defines the requirements of consultations to be carried out during the project implementation, in addition to describing the disclosure requirements.

8.1. INTRODUCTION

A Consultation Strategy was developed in order to achieve the objectives of the screening in a timely manner. The objectives focused on obtaining the views of relevant stakeholders in each sub-project, preliminary identification of potential environmental and social issues relating to all the proposed activities.

Consultation with stakeholders at the project sites and communities formed an integral part of the ESIA process. Consultations also influenced the project design to be more environmentally friendly and socially inclusive including slight change in design to minimize cutting of trees in some sites, address erosion and flood potentials.

Emphasis was placed on consultations throughout the lifecycle of the project as a means to allay grievances, enhance project positive impacts, mitigate negative impacts, and ensure project buy-in and sustainability.

The following issues were given emphasis and particular attention during the consultation process:

- ❖ Provision of sufficient and timely information about the proposed sub-projects to the Project Affected Persons (PAPs);
- ❖ Provision of engagement opportunities to ensure no major potential impacts or probability have been overlooked;
- ❖ Provision of engagement opportunities for stakeholders to influence project design in a positive manner;
- ❖ Securing the local and traditional knowledge to inform the ESIA process;
- ❖ Reduction of conflict through the early identifications of contentious issues and findings;
- ❖ Creation of a sense of Project ownership or involvement in the minds of stakeholders;
- ❖ Identification of issues of concern to stakeholders so these can be addressed appropriately before project implementation; and
- ❖ Effective management of expectations and misconceptions regarding the Project.

A Stakeholder Engagement Plan (SEP) has been prepared on behalf of CAR to maintain and guide stakeholder engagement over the lifetime of the Project.

The Stakeholder engagement in the SEP has been planned according to Uzbek legislation for Category I (High risk) projects and WB requirements for projects with Substantial risk. This section provides a summary of the content of the SEP. The SEP is provided as separate document of this ESIA.

8.2. SEP OBJECTIVES

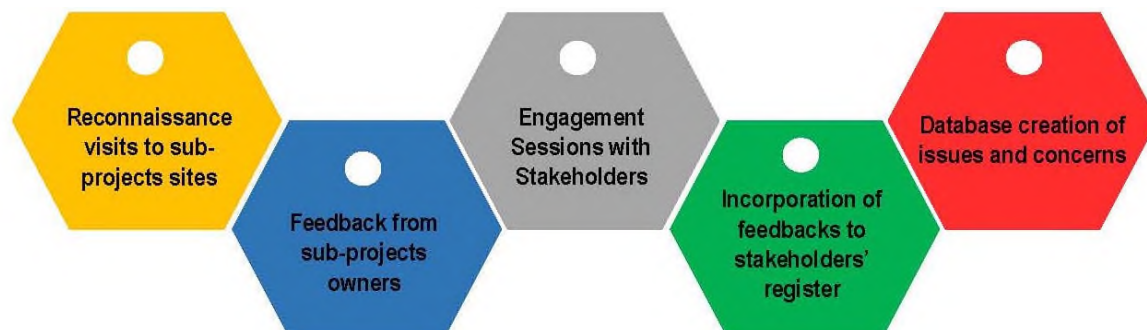
The following steps were taken for the stakeholders' engagement plan

- a. Identification of Stakeholders

- b. Prioritization of Stakeholders
- c. Understanding the Identified Stakeholders and their areas of influence/interest
- d. Mapping of Stakeholders

The SEP implemented during the ESIA process is outlined in Figure 20.

Figure 20: Stakeholders Engagement Plan (SEP) Implementation Process



Specific objectives of the consultation process that has been initiated while preparing the present ESIA are listed below.

- ❖ Identify and map stakeholders who have influence on the Project or who the Project influences, and identify and record key issues and concerns that stakeholders may have about the Project.
- ❖ Identify whether there are any vulnerable communities/groups, and if so engage with them in meaningful informed consultation.
- ❖ Sharing of information with stakeholders on the proposed project and key findings of the ESIA;
- ❖ Build trusting relationships with local stakeholders based on a transparent and timely supply of information, open dialogue, and provision of opportunities for stakeholders to voice opinions and concerns for informing Project design and mitigation measures, and minimising impacts on local resources and/or stakeholders.
- ❖ Keep stakeholders regularly informed about the Project's activities, explaining the nature of the construction and operation stages, overall Project duration, and any changes that could generate new impacts or increase the existing ones, and opportunities for grievance and engagement.
- ❖ Build positive stakeholder relationships and ensure ongoing stakeholder participation.
- ❖ Implement a viable grievance mechanism; and
- ❖ Maintain a record of all consultations and grievances using a Stakeholder Database and Grievance Mechanism Database (or similar).
 - The purpose of the stakeholder database is to document and record all stakeholder interactions to date
 - The grievance database specifically documents grievances recorded during and after the implementation of the project.

8.3. MAPPING OF STAKEHOLDERS

Table 110 below provides the stakeholder engagement matrix consisting of individuals, communities, organisations, and Government agencies considered stakeholders of current Project. By applying a systematic approach, the current stakeholder matrix has been classified into three main categories based on the type of interest.

- ❖ Impacted Stakeholders **(A)** – those who can be potentially affected by one or more of the potential impacts of the project directly or indirectly.

- Potential environmental and social impacts of the Project will be identified and assessed in the ESIA and will relate to terrestrial ecology, noise & vibration, landscape and visual impacts, air quality, soil and groundwater, solid waste and wastewater management, traffic and transportation, archaeology and cultural heritage, socio-economics, community, health, safety & security, human rights, labour, working conditions and land acquisition and resettlement.
- ❖ Interest-based Stakeholders (**I**) – Stakeholders concerned with any of the procedures set by the Project, the Project's beneficiaries, national and international non-governmental organizations and the interested part of the civil society.
 - These are groups or organisations that are not adversely affected by the Project but whose interests determine them as stakeholders. In addition, they are outside the affected area.
- ❖ Decision Making Stakeholders (**D**) – those who are involved in the development of the project and its financing. In addition, this includes the regulators such as the State Committee of the Republic of Uzbekistan on Ecology & Environmental Protection.

A Stakeholder Engagement Matrix is presented below (see Table 110**Ошибка! Источник ссылки не найден.**) based on these categories which also include vulnerable groups. According to lenders, vulnerable groups are those people or groups of people who may be more adversely affected by project impacts than other by virtue of characteristics such as gender, gender identity, sexual orientation, religion, ethnicity, indigenous status, age (including children, youths and the elderly), physical or mental disability, literacy, political views or social status. Vulnerable individuals and/or groups may also include, but are not limited to, people in vulnerable situations such as people living below the poverty line, the landless, single-headed households, natural resource dependent communities, migrant workers, refugees, internally displaced people, or other displaced persons who may not be protected through national legislation and/or public international law.

Matrix

Stakeholder Bodies	Relevance to Project: “Impact-Based” (A), “Interest-Based” (I), or Decision Maker (D)
Urban district Urban district Urban district Municipality	A/I: Houses located next to the existing road might be affected by construction works, and potential adverse effects from construction activity, such as increased dust level, noise, income generation/livelihoods, resettlement and land acquisition.
Local gas pipelines Local water pipelines Transmission lines Canals and drainage Communication	
Structures, assets Schools Markets Road users	
Greenhouses	
Farmers	A: May lose a job in case of land acquisition of farm. Also, can be impacted by construction works, dust or traffic.
Gas stations	A: All gas filling stations along the road. The majority of them are going to be partially impacted in case of road extension, i.e., the entrance part.
Restaurants /shops	A: Can be impacted in case of road extension, also could be impacted by traffic during construction work.
Local business (small and medium)	A: Construction activities may affect business operations and livelihoods of small businesses located near the road.

Stakeholder Group	Stakeholder Bodies	Relevance to Project: “Impact-Based” (A), “Interest-Based” (I), or Decision Maker (D)
Vulnerable Groups	Women in the family (widower); Families with disabled parents or children; Single parent family; People in poor health; Households under the poverty line; An elderly person (over 65 years old) Anyone farming or investing in the land without a legal title	A: Women involved in farming/agricultural activities; and residents (include poor, elderly, single parent headed households (male/female) disabled etc. Potential perceivable impacts from land acquisition of the project which may be worse due to vulnerable status
	Youth / children	A: Youth and children that attend public education institutions located along the road.
	Informal sellers along the road	A: Local sellers that do not have a fixed place for selling.
National Government Bodies	“Uztransgas” JSC	D: Should be consulted to get information on construction measures to avoid disturbance to gas pipelines.
	Uzsuvtaminot JSC	D: Should be consulted to get information on construction measures to avoid disturbance to water pipelines.
	UzTelecom JSC	D: Should be consulted to get information on construction measures to avoid disturbance to communication lines.
	“NEGU” JSC (National Electric Grid of Uzbekistan)	D: Should be consulted to get information on construction measures to avoid disturbance to OHTLs.
	Agency on Cultural Heritage Agency Under the Ministry of Tourism and Sport	D: Should be consulted to get information on construction measures to avoid disturbance to cultural objects.
	Institute of Archaeology	D: Should be consulted to get information on the archaeological importance of the Project site.
	Republican Sanitary and Epidemiological Wellbeing Agency	D: Should be consulted to get information on Health Protection Zone for Projects and construction near cemeteries, especially if an extension of the road will be needed near cemeteries.
	Committee of the Republic of Uzbekistan on Religious Affairs	D: Should be consulted to get information on constructions near mosques and cemeteries, especially if an extension of the road will be needed near cemeteries.

Stakeholder Group	Stakeholder Bodies	Relevance to Project: “Impact-Based” (A), “Interest-Based” (I), or Decision Maker (D)
	Ministry of Water Resources of the Republic of Uzbekistan	D: Should be consulted to get information on construction measures to avoid disturbance to existing water canals.
	Ministry of Public Education	D: Should be consulted to get information on construction measures to avoid disturbance to public education infrastructure.
	Ministry of Higher and Secondary Specialised Education	D: Should be consulted to get information on construction measures to avoid disturbance to secondary specialised education infrastructure.
	Committee for Road under the Ministry of Transportation	D: Project developer.
	Ministry of Labour Protection and Social Welfare	I: Statutory consultees on labour and social welfare issues.
	Ministry of Health (or MH RUz)	D: Should be consulted to get information on construction measures to avoid disturbance to public healthcare infrastructure and health-related issues associated with the Project.
	Ministry of the Republic of Uzbekistan on Nature protection	D: Statutory consultees. Control with National Environmental Policy (see following rows) and protection standards. Provides decisions related to wild/decorative trees. Responsible for EIA approval.
Provincial / Municipal / Local Government Departments	Surkhandarya regional khokimiyat	A/D: Will make decisions on land allocation and Project realisation.
	Dzarkurgan district khokimiyat	A/D: Will make decisions on land allocation and Project realisation.
	Kumkurgan district khokimiyat	A/D: Will make decisions on land allocation and Project realisation.
	Termez district khokimiyat	A/D: Will make decisions on land allocation and Project realisation.
	Termez city khokimiyat	A/D: Will make decisions on land allocation and Project realisation.
	Regional Departments of JS “UzTransGaz”	A/D: Will make decisions/provide technical conditions for the extension of road and Project realisation.
	Regional Departments of Ministry of the Republic of Uzbekistan on Nature protection	A/D: Will make decisions/provide technical conditions for the extension of road and Project realisation.
	Regional Departments of JS NEGU (National Electric Grid of Uzbekistan)	A/D: Will make decisions/provide technical conditions for the extension of road and Project realisation.

Stakeholder Group	Stakeholder Bodies	Relevance to Project: “Impact-Based” (A), “Interest-Based” (I), or Decision Maker (D)
	Regional Departments of JS Uzsuvtaminot	A/D: Will make decisions/provide technical conditions for the extension of road and Project realisation.
	Regional Departments of JS UzTelecom	A/D: Will make decisions/provide technical conditions for the extension of road and Project realisation.
	Regional Department of Committee on Religious Affairs	A/D: Will make decisions/provide technical conditions in places where Project will impact cemeteries.
Civil Society, NGOs, Research Bodies	Basin Administration of Irrigation system Uzbekistan Society for the Protection of Birds (Birdlife) Rare Animal Conservation Foundation Ecosan Foundation Eco-Surkhandarya Regional Environmental Organization Association of Business Women of Uzbekistan (Surkhandarya Branch); Mahallah Association of Each District; Association of Disabled Persons - Association of Social Protection and Society of Disabled Persons of Surkhandarya Region; EcoForum of Uzbekistan Center for Environmental Education and Information Uzbek Society for Nature Conservation	I: Depending on the core purpose of the specified NGO.

Stakeholder Group	Stakeholder Bodies	Relevance to Project: “Impact-Based” (A), “Interest-Based” (I), or Decision Maker (D)
Women's Committee	Specialist on women issues in ppproject district makhallas.	A/D: They have a programme to integrate women, including but not limited to vulnerable categories (e.g. domestic violence, etc.), in the job market. They offered support to the future concessionaire to help recruit women for the project
Media	Regional and Local Mass Media	I: Will need to be involved in disseminating information about the Project.
Political Parties of Environmental Focus	Ecological Party of Uzbekistan	I: Will be interested in the execution of the Project and its environmental impacts and mitigation measures.
Project Lender	WB	D: Providing finance for the Project. This group will directly influence and impact the Project through decision making process. They are considered as ‘Primary Stakeholders’.

8.3.1. Stakeholder Consultations

Data acquisition is one of the main steps of the identification of community's thoughts and attitudes about the project and assess the stakeholder engagement and information disclosure of the stakeholders about the project organization in the area. The other one of these is analysis of the socio-economic factors to develop grievance redress mechanism to provide stakeholders with a framework for settlement of grievances. Accordingly, one of the main data sources of the report was based on the field surveys.

Socio-economic information was obtained during informal meetings with local authorities during the field visits as well as the information obtained from field survey. Efforts were made to reach as many people as possible. Consultations were carefully planned and conducted in such a way that ensures efficiency and effectiveness in covering key issues both from the PAPs and communities on the one hand, and the project interests on the other.

The project has been discussed with a wide range of stakeholders including relevant government departments, local and municipal authorities, local leaders, residents and host community and vulnerable groups. Extensive on-the-ground consultation are undertaken with municipal and local authorities during the pre-construction technical assessments, and in preparation of the technical engineering designs for the project. Throughout the project's implementation and defect's liability period, consultation with any affected communities will continue.

During the consultation the team also disseminate information about the project and its expected impacts, during the various phases of the project cycle (i.e. pre-construction, construction and post-construction) with the community to get consensus on the main social and environmental concerns related to the designs and implementation of the project.

Key stakeholders for this project are identified and consulted including national and municipality government representatives, local authorities, chief of the villages and sub-villages and the local community members and residents along the road corridor.

After the inception meetings in district administrations, Al Mar Consultants conducted a series of in-depth interviews with specialists in the departments of district administrations.

Photo 24: Stakeholders meetings in project districts





The communities expressed positive responses towards the need for the road improvements as well as ongoing maintenance of the roads. They are of the opinion that the project will improve and augment transportation and linkages between project districts as well with neighboring countries (Tajikistan) which are seen as vital in harnessing the use of resources, expanding markets and increasing employment opportunities.

8.4. CONSULTATIONS AT THE ESIA STAGE

All of the Lenders require the ESIA and supporting documents to be disclosed to stakeholders before the commencement of the construction phase of the Project. In line with Uzbekistan National Requirements, the Project belongs to facilities of the I category of environmental impact with representatives of the District Hokimiyats, the Ecology and Environmental Protection Inspectorate, the Village Community Assemblies in the prescribed manner, were organized and carried out public hearings on 30-31 of October 2025.

The objectives of the Disclosure Period are to solicit the feedback from the Project stakeholders (including the PAPs) on the Project impacts and proposed mitigation measures provided in the ESIA as well as the overall approach of the process to secure the land. Where required, necessary changes will be made to the Draft ESIA and to related documents during their finalization to reflect the comments received during the disclosure.

The following considerations guided the public consultations:

- ❖ Site visit to each of the proposed road site for rehabilitation/construction;
- ❖ Identification of the administrative leadership in the project areas, and visits to the community leadership;
- ❖ Identification of PAPs and notification of meeting in collaboration with community leaderships;
- ❖ Public forum with stakeholders on the project.

The objectives of the consultation process were to:

- ❖ Establish and sustain a consultation process for the entire life cycle of the project that shall be aimed at shaping & informing the public of the nature, scope & feedback on the project intervention.
- ❖ Shape and inform the development of an integrated framework for addressing issues relating to economic displacement triggered by the project.
- ❖ Build a base for dialogue between the project implementation team and various stakeholders so that implementation of the outcome of the project will continue to benefit from diverse perspectives beyond the life span of this project.

There was a general consensus that there will be no potential adverse impacts, which could not be avoided or significantly mitigated by good design and engineering practice. Most of the effects are connected to the rehabilitation works within settlements, towns and villages. Should further investigation reveal that there is a need for land acquisition and resettlement, and a resettlement plan is to be prepared, then separate consultations will be undertaken with affected households and stakeholders in respect of that process.

8.4.1. Public Hearings on EIA

Public Consultations were carried out on 30 October 2025 in Kumkurgan district, on 31 October 2025 25 in Dzarkurgan and Termez districts. Public consultations were organized with sufficient place to sit. All attendants were recorded (see Annex 2). Public consultations were chaired by local Hokimiyat officials. The public consultations were preceded by extensive dissemination of this event and were disclosed via:

Official invitations: As part of the public consultations preparation, a letter with information on planning activities on the project's disclosure was sent to the Kumkurgan, Dzarkurgan and Termez districts governmental authority (Hokimiyats). Annex 1 includes the information letters from CAR to these institutions. In these letters CAR request collaboration in the dissemination of the public consultations of the project between the communities.

Information to the local population: Kumkurgan, Dzarkurgan and Termez district hokimiyats worked closely with the smallest administrative units (makhallas) to disseminate the information on public consultations from makhalla's to residents of project area. The project consultants informed of the planning activities of public consultations to the residents living close to the project sites.

Announcements signs: Moreover, around 10 announcements were placed at public places such as market, shops, bus stops, etc. Announcements of holding public hearing was published in the local newspapers «Hulk Souzi» and «Kishlok Hayoti». The official telegram groups were used in some districts such as:

1. https://t.me/jarqurgon_yangiliklari - Dzarkurgan District News, 26K subscribers
2. <https://t.me/QUMQORGONEWS> - Kumkurgan District News, 50,000 subscribers
3. <https://t.me/TermizYangiliklari> - Termez District News, 3K subscribers
4. <https://t.me/termizc> - Telegram news channel "TERMIZ24" with 1.5K subscribers
5. t.me/Surxondaryo8 – 44K subscribers
6. [@pressauz](https://t.me/pressauz) 304K subscribers
7. [@oblakouz](https://t.me/oblakouz) 203K subscribers
8. [@theliveuz](https://t.me/theliveuz) 143K subscribers.

The public hearings was organized in coordination with the local authorities. Kumkurgan, Dzarkurgan and Termez district's hokimiyats openly invited interested people and parties that are mostly living along the roads. Overall, there were 124 participants in public consultation meetings in project area sites. The complete list of participants, with place of residence and

partially occupational information is attached in Annex 2. Participants of the meeting represented local authorities, public institutions such as employees of local medical stationeries, secondary school teachers, and members of local communities.

Participants were provided with handovers presentation slides. The presentation and discussions were conducted in Uzbek language which is more popular among local dwellers than Russian language. All presentation documents were also translated into Uzbek. Project consultant briefly described project overview, principles and methods adopted for drafting ESIA, ESMP and environmental features of the project area, possible environmental impacts of the project, and proposed mitigation measures against the negative environmental externalities were distributed as a handout and discussed point by point. After the presentation, participants were invited to share their views and opinions, and deliver their questions and comments.

Participants at all meetings in Kumkurgan, Dzarkurgan and Termez districts agreed and welcomed the need for project and objectives to reconstruct the road and especially associated with the improvement of the traffic flow, minimize traffic accidents and improve traffic infrastructure. Participants recognized the importance of physical, ecological and social safety and sustainability issues within the project. However, they specifically emphasized to conduct public consultations on land acquisition and resettlement planning and particularly to get enlightened about the compensation process and procedures. Participants were not aware about the land acquisition methods, road alignment, compensations etc. The major queries were with respect to the alignment and compensation. The queries of the people and the reply is summarized in below Table 112 **Ошибка! Источник ссылки не найден..**

8.4.2. Disclosure

The ESIA documenting the mitigation measures and consultation process will be submitted to PIU and WB and has been made available for public review and comment. The affected people and the local communities expressed support for the project during the consultations as they clearly saw the benefit to the community as well as the region. More informal consultation and disclosure will be undertaken during implementation through:

- ❖ The preparation and dissemination of a brochure in Uzbek and Russian, explaining the project, works required and anticipated timing of the works. This brochure or leaflet (see Annex 1) also summarized the main points of the Project's mitigation measures; and
- ❖ Setting up a formal grievance redress committee with a representation from the affected people. The project supervision consultant in association with the contractor will be responsible for managing the effective grievance redress program.

The ESIA have now been finalized (i) addressing comments by World Bank safeguards specialists; and (ii) incorporating the comments made and issues raised during the public hearings.

Following approval of the final ESIA, a copy of the approval and a summary of the document will be sent to all relevant makhallies. Information regarding the approved project and the proposed environmental management measures will be posted at suitable locations on the project site. Disclosure will conform to the policies of WB which requires that environmental assessment reports for WB projects be accessible to interested parties and the general public. The final ESIA as part of WB project documents will be uploaded onto the WB website and made available through the Development InfoCentre.

umkurgan, Dzarkurgan, Termez districts of Surkhandarya region

Participants	Objectives	Consultation Mode
The representatives of the following organisations and departments: ▪ Regional Department of Cadastral Agency; ▪ Surkhandarya Regional Department of Sanitary and Wellbeing Agency; ▪ Surkhandarya Regional Department of Constructions; ▪ Surkhandarya Regional Department of Cultural Heritage Agency; ▪ Surkhandarya Regional Department of NEGU; ▪ Surkhandarya Regional Department of the Road Committee	Project information Key stages Reasons for meeting Mahalla data collection Environmental and social baseline Gathering socio-economic information Mission tasks, stakeholders meeting list Known and potential impacts on stakeholders from the project	Key Informant Interview (KII)
N/A	Explanation of the Land Acquisition Process and key date of surveys and construction Mahalla data collection Land use Current land use types in the project area Gathering information for valuation	Business correspondence/ Project Brochures
Informal seller, Café along the road Shops along the road	Project background Community opportunities Known and potential impacts on stakeholders from the project	Face-to-face meeting

Date	Place of consultations	Participants	Objectives	Consultation Mode
			Mahalla data collection Land use Current land use types in the project area Gathering information for valuation Communicate grievance mechanism (in detail)	
October 21-25, 2025	Administration of Districts (Khokimiyats)	Local government representatives; Khokimiyats; Kadastr	Overview of the region economic indicators List of farmers and land users Farming land data availability Land use Gathering information for valuation	Business correspondence
October - November, 2025	Agency of cultural heritage under the Ministry of tourism and cultural heritage of the Republic of Uzbekistan	N/A	List of cultural heritage in project area Cemetery importance and access for local area	Business correspondence
October 30, 2025	Administration of Kumkurgan District (Khokimiyat)	❖ Deputy of the Head of the Secretariat of the Regional Khokimiyat. ❖ Specialists from the Regional Departments of Ecology, Investment and Foreign Trade and Cultural Heritage ❖ Head of Department for Gender and Family Welfare	Planned reconstruction works; Disclosure of the ESIA results; Discussion of scope of planned work, measures to minimize the negative impact, screening of the territory of the mahalla, discussion of GRM levels. Planned period of construction.	Key Informant Interview (KII)/ Project Brochures
October 31, 2025	Administration of Dzarkurgan District (Khokimiyat)	❖ Deputy of the Head of the Secretariat of the Regional Khokimiyat. ❖ Specialists from the Regional Departments of Ecology, Investment and Foreign Trade and Cultural Heritage	Planned reconstruction works; Disclosure of the ESIA results; Discussion of scope of planned work, measures to minimize the negative impact, screening of the territory of	Key Informant Interview (KII)/ Project Brochures

Date	Place of consultations	Participants	Objectives	Consultation Mode
		❖ Head of Department for Gender and Family Welfare	the mahalla, discussion of GRM levels. Planned period of construction.	
	Affected communities (makhallas) in Termez district (Khokimiyat)	❖ Community leaders (elders and chairpersons). ❖ Community residents; ❖ Land users, local residents ❖ Other community members, including vulnerable residents ❖ Resettlement and environmental specialists	Disclosure of the ESIA results; Organization of construction sites; Appropriate means of interaction with affected parties Discussion of scope of planned work, measures to minimize the negative impact, screening of the territory of the mahalla, discussion of GRM levels. Community opportunities	Public consultations/ Project Brochures

Table 112: Summary of Points Raised at Public Meetings

Thematic	Issues/concerns	Response
Technical	Whether the international communication cable would be affected during road reconstruction?	No—the cable alignment does not fall within the construction zone
	Project timeline	PIU answer: Construction is planned to start in mid-summer 2026 after completion of all tender procedures and contractor mobilization. Implementation period: 3 years
	Residents requested the project map to check whether their houses would be affected.	Drawings and layouts are available for review at the PIU or hokimiyat offices upon request.
	High number of accidents; Lack of separate bicycle lines; Lack of the sanitation facilities for passengers and drivers Lack of safe and comfortable road alignments, pedestrian cross-roads. In school area there are no sign board, zebra crossing and speed breakers.	At present time the technical team is focused on design of the new road facilities in order to increase safety of the passengers such pedestrian crossings, new alignments, installing of lights and additional safety road signs. The engineers pay special attention to the safety issues in the populated areas of the M-41 road. The construction of the additional pedestrian roads is included in the project design.
Environmental	What are the main risks in ecological and social impact?	The main issue is land acquisition, and this is being resolved. The completion of the road project will improve the ecological situation in the region since asphalt and concrete pavement will reduce dust generation and toxic gas emissions. In addition, road furniture such as signs, barriers, central line marking etc will increase the level of road safety.
	Valuation of assets and trees - Residents asked whether trees and other assets on their land would be evaluated.	Yes, all structures and vegetation — including houses, fences, buildings, and trees — will be assessed at market value, in accordance with national law and World Bank ESS5.
	How will people be informed on this project, will brochures be distributed? How will they be informed of their rights?	Project staff have made several site visits for different aspects (technical, environmental, social and resettlement); there have been meetings and consultations with local people and local government stakeholders; brochures have been distributed;
	Trees felled during construction should be compensated for to the owners and replanting should take place.	They were informed that the compensation package would be designed in accordance with GoU and World Bank Policy.
	Roads should have facilities for drainage on both sides with cross drains to minimize flooding and water logging.	The project team noted their concern and informed them of a potential mitigation strategy.

Thematic	Issues/concerns	Response
Social	Loss of Land/Farmland and other economic assets. This will cause financial loss, disruption of business or Agricultural activities. Loss of temporary structures among others.	Road rehabilitation will follow Existing road alignments as much as possible to avoid loss of assets/land. Any unavoidable loss of Land/farmland or assets or business will be compensated and implemented through a Resettlement Action Plan (RAP).
	There is no authority to issue a cadastre for illegal buildings under the Regulation 911.	Compensation will be determined based on GoU law and WB ESS. The entitlement matrix will be included in the RAP and shared locally.
	Residents asked how the land acquisition and notification process will be carried out.	Land acquisition will be conducted in several stages — valuation, review, payment, and only then signing the consent act — in accordance with Law No. ZRU-580 (29.07.2019), Cabinet Resolution No. 911 (16.11.2019), and World Bank requirements.
	A question was raised whether compensation would be provided to persons who previously commissioned property valuation at their own expense but whose assets are no longer affected under the new design	No final decision was made; it was recommended to escalate the matter for discussion with World Bank and PIU representatives. Suggestion: The hokimiyat representative proposed arranging a separate meeting with residents to review the situation in detail.
	Some participants asked whether their houses or businesses would be demolished, noting that they were included in the corridor in a previous road design.	Designers' answer: The drawings show that these assets are not subject to demolition in the current project version.
	Some women asked why their plots were not included for demolition, expressing interest in receiving compensation to purchase new housing.	The project is implemented strictly in accordance with right-of-way norms and the red line. Artificial inclusion of assets is not possible
	Bank cards and cash withdrawal - Residents asked how they could withdraw compensation funds without fees if the money is credited to a bank card.	Funds can be withdrawn directly from the bank's cashier without using a plastic card and without any commission, by submitting a written request to the bank chairman
	Vacating affected plots - Affected households asked when they must vacate their land after receiving compensation.	According to law, land must be vacated no earlier than one month after compensation is received, though in practice hokimiyats often provide additional time before demolition.
	Farmers asked whether compensation would be paid for felled trees and lost crops.	Yes, compensation will be paid for each tree and for lost harvests, following the approved valuation methodology.
	Residents asked whether the hokimiyat would assist in connecting utilities (gas, water, electricity) to new houses.	Resettled households will receive priority assistance in connecting essential utilities.
	Residents asked whether they could open businesses at new bus stops along the reconstructed road.	Yes, after project completion, businesses may be opened with hokimiyat approval and coordination with the Committee for Roads.

Thematic	Issues/concerns	Response
	Residents asked if they could set up temporary or mobile kiosks during road works.	The hokimiyat clarified that establishing temporary trading points without official permission is prohibited and requires separate approval.
	Residents asked how shops and kiosks within the road corridor would be handled.	All affected commercial properties will be compensated at market value, including the building, equipment, and loss of income.
	Entrepreneurs asked if they could continue operating until demolition.	Yes, they may continue business operations until construction or demolition begins, provided safety requirements are met. All owners will be notified in advance.
	Residents asked whether alternative land plots would be provided to resettled households.	Provision of alternative plots is not envisaged. All affected households will receive cash compensation at market value sufficient to purchase equivalent housing and land without worsening living standards.
	Farmers asked whether compensation would be paid if only part of a land plot is acquired.	Yes, compensation will be provided proportionally to the acquired area, including lost crops and improvements. If the remaining land becomes unusable, the entire plot will be acquired with full market-value compensation.
	Residents asked whether private land could be temporarily used for storage or machinery.	Temporary use is allowed only with written consent of the owner and with compensation for the duration of use.
	Residents asked about the condition of land after temporary use.	Upon completion of works, all temporarily occupied land will be reclaimed and returned to owners in no worse condition than before.

8.5. FUTURE ENGAGEMENT ACTIVITIES

At post-ESIA phase, the SEP will be implemented throughout the Project. The Stakeholder Engagement Program, covering the Post-ESIA Phase, is presented in Table 113. For the components of work and operation phase will be under the direct responsibility of the CAR during the operation phase, stakeholder engagement activities.

The Stakeholder Engagement Program for the Post-ESIA phase will be updated throughout the construction phase as part of periodical (at least annually) SEP update, also whenever necessary.

The future planned engagement methods are divided into the following categories:

- ❖ **Notification methods:** Used to inform stakeholders and the general population of the SEP activities and the project development process.
- ❖ **Disclosure and consultation methods:** Used to provide information to stakeholders or to engage in a two-way dialogue by which information is shared with the stakeholders and these in turn can express their views and concerns about the project.
- ❖ **External grievance mechanism:** System to receive and facilitate resolution of the stakeholder's concerns and grievances about project-related issues.

Table 113 describes the proposed timeline for the stakeholder engagement during the ESIA phase and the tools that are proposed for each stakeholder engagement phase and for each type of stakeholder.

The draft SEP will be updated to account for ongoing engagement during construction and operational phases.

Regarding all future engagement activities, considerations will be made for vulnerable groups. Resources distributed in meetings will be differentiated in a way appropriate to individuals. The stakeholder engagement programme will include activities which specifically target Project Affected Persons (PAPs), as well as disadvantaged and vulnerable groups. The program will also include risk prevention and mitigation measures for Gender Based Violence (GBV), Sexual Exploitation Acts (SEA) and Sexual Harassment (SH).

programme

Management	Location/ Timeline	Purpose	Consultation Disclosure Materials	Responsibility
				All stakeholder groups
	Location / Date: [TBC]	- Disclose and discuss the results of the ESIA study - Alternative meeting to the public hearing	ESIA package	E&S Consultant (with support from the Client)
As required throughout the project preparation, construction and operation phases	As required throughout the project preparation, construction and operation phases	- To provide up-to-date information on the Project status and construction/operation activities - To consult with the authorities on permitting, management of environmental, social, occupational and community health and safety risks and impacts - To establish collaboration mechanisms for emergency preparedness and response, cumulative impact management, etc. as necessary	Any specific documentation required by the authorities and other interested parties	CAR
At least 1 month prior to construction activities start Monthly throughout the construction phase	At least 1 month prior to construction activities start Monthly throughout the construction phase	- To provide/exchange up-to-date information on an ongoing basis in a timely, transparent, understandable, and efficient manner regarding the following; - Project status	Information packages including brochures, booklets, posters, flyers, maps summarizing the key up-to-date Project information in a non-technical and	CAR

Stakeholder Category	Stakeholder Engagement Methods	Location/ Timeline	Purpose	Consultation Disclosure Materials	Responsibility
	- Non-technical presentations - Focus group discussions/ separate informative meetings	be checked on a weekly basis Frequencies to be set by the Project Company prior to operation phase	- Planned stakeholder engagement events - Employment and procurement opportunities, unemployed population and their qualifications - To collect feedback, grievances, suggestions related with the Project and current activities on an on-going basis - To identify specific concerns/issues related to vulnerable persons and women, including gender-based violence (GBV). - To establish collaboration mechanisms for emergency preparedness and response and community	- related to submittal of the grievances/feedback and their management - Grievance and feedback forms and relevant guidance documents - Bi-annual reporting to affected communities - Non-technical presentations etc. - Brochures, flyers, materials designed for informing local communities including women and vulnerable groups/PAPs on key Project information, E&S issues relevant to the specific stakeholder group in a non-technical and comprehensible language /format	
Disadvantaged and Vulnerable People	- Focus group discussions/ separate informative meetings - Grievance and feedback boxes, forms and guidance documents posted/placed at places commonly and comfortably visited by women and vulnerable persons	Periodically in each mahallas throughout the construction phase Grievances and feedback will be checked on a weekly basis throughout the Project's construction phase Frequencies to be set by the Project Company prior to operation phase			CAR
Local businesses, suppliers, other industrial projects	- Face to face meetings with the local businesses in the region - E-mail correspondence - Telephone calls	As required throughout the construction and operation phases	To share/exchange information on local procurement and service provisions requirements and opportunities	- Specially designed information, reports, etc. related to required goods and services - Bi-annual reporting to affected communities	CAR
All stakeholder groups	- Disclosure online - Placement of paper versions of the ESIA/ESMP in public places - Leaflets in public places - Media announcements	As required throughout the construction and operation phases	Disclose and discuss the construction status and any major events due to take place (component delivery for example)	Notices	CAR
Local communities	Public hearing event (prior to commencement of construction)	Location / Date: [TBC]	- Community and road-user safety - Explanation of grievance mechanisms	ESIA package	CAR

Stakeholder Category	Stakeholder Engagement Methods	Location/ Timeline	Purpose	Consultation Disclosure Materials	Responsibility
along access roads and near to the project site			Advertise potential employment opportunities		
Regional Government Agencies	One-to-one meeting	Location / Date: [TBC]	Disclose and discuss the construction status and any major events due to take place (component delivery for example)	ESIA package	CAR
Mahalla Offices	- One-to-one meetings - Phone calls - Placement of paper versions of the ESIA in public places - Placement of leaflets and grievance forms	Location / Date: [TBC]	- Disclose and discuss the construction status and any major events due to take place (component delivery for example). - Advertise potential employment opportunities - Collect grievance/comment forms	ESIA package	CAR
All stakeholder groups	- Public event - Placement of leaflets in public places - Media announcements	As required throughout the construction and operation phases	- Disclose and discuss the construction status and any major events due to take place (component delivery for example) - Inform community of potential employment opportunities - Collect and provide feedback on potential grievances	ESIA package	CAR
Local Media	Sharing visual materials /informative texts / advertisements to be published with local and national media agencies	As required and on demand throughout the construction and operation phases	To convey public Project information to wider interested parties in a timely, transparent, and efficient manner	- Press Release - Visual materials/ advertisements related to Project - Video/audio records	CAR

9. GRIEVANCE MECHANISM

9.1. INTRODUCTION

A grievance redress mechanism will be implemented during the construction of the project. The mechanism will address any issues as they arise and will ensure the satisfaction of PAPs and maintain the project schedule⁴².

An outline for the mechanism is provided below, and should be used as a starting point for development of the final grievance redress mechanism. The World Bank's Environment and Social Framework 2018 (ESS10) provides guidance on the requirements of a grievance redress mechanism, and this should also be closely considered when the grievance redress mechanism is developed.

9.2. REPUBLIC OF UZBEKISTAN'S COMPLAINT HANDLING SYSTEM

From the national legislation perspective there is a centralized complaints mechanism (online portal) for all public utility providers that was opened in 2017 by Presidential Decree No728 of 15.09.2017. As this online portal is intended for wide range of issues brought to government attention, it was considered more appropriate to develop a single system/approach for receiving feedback and complains from stakeholders impacted by the development of the M-41 Bishkek-Dushanbe-Termez Project.

The Law of the Republic of Uzbekistan on the Appeals of Individuals and Legal Entities was introduced on 29 October 2014 and this law replaced the earlier law on Appeal of Citizens that was introduced on 13 December 2012. This law guarantees the right to appeal and prescribes the requirements of an appeal, its form and structure. Further, the timeline for addressing the appeal, the procedure for personal hearing, need for maintaining record of appeals and procedure for second appeal are prescribed.

According to the law, affected persons can submit their grievances through the Virtual reception of the President of the Republic of Uzbekistan, which is an online portal. From February 2018, the online version is updated and presented on this online portal. All citizens of the country can use different options for their appeals.

1. By calling the phone number 0-800-210-00-00 or the short number 10-00;
2. By using the online portal and filling out a special request form on the website <http://pm.gov.uz>;
3. By visiting the People's Reception Office. The address of the 14 People's Reception offices in each district of the Surkhandarya region are provided on its site.

Through this system, any persons from Kumkurgan, Dzarkurgan and Termez districts can send their applications, suggestions and complaints to the portal of the President of the Republic of Uzbekistan. After receiving the complaint from the Surkhandarya region, the responsible person from online portal will provide complainant with contact details of the responsible person from the Committee for Roads (CAR) under the Ministry of Transport. The CAR will directly request the PIU to resolve the grievance, with an option of sending the grievance through an email. In the new version of the Virtual Reception, the complainant can indicate the mahalla in which they live when submitting the appeal. This will speed up the solution of the problem, help determine which sector is responsible for the problem resolving.

⁴² This approach is aligned with the World Bank's Environment and Social Framework 2018, which seeks to ensure increased focus on environmental and social safeguards during construction and operation of projects

The online portal has provisions for checking the status of the grievance and further appeal if the appellant has been harassed for raising the grievance. If someone who sends a complaint is persecuted, she/he can quickly report it by pressing a special “button” on the same site. Such messages will be considered promptly and with high priority of involving law enforcement agencies.

9.3. STEPS IN MANAGING GRIEVANCE MECHANISM

9.3.1. Publicizing Grievance Management Procedures

The grievance mechanism of this Project will be publicised using the means outlined and as linked to the disclosure processes in the following ways:

- ❖ Posters.
- ❖ Future consultation meetings.
- ❖ Letters to the local and provincial authorities, and Online (website).

In addition, notices will also be provided at the Project entrance in regard of how to lodge a grievance and the process related to follow up. The information provided will be available in both English, Uzbek and Russian and will include the following:

- ❖ What Project-level mechanisms are capable of delivering and what benefits complainants can receive from using the company’s grievance mechanism, as opposed to other resolution mechanisms;
- ❖ Who can raise complaints (i.e. all stakeholders);
- ❖ Where, when, and how community members can file complaints;
- ❖ Who is responsible for receiving and responding to complaints;
- ❖ What sort of response complainants can expect from the company, including timing of response; and
- ❖ What other rights and protection are guaranteed.

9.3.2. Submitting a Grievance

Upon raising awareness and publicising the mechanism, grievances may be submitted by:

- ❖ Direct delivery to a sealed grievance box at the project site entrance;
- ❖ Submission by post or email; and
- ❖ Directly received by project personnel.

For illiterate complainants or those that prefer to submit their grievances verbally, they will have the possibility to meet with the relevant site E&S/HSE Manager who will take notes on the details of the complainant and read them out loud to the complainant to confirm that the key elements of the complaint have been captured. Where the respective manager is not available, security staff will take the grievances and ensure these are registered via the formal grievance process.

If an anonymous grievance (e.g. letter or email without details about the complainant) or the grievant requests to remain anonymous is submitted, the grievance will also be accepted and processed.

9.3.3. Keeping Track of Grievances

Upon receiving grievances submitted by any means mentioned above, the steps below will be followed to ensure all grievances are adequately investigated in order to avoid leaving any issues or concerns raised opened.

The following points receipt procedure rules will be followed for grievances:

- ❖ All incoming grievances will be acknowledged as soon as possible, no later than a week from receipt. A formal confirmation— with a complaint number, or other identifier, and a timeline for response— assures the complainant that the organization is responding properly, and it gives the project a record of the allegation. As a good practice, complaints received in person will be acknowledged on the spot;
- ❖ If a more complex investigation is required, the complainant will receive an update within two weeks of the grievance being received, explaining the actions required to resolve the complaint, and the likely timeframe;
- ❖ Contractor will explain in the first letter of acknowledgment, which claims are clearly outside the scope of the mechanism and what alternative mechanisms communities can use to address these potential issues.
- ❖ There will also be a special protocol for Gender Based Violence (GBV), Sexual Exploitation Acts (SEA) and Sexual Harassment (SH). This will include a safe, confidential and accessible grievance mechanism which is utilisable by the local community. An anonymous line will also be established for reporting which is gender sensitive. Once grievances are received, a review committee, where women, vulnerable groups and all genders are represented appropriately, will investigate grievances. The committee will also work with local community organisation to coordinate grievance redress measures.

9.3.4. Reviewing and Investigating Grievances

To ensure that all grievances are adequately investigated and closed out, a grievance log will be kept, documenting all the actions taken to address each grievance.

An extensive investigation may be required when grievances are complex and cannot be resolved quickly. Contractor will take full responsibility for investigating the details of grievances coming through its grievance mechanism, following the principle of “no cost”.

In cases of sensitive grievances - such as those involving multiple interests or displacement issues - it may help to engage outside organizations in a joint investigation, or allow for participation of local authorities, only if the complainants agree to this approach.

For complex grievances, an investigation team will have to be appointed. If the investigation team is formed internally, issues that will be taken into consideration include potential conflicts of interest, qualifications, gender composition, and budget.

Meetings with complainants and site visits can be useful for grievance investigation and will be undertaken, as appropriate. Complainants will be informed weekly of the status of their grievance.

All grievances received will be captured in Grievance Forms which will then be forwarded to the Contractor HSE Manager. The grievance will be registered in a grievance tracker in order to track and monitor actions taken against the grievance. Each complaint will be assigned an individual number to ensure that it is appropriately tracked and closed out.

It is important that the process is easily accessible and not intimidating to stakeholders.

There will also be a special protocol in place for sensitive grievances including GBV, SEA and SH. The review committee will investigate these types of grievances with an element of sensitivity and work with community organisations in delivering suitable grievance redress mechanisms.

All grievances will be investigated by the responsible Project party within 2 weeks of submittal. Where grievances require a longer duration for investigation, the grievant will be informed of this delay and advised of the expected timeline for a response.

9.3.5. Acknowledge Grievance

Contractor will acknowledge receipt of the grievance in writing and verbally and will provide information on the proposed steps and the anticipated timeframes required to resolve the grievance.

This acknowledgement will be provided to the complainant within five (5) days of receiving the grievance or within 24 hours in the event of an urgent concern which is deemed to have the potential to result in personal injury.

If the grievance is not well understood or if additional information is required, clarification will be sought from the complainant.

It is suggested that literacy levels are taken into consideration when providing the complainant with the acknowledgement of receipt, and verbal acknowledgement should accompany a written acknowledgement.

Where appropriate, acknowledgement should be provided through the CLO.

9.3.6. Assessing the Grievance

During the assessment, the team gathers information about the case, key issues and concerns, and helps determine how the complaint might be resolved. Contractor will:

- ❖ Determine who will conduct the assessment. Typically, the Contractor HSE Manager will perform this task or directs it to an appropriate staff or department for assessment (production, procurement, environment, community relations, and human resources).
- ❖ Select a company member (typically the CLO) to engage directly with the complainants to gain a first-hand understanding of the nature of the complaint.
- ❖ Clarify the parties, issues, views, and options involved:
 - Identify the parties involved.
 - Clarify issues and concerns raised by the complaint.
 - Gather views of other stakeholders, including those in the company.
 - Determine initial options that parties have considered and explore various approaches for settlement.
- ❖ Classify the complaint in terms of its seriousness (low, medium, high). Seriousness includes the potential to impact both the company and the community.

Issues to consider include the gravity of the allegation, the potential impact on an individual's or a group's welfare and safety, or the public profile of the issue. A complaint's seriousness is linked to who in the company needs to know about it and whether senior management is advised.

Rather than resorting to a purely unilateral "investigate, decide, and announce" strategy, engage more directly with the complainant in the assessment process, and involve the complainant in influencing the resolution process to be selected, and settlement options.

9.3.7. Grievance Resolution Options and Response

One of the potential advantages of a grievance mechanism is its flexibility. Rather than prescribe a specific procedure for each particular type of complaint, a list of possible options appropriate for different types of grievances will be provided. Options may include altering or halting harmful activities or restricting their timing and scope (e.g. for construction noise), providing an apology, replacing lost property, providing monetary compensation, revising the community's engagement strategy, and renegotiating existing commitments or policies.

The grievance investigation team will provide a proposal to resolve the complaint, which will have the backing of the Senior Management. The HSE Manager will then contact the complainant to get an agreement on the proposed solution.

If all parties accept the proposed solution, the agreed actions will be implemented in the established timeframe. In the case that complainant does not accept the proposed resolution, Contractor should re-assess the situation and make sure that all alternatives within the grievance mechanism are explored. If agreeing on a solution acceptable to all parties is not possible within the grievance mechanism, the complaint will be referred to external mechanisms.

Close-up monitoring of a complaint will be undertaken, if possible, by collecting proof that the necessary actions have taken place. For example:

- ❖ If the issue was resolved with the satisfaction of the complainants, get a confirmation and file it along with the case documentation, and
- ❖ Take photos or collect other documentary evidence to create a comprehensive record of the grievance and how these were resolved.

The system for responding to the complainant should specify who communicates and how. In some cases, it may be appropriate that feedback be provided by the staff member responsible for assessment accompanied by the coordinator of the complaints procedure.

The Contractor HSE Manager may participate in feedback, depending upon the seriousness of the complaint. Any complete classed as high seriousness would include the HSE Manager. Medium complaints would include the HSE Manager where deemed appropriate.

When formulating a response Contractor will ensure that:

- ❖ The complaint coordinator or relevant department may prepare the response. The response should consider the complainants' views about the process for settlement as well as provide a specific remedy. The response may suggest an approach on how to settle the issues, or it may offer a preliminary settlement.
- ❖ To present and discuss the response to the complainant, consider holding a meeting with the complaint coordinator, relevant company manager, and the complainant. If a direct meeting is not possible, consider meeting with a neutral third party serving as facilitator. The group would also discuss appropriate next steps during this meeting. If the proposal is a settlement offer and it is accepted, the complaint is resolved successfully and there is no need to proceed to the next step of selecting a resolution approach. If the complainant is not happy with the response about a resolution process or substance, the group should try to reach an agreement that would be mutually acceptable.
- ❖ If the case is complex and a resolution time frame cannot be met, provide an interim response—an oral or written communication—that informs the person of the delay, explains the reasons, and offers a revised date for next steps.

All comments and complaints will be responded either verbally or in writing, in accordance with preferred method of communication specified by the complainant in the Comments and Complaints Form. Comments will not be considered as complaints and may not, therefore, be responded to unless the commenter requests a response.

Contractor will respond to the complaint within one week. It is possible that some responses may take longer than one week to implement, but even in those instances Contractor will inform the complainant what actions will be taken and when.

9.3.8. Sign-off on a Grievance

Contractor will seek sign-off from the complainant(s) that the grievance has been resolved. This will be achieved via a Grievance Resolution document.

All grievances are to be signed off at an appropriate level of seniority of staff. The staff member who signs off the complaint should have sufficient knowledge about the topic to provide assurance.

Once sign-off has occurred, this will be recorded in the Grievance Form. Any grievances not signed-off as resolved will be investigated further.

9.4. Process Flow and Timeline

The approaches taken to resolve grievances will depend on the nature, frequency of occurrence and number of grievances.

The resolution of the grievance will be formally communicated to the applicant in written form. In the case that a complainant cannot receive a written response, the complainant will be contacted via phone call and informed of the results of their grievance.

The following table provides the timeframes for response to grievances.

Table 114: Grievance Process and Timeline

Stage	Timeline
Grievance Received / Submitted	-
Grievance logged and acknowledged	Within 7 working days of grievance being submitted
Grievance investigated	Within 14 working days of grievance being submitted
Proposed resolution conveyed to grievant	Within 14 working days of grievance being submitted
Reassessment of grievance in case if the complainant is not satisfied with the previously provided response	Maximum 2 weeks after notification of dissatisfaction by the complainant
If applicable following dissatisfaction of resolution by Grievant	
Actions to re-assess grievance/propose new solution/inform Grievant of final decision	Within 14 working days of notification of dissatisfaction by Grievant
In the event that a grievance cannot be resolved between the two parties a mediator will be involved i.e. local leaders who understand the culture and practices within the Project site.	Within 14 working days of notification of dissatisfaction by the Grievant.
Grievances that are not resolved at the project level - a grievance committee involving senior management from Contractor, municipality and any other relevant authorities (if required).	Within 30 working days of notification of dissatisfaction by the Grievant.

Note: Where complex grievances, or other factors are extending the investigation time, the Grievant will be informed of this delay and advised of an updated expected timeline for response.

In addition, where a solution has been provided to a grievance/complaint and the grievant is not satisfied with the proposed solution, the grievant can take the dispute resolution mechanism outside of the company/Project grievance mechanism. An example of such external grievance mechanism will be the people's "Reception Office" established in accordance with the Law of the

Republic of Uzbekistan ‘Regarding appeals of individuals and legal entities’ No 378 dated 3.12.2014 (with amendments on 17th August 2017). The people’s ‘Reception Office’ is tasked with ensuring the functioning of an effective system of appeals aimed at the full protection of citizens’ rights, freedoms and legitimate interests. Any applications are considered within 15 days from date of receipt and any additional consideration is completed within 1 month.

In cases, when the applicant is not satisfied with the proposed solution/response to the grievance, they have the right to take other legal action to resolve the grievance. The complainant also has the right at any time to choose the regular Uzbekistan system of submitting and resolution of grievances.

9.5. GRM Levels

The PIU of CAR will establish a simple and accessible Grievance Redress Mechanism (GRM). The GRM provides a number of avenues and levels for grievance resolution and appeals process.

The main objective behind project specific grievance mechanism is to ensure timely and user-friendly solution to the complaints received from the project affected persons (PAP). However, the Project Grievance Redress Mechanism does not prevent any affected household to approach the national/ Government legal system to resolve their complaints at any stage of the grievance redress process. The PAPs can address their complaints to the courts at any time and not only after using the GRM.

1. Level 1 (Contractor / Mahalla / Village Assembly). Under this project grievance redress mechanism, complaints can be submitted to Contractor, Mahalla, Village Assembly of Citizens, Farmer Councils, and Women Association at the first level. The Contractor or mahalla/village assembly will try to resolve or clarify the issue within 2 weeks. Unresolved issues will be referred to the district hokimiyat Grievance Focal Point (GFP).
2. Level 2 (District Hokimiyat). In case, complaint is submitted to the GFP, the GFP will establish a contact with the CAR and its PIU, mahalla and other bodies such as village assembly of citizens, farmers councils of which AH are members and will try to resolve the issue.
3. Level 3 (Project Implementation Unit). The CAR through its PIU on a regular basis will check with the GFP whether any complaint is received by GFP. The PIU, on receipt of a complaint from GFP or any other local bodies, will immediately take the following actions:
 - (i) Will inform the complainant within 2 days
 - (ii) Inform WB;
 - (iii) Establish complaint handling team with members Head of PIU, representatives from CAR area representative office, District Hokimiyat. The team will be headed by one of the CR management staff designated for handling grievances of the project.
 - (iv) The team will consult the complainant and gather complainant’s concerns;
 - (v) All complaints will be resolved in 5-10 days, and in case additional details are required, a maximum of 30 days will be used to resolve and close the complaint.
 - (vi) If complaint is not resolved by Project Grievance Mechanism Team, the PIU will inform WB office and District Hokimiyat regarding the same.
4. Level 4 (Provincial Hokimiyat). If a grievance is not resolved within 30 days, the complainants or her/his representative can submit its complaint to the provincial hokimiyat. The Provincial hokimiyat will also have 15 calendar days to resolve the complaint.
5. Level 5 (Court). If the complaint is still unresolved, the complainant can submit his/her complaint to the appropriate court of law.

The grievance mechanism applies equally to affected households who wish to seek grievance in project district. When reference is made to the Mahalla, it is to the Mahalla that the affected households is a member of. In massives where affected households are not members of a specific Mahalla, the Village Assembly of Citizens or Farmer Councils, or Women Association can play a role similar to that of Mahalla. The district refers to the district that has administrative jurisdiction over the Mahalla of the affected households.

The PIU will be responsible for recording the complaint, the step taken to address grievance, minute of the meetings, and preparation of a report for each complaint. The complaint handling process will be reported to WB through the project implementation report.

9.6. Grievance Mechanism Contact Details

The following details will be provided to the stakeholders in order to be able to submit their grievances or comments regarding the proposed Project.

Table 115: Stakeholder Engagement - Grievance Mechanism Contact Details

Pre-Construction Phase	
Project Phone Line	Phone +998 71 286 11 84
Project E-mail	ctsi.project.uzb@gmail.com
Official Letter Address	Mustakillik avenue 68A, Tashkent, Uzbekistan
Contact person	Mr. Jahongir Karimov, Director
Contractor (Construction Phase)	
Contractor CLO	Contact details to be confirmed CLOs will collect grievances during public and individual meetings, through phone calls, e-mails, etc. and manage them as per Project SEP. Where required, CLOs will help stakeholders on how to fill in grievance forms.
Grievance forms and boxes	Grievance forms and boxes will be placed in all mahallas affected from Project and at relevant work sites.
Operation and Management office of CAR (Operation phase)	
Operation and Management office of the CAR	Contractor - Contact details to be confirmed Social Manager will collect grievances during stakeholder meetings, through phone calls, e-mails, etc. and manage them as per Project SEP.
Project Owner Social Manager	Social Manager will collect grievances during stakeholder meetings, through phone calls, e-mails, etc. and manage them as per Project SEP.
Country complaint handling system	
District hokimiyat	Hokimiyat of Djharkurgan, Kumkurgan and Termez districts
Provincial hokimiyat	Hokimiyat of Surkhandarya region
National level	Virtual reception of the President of the Republic of Uzbekistan ❖ By calling the phone number 0-800-210-00-00 or the short number 10-00; ❖ By using the online portal and filling out a special request form on the website pm.gov.uz; ❖ By visiting the People's Reception Office. The address of the 14 People's Reception offices in each district of the Surkhandarya region are provided on its site.

The CSC, Contractor and O&M Company's contact details will be confirmed before the commencement of the construction and operational phases as applicable

9.7. Project Information Centre

The table below provides proposed location where project documents and information can be disclosed in the project area so that local community members can physically access project documents during the construction and operational phase. It is noted that some of these locations were also used during the ESIA public disclosure as provided in Table 116.

Table 116: Proposed location for Project Information Centre

Municipality / Village	Location	Justification
Makhalla communities along Project road sections	Makhalla community building / administration office	Community members can readily access this location and placing the grievance box and projects documents at the Makhalla Office will allow community members be exposed to project information regularly.
Kumkurgan, Dzarkurgan and Termez District Khokimiyats	The employment assistance centre at Project districts	This employment centre is the centre for establishing grievance boxes in the district and it serves as an information centre for local residents as well.
District Khokimiyats	District Khokimiyats	Local people have an open access to this municipality making it a suitable location for placing grievance boxes and disclosing project documents

The Contractor and CSC Company will be required to undertake further consultation with community leaders and elders to determine the suitability of the proposed locations. If necessary, the locations proposed in the table above will be updated.

In addition to the availability of project information and documents at the proposed locations, grievances will also be received at these community offices/centres. All grievances received will be processed in a timely manner as outlined in Section 9.3 herein.

Furthermore, the CSC Company in coordination with local government authorities will install an information board at the entrance of the Project District Khokimiyats to provide information about the project which will include for example a project map, the construction schedule, GRM contact details, job opportunities available to locals, etc.

10. ENVIRONMENTAL AND SOCIAL MANAGEMENT PLAN

10.1. Overview

ESMP is prepared as part of the ESIA to support the ongoing implementation of E&S requirements for the Project as separate document. The objectives of the ESMP are to:

- ❖ Clearly describe the required components of the CAR and Contractors environmental and social management system (ESMS) for the construction and operation phase.
- ❖ Provide overview of the CAR corporate structure for implementing projects.
- ❖ Confirm compliance obligations.
- ❖ Establish objectives of the ESMP (construction and operation).
- ❖ Define roles and responsibilities for implementation of the requirements of the ESMP.
- ❖ Outline capacity building and training requirements (all parties).
- ❖ Set minimum requirements for inspection, audits and reporting.

10.2. ESMP objectives

A summary of the key obligations from the ESIA phase is provided in the conclusions below. These will be elaborated in the ESMP to provide further information on:

- ❖ Outcomes or targets
- ❖ Timeframes
- ❖ Responsibilities
- ❖ Resources required
- ❖ Monitoring activities

10.3. Management Strategy

This ESIA is a first step to screen and preliminarily assess environmental and social risks of the proposed upgrading of M41 road from 2-lane to 4-lane. Based on the ESIA, there appears to be no show stopper in the proposed upgradation of M41 Road. The option to upgrade the existing road within the existing RoW as opposed to constructing a new road or new alignment has taken into serious account key environmental and social risks and impacts and potential show stoppers. If designed and implemented properly following mitigation hierarchy, risks and impacts can be managed.

A separate ESMP has been prepared and included mitigation measures, monitoring plan, capacity building, responsibilities and reporting system and environmental and social costs. The key issues regarding the labor will be managed in compliance with Land Code of the RUz, No. 598-I dated April 30, 1998 and WB ESF 2018 through comprehensive Labor Management Procedures. Established GRM will help to lodge grievances and its resolution. The ESMP obligates the Contractors, upon mobilization, to prepare the Contractor's (C-ESMP), which shall be prepared prior to the commencement of construction activities. The C-ESMP shall include OHS plan, Water and Waste Management Plan, Influx management Plan, Traffic management and road safety management Plan, Quarry/borrow area management plan, and Site restoration Plan among others in accordance with the GoU and IFC&WB⁴³ guidelines.

The Biodiversity Management Plan (BMP) has been prepared as separate document and detailed all the requirements necessary to avoid and minimise impacts on Biodiversity and restore its

⁴³ <https://www.ifc.org/content/dam/ifc/doc/2000/2007-general-ehs-guidelines-community-health-and-safety-en.pdf>

nature conservation value post-construction. The BMP has been prepared following the assessment of potential impacts and relevant and associated mitigation measures as defined in the Environmental and Social Impact Assessment (ESIA). The BMP collates all the biodiversity mitigation into a single document and dictates how it will be implemented during pre-construction, construction and operation, including who is responsible for each action. Indicative budget for tree cutting/replanting was prepared in BMP.

A separate RAP will be prepared to address land acquisition and physical and economic displacement as a result of land acquisition. All losses (private and public assets) will be compensated with replacement costs as per RAP in accordance with ESS5 and GoU requirements. A Resettlement Policy Framework was prepared and disclosed by CAR to guide the preparation of a RAP for M41 Road.

10.4. Environmental and Social Monitoring Plan

The mitigation measures proposed in ESMP will be carried out by the responsible implementing agencies. However, to ascertain whether the mitigation measures are implemented properly and whether the implemented measures are capable of mitigating the adverse impacts as intended, conducting environmental monitoring is essential. The monitoring of the ESMP will: 1) track and report the effectiveness of the mitigation measures and responsibilities identified and conducted through the ESMP; 2) inform on the need to expand, increase or adjust mitigation measures; and 3) identify any potential new areas of impact exposure that were not identified in the ESMP.

ESMP monitoring begins along with the start of construction activities and continues throughout all subsequent project phases.

The following environmental monitoring parameters were prioritized for inclusion in the monitoring plan:

- ❖ Air quality
- ❖ Water quality
- ❖ Soil
- ❖ Noise levels
- ❖ Waste
- ❖ Hazardous material use
- ❖ Worker safety
- ❖ Social impacts
- ❖ Traffic and pedestrian safety
- ❖ Biodiversity
- ❖ Maintenance during operational phase.

10.5. Training & Awareness

10.5.1. Construction Phase Training

Training Plan

ESHS training sessions will be organised in accordance with a Training Plan developed by the Construction contractor and approved by the PIU. The Plan will outline training requirements, topics and areas of capacity building, and the staff who require on the job training. The initial training plan will be prepared and approved prior to the commencement of construction works. Training will be reviewed monthly, annually and on a needs basis.

During construction, the contractor E&S Officer will update and implement the Training Plan. Training records will be maintained for each employee, to provide evidence for auditing/inspection purposes.

Induction Training

The Construction contractor will ensure that all workers have been inducted. All new employees will receive site induction to appraise them of ESHS aspects on site, the basic rules of work on site and the use of PPE and the prevention of injury to fellow employees.

Induction will also cover the following topics:

- ❖ ESHS Policies
- ❖ Project Standards
- ❖ Code of Conduct
- ❖ Environmental and social risks and impacts of Project activities
- ❖ ESHS instructions and CESMP
- ❖ Emergency Response Plan

After Induction, Project personnel will receive an Employee Handbook that contains information on employee training, emergency telephone numbers and basis ESHS requirements.

Personnel required to visit the construction site must also complete the site induction. Generic induction will consist of basic hazard awareness, safe work practices, and emergency procedures for fire, evacuation, etc.

Project Training

ESHS and ESMP

All those involved in the management and implementation of any aspect of the Project ESHS and CESMPs will be adequately trained. Training should include:

- ❖ Why the environment needs to be protected and conserved;
- ❖ How construction activities can impact on the environment;
- ❖ What can be done to mitigate such impacts;
- ❖ Awareness of the CESMP;
- ❖ Awareness of the emergency preparedness and response plans; and
- ❖ Social responsibility during construction e.g. being considerate to local residents.

Job-specific

Prior to commencement of new assignments all workers will receive adequate training and information covering:

- ❖ Knowledge of materials, equipment, and tools;
- ❖ Potential risks to health;
- ❖ Precautions to prevent exposure to potential health risks;
- ❖ Hygiene requirements;
- ❖ Use of task specific PPE; and
- ❖ Appropriate response to operational incidents and accidents.

Where necessary, training will be provided for employees carrying out specific job functions to educate and train them on topics, such as PPE use, safe driving, working in confined spaces, handling hazardous materials, etc.

Toolbox Talks

Toolbox talks will be held as necessary to address specific issues before commencing work. For specific situations, where necessary external training experts will be invited to provide technical support.

10.5.2. Operation Phase

The requirements for training during the operational phase will be determined by the CAR and included in the CESMP.

11. CONCLUSIONS

The Project is considered to be suitable for development and able to comply with national regulatory framework and the requirements of World Bank's Environment and Social Framework 2018, each of the ten standards (ESS1 to 10) subject to implementing WBG ESHG. The project can be developed in accordance with:

- ❖ ESS 1 - Assessment and Management of Environmental and Social Impacts and Issues;
- ❖ ESS 2 - Labour and Working Conditions;
- ❖ ESS 3 - Resource Efficiency and Pollution Prevention and Management;
- ❖ ESS 4 - Community Health and Safety;
- ❖ ESS 5 - Land Acquisition, Restrictions on Land Use and Involuntary Resettlement;
- ❖ ESS 6 - Biodiversity Conservation;
- ❖ ESS 8 - Cultural Heritage; and
- ❖ ESS10 - Stakeholder Engagement and Information Disclosure.

11.1. Stakeholder Engagement

A systematic approach to stakeholder engagement has been employed that has sought to build a constructive relationship with stakeholders, particularly the directly affected communities.

Stakeholder engagement and consultation has been performed throughout the ESIA process as defined in the SEP and summarised in Chapter 8.

A program for effective engagement going forward is set out in the Project Stakeholder Engagement Plan (SEP) alongside a project community grievance mechanism.

11.2. Key Environmental Issues

Air Quality - Construction phase impacts are anticipated, but with application of GIIP, residual impacts will not be significant apart from the impacts of dust, which are unfortunately difficult to completely eradicate on projects of this size and scale. Operational air quality impacts are anticipated to improve due to the improved condition of the roadway (elimination of cracks and potholes) and requirements to seal shoulders which are currently a source of significant dust.

Climate Change - Several mitigation measures are proposed based on the findings of this ESIA and the Project FS. However, it is noted that further assessment of climate change impacts and mitigation measures should be undertaken at the detailed design phase of the Project.

Soils - Mainly generic mitigation measures are applicable to protection of soils. No significant residual impacts are anticipated if the proposed design, construction and operational mitigation measures are applied.

Hydrology - impacts to hydrology can largely be mitigated by the application of GIIP. However, it is noted that the number of bridge piers in the river could impact negatively on river morphology as well as river ecology. This is discussed in more detail under the topic of biodiversity.

Biodiversity - Habitat and species of conservation importance are present in the Project area. Specific measures have been identified to limit the impacts to biodiversity along with measures to ensure no net loss of habitat. Monitoring of the proposed mitigation measures during the operational phase will be needed as part of a Biodiversity Action Plan to confirm their success or if the proposed mitigation needs to be adapted.

11.3. Key Social Issues

Noise - Elevated construction phase noise is anticipated, and mitigation measures are provided based on GIIP. But as with air quality, total elimination of noise impacts is not possible on a Project such as this. However, any residual construction impacts are anticipated to be of low significance. Operational phase impacts are not expected to be significant based on the relatively low traffic growth over the next twenty years. No specific mitigation measures are recommended as long as the planned designs in urban areas are contained to the proposed 15m in these areas.

Vibration - Operational impacts are not anticipated. However, there is a risk that construction phase impacts could be significant, specifically from the use of vibratory rollers during compaction works. The ESIA requires that the roadway is kept a minimum 7m from residential properties to protect them from damage. Further, condition surveys and vibration monitoring are recommended to provide an additional layer of oversight and the possibility to apply additional mitigation measures to prevent vibration impacts.

Waste Management - Most impacts associated with waste during construction and operation can be adequately managed through application of the proposed mitigation measures in this ESIA. Two other slightly more complex issues exist relating to spoil disposal and asbestos. Although significant volumes of spoil are not anticipated, specific management plans to dispose of spoil will need to be prepared. Regarding asbestos, the FS has identified its presence and additional asbestos surveys are proposed to determine the exact presence of asbestos containing materials in the Project area and if they will need to be removed under the scope of Project works.

Traffic - increased traffic disruption is likely during the construction phase. Despite the proposed mitigation measures it has been determined that significant disruption to traffic cannot be eliminated and that medium significance residual impacts will remain.

Land Acquisition & Livelihood Restoration - The ESIA concludes that a wide range of impacts will occur and that none of them can be mitigated to any specific degree that reduces the residual impact significance.

Labour impacts can be experienced by workers working on the project and by community members considered 'local' (in this case assumed to mean up to 15 km from the Project site - but to be further defined by the Main Contractor). Potential labour impacts during the construction, and operation include (i) job creation and increased local spending in the local economy (positive); (ii) poor working terms and conditions affect worker wellbeing (including forced and child labour); (iii) gender-based violence and harassment (GBVH) in the workplace affecting worker wellbeing; and (iv) working accommodation risks are associated with safety issues, such as medical check-ups on an annual basis, sanitary and hygiene norms, etc.

GBV/SEA/SH - There is no evidence that the Project will impact gender-based violence and harassment (GBVH), or that the Project is in a location where GBVH is prevalent.

Safety & Working Conditions - A wide range of impacts to community safety, worker safety and road safety have been identified in this report. Best practice mitigation measures have been proposed for all the impacts after which most impacts will be of either low significance or not significant.

ANNEX 1: ESIA SCOPING

E&S Aspect: Construction (C) / Operation (O)	Potential source of impact, receptors and scoping evaluation	Scoped In / Out
Air quality (C)	During construction, the release of combustion gases will mostly be from vehicles transporting materials and equipment to site and potentially from mobile sources such as mobile generators in the construction camp site. These may increase concentrations of atmospheric pollutants (NOX, PM, CO and SO2) locally to a limited extent and over a short time. Construction vehicles will be mobilized in work sites. Combustion emissions generated on the construction zones are an unavoidable consequence of the construction phase. <u>Dust</u>- The principal sources of dust and particulate emissions during construction will be: ❖ Excavations and earthworks, ❖ Particulate dispersion from operation of the batching plant; ❖ Vehicle movements on unpaved, or compacted surfaces; and ❖ Particulate dispersion from uncovered truckloads. During the construction phase sensitive receptors will mainly be residents affected by dust, and to a lesser degree by combustion emissions. It is possible that some agricultural crops could also be affected by dust.	✓
Air quality (O)	The main source of air pollution during the operational phase will be vehicles moving on the highway. The main pollutants are: Carbon Monoxide (CO); Nitrogen Dioxide (NO ₂) and particulate matter (PM _{2.5} and PM ₁₀). Sensitive receptors will be residents living within the AOI.	✓
Noise (C)	Noise impact will arise due to the use machinery and construction-related traffic due to works along Project Road. Noise related impacts will generally dissipate more than 500 m from the source of the noise. Since the Project Road passes through number of living communities there is potential noise impacts to residents. It is unlikely there will be any requirement for blasting; however, this is also a potential intermittent noise source. The management of short-term noise for community and workers safety may be required; therefore, the source of noise, impact assessment and mitigation measures should be defined.	✓
Noise (O)	The main source of noise during the operational phase will be from the movement of vehicles along the roads. Elevated noise levels can have significant health impacts to people living and working close to the road.	✓
Vibration (C)	Piling, movement of heavy trucks on access roads all have the potential to result in elevated levels of vibration. Vibration may result in a nuisance to residents, but it may also impact upon structures causing cosmetic and structural damage.	✓

E&S Aspect: Construction (C) / Operation (O)	Potential source of impact, receptors and scoping evaluation	Scoped In / Out	
Vibration (O)	Highway traffic is not likely to have any measurable impact on the structures or on comfort.		X
Landscape and visual impact (C)	Construction activity may constitute a visible activity (presence of construction traffic, compound, plant and equipment), that may modify the landscapes in which they are set and there may be localised light pollution. However, these will be temporary, short term/transient activities that will be reversible. Project road is expected to be built sequentially. Construction site support buildings are unlikely to be present for more than a few weeks at any one location. Potential landscape and visual impacts from these sources are therefore regarded as negligible.		X
Landscape and visual impact (O)	The Project involves upgrading of an existing road. There will be some change visually to the local environment as a result of a wider and slightly elevated road. The alignment is not located in a cultural landscape or in an area that could be considered important for tourism. However, the visual changes should be discussed with the local population to further understand if these changes constitute a significant impact.	✓	
Hydrology (C)	Since Project Road crosses numerous irrigation channels and the Surkhandarya River there is a possibility that impacts to these areas could occur, for example from spills and leaks of fuel and oil. Construction works in the river itself (construction of bridge piers) can also have impacts to river ecology and water quality (e.g. increased turbidity). The potential to impact upon groundwater users is lower, but still a possibility.	✓	
Hydrology (O)	Apart from the risk of a major spill from a tanker truck the risk of impacts to hydrology is not significant.	✓	
Waste (C)	Construction-related waste will be a mixture of inert material (soils), general/domestic construction waste and hazardous wastes (e.g., oils, paints, greases etc.) and some biomass resulting from the clearance of the RoW, excavation and site levelling, civil works, equipment installation (packaging, metals, paints, coatings), electrical cutoffs and domestic waste. One of the key waste generated will be the existing pavement and concrete structures, such as demolished bridges. Waste materials can pollute the surrounding environment. Further improper disposal of hazardous wastes can have negative health impacts. It is unknown at this stage what volumes of spoil material maybe generated by the projects, but given the flat nature of the road no cut work is foreseen than could generate significant volumes of spoil.	✓	
Waste (O)	Operational phase waste will be generated by maintenance works. It is anticipated that any wastes are removed from the site area by the municipal service for offsite disposal or storage. Further, it has already been identified during site visits that garbage from road users litters the roadside.	✓	
Climate change (all phases)	The projects construction and operational phases will generate greenhouse gas emissions. GHG emission will be moderate during construction stage due to engagement of large machinery and other technical work. At the operation stage GHG will be associated with vehicular emission.	✓	

E&S Aspect: Construction (C) / Operation (O)	Potential source of impact, receptors and scoping evaluation	Scoped In / Out	
Climate resilience (all phases)	Changes in temperature and precipitation may potentially affect project infrastructure, e.g., increased temperature could increase road rutting and through increased risk of flooding. Poorly designed drainage systems, not accounting for climate change, can also affect the road and also neighbouring land uses.	✓	
Soils and land quality (erosion potential)	Potential impacts to soils on pre-construction and construction stages include: ❖ Damage and/or loss of topsoil – the impact may occur in case the topsoil is not removed; mixed with subsoil and/or other material during and after removal. Impact on topsoil outside the boundaries of the project buffer may also happen. ❖ Erosion - It is possible, that without adequate protection measures soil erosion could occur on cut slopes and embankments. ❖ Use of borrow pits ❖ Induced changes in the project area leading to commercial development are conceivable, thereby decreasing soil availability for agricultural purposes. ❖ Contamination due to spills or hazardous materials - Potential soil contamination is a possibility resulting from poorly managed fuels, oils and other hazardous liquids used during the project works as well as poorly managed waste (solid and liquid waste streams) at construction zones.	✓	
Water resource use (C)	Water will be required during the construction phase at work sites, to dampen roads, for technical use (e.g. concrete batching), etc.	✓	
Water resource use (O)	Operational water use requirements are expected to be negligible.		X
Habitat conservation importance of	Potential impacts will arise from the clearance of the tree, clearance according to reconstruction plan, clearance areas for work' sites and other support facilities. The high speed of vehicles on new road can increase the roadkill of small animals, which could attract raptors and cause their death as well. Overall, the habitats potentially impacted by the project do not include highly restricted or threatened habitat types.	✓	
Tree Cutting	A lot of trees are located within the RoW. A number of the trees will need to be removed to make way for the road widening. However national legislation may hinder this process.	✓	
Land use	Resettlement and compensation will be required for properties located within areas required for construction.	✓	
Labour and working conditions (O)	Operational phase aspects will follow national requirements for labour and working conditions. No significant impacts anticipated.		X

E&S Aspect: Construction (C) / Operation (O)	Potential source of impact, receptors and scoping evaluation	Scoped In / Out	
Occupational Health and Safety & Worker rights (C)	A project of this type and scale has the potential for a wide range of accidents and incidents, such as traffic accidents, accidents involving the use of machinery, etc. Receptors are construction workers. The health of workers and their labour rights can also be impacted for example through poor accommodation facilities and contracting mechanisms that do not respect national and WBG ESHGs ⁴⁴ requirements.	✓	
Community, health, safety and security	A range of potential health and safety impacts to the community exist, e.g., communicable diseases, public access to worksites, GBV/H, etc.	✓	
Traffic and Transportation (C)	During the construction phase, the Project will be adding a mix of light, and heavy and slow-moving vehicles onto the road network. This will include vehicles transporting workers, trucks carrying heavy equipment between work areas and haul trucks moving spoil. The potential impacts include the increased risk of collisions and road transport accidents (potentially resulting in injury, death, or fuel or cargo spillage) and subsequent harm to animals, local shepherds and communities. Local residents and livestock could also be prone to accidents at work sites, for example, falling into excavated areas, tampering with work equipment, etc. As such it is important to ensure that residents are warned of any potentially dangerous areas and that these locations are appropriately demarcated or fenced off.	✓	
Emergency preparedness and response (all phases)	Major accidents and incidents at work site and camp sites can occur, e.g. explosions and fires. These can have significant impacts to workers and the local community. However, this risk of such events is considered to be of low probability. It is also possible that emergencies could occur during the operational phase and this relates to traffic accidents that could result in spills and leaks of hazardous liquids (which could affect water courses).	✓	
Cultural Heritage (O)	Damage to tangible and intangible cultural heritage areas can occur during the construction phase at work zones close to PCR sites. It is likely that impacts to graveyards will occur as the road is located adjacent to these sites. It is also possible that excavation works could uncover previously unidentified cultural and historical objects.	✓	
Cumulative impacts	Cumulative impacts may occur within the Project area, such impacts could affect the physical, biological and human environment.	✓	

⁴⁴ <https://documents.worldbank.org/en/publication/documents-reports/documentdetail/308631492969180329/occupational-health-and-safety-guidelines>

ANNEX 2: RECORDS ON DISCLOSURE ACTIVITIES

Meeting location: Kumkurgan, Dzarkurgan and Termez districts

Meeting date: 30-31 October, 2025

Manner in which notification of the consultation was announced: As part of the public consultations preparation, a letter with information on planning activities on the project's disclosure was sent to the Kumkurgan, Dzarkurgan and Termez districts's governmental authority (Hokimiyats). CAR request collaboration in the dissemination of the public consultations of the project between the communities. Announcements were placed at public places such as market, shops, bus stops, etc.

Who was invited: Representatives of local communities, local residents of project village and other public representatives. Total number of people attended - 124 people in three districts.

Organizers and Participants:

Mr. J. Karimov – Director, State Institution “World Bank Project Implementation Group”

Mr. J. Khamidov – Engineer, State Institution “World Bank Project Implementation Group”

Ms. Nodira Akhmedkhodjaeva - World Bank Environmental Specialist

Representatives of the Designer LLC “JanubYo‘lloyiha” (Director A. Yuldoshev; Chief Project Engineer G. Yuldoshev), the district hokimiyat, the Committee on Ecology, cadastral and architectural departments, the women's council, as well as business representatives, local residents, and persons whose assets are affected by the project.

Environmental consultant presentation content: Conduction of public consultation and information session with participation of the representative from the CAR, specialist from Al Mar Consulting regarding ESIA/ESMP under the proposed Project.

Meeting Program/Schedule: The objectives of the Public Consultation were to discuss the environmental and social impact of this road project, highlight possible concerns and clarify the following issues:

- ❖ Present project details and possible environmental and social issues and solutions;
- ❖ Discussions of environmental and social issues likely to occur along the project road sections;
- ❖ ESF instruments;
- ❖ Preliminary resettlement impacts;
- ❖ Environmental Assessment Requirements;
- ❖ Proposed mitigation measures;
- ❖ Knowledge of possible environmental concerns along the road;
- ❖ The responsibilities of Oblast and Rayon road and environmental public agencies;
- ❖ The proposed Grievance Redress Mechanism (GRM) Listening to opinion of public representatives community, organizations and local residents;
- ❖ Discussions.

Comments of participants: After presentation for the purpose of discussion of this issue the public representatives raised questions of their interest. Participants expressed their opinion regarding reconstruction of road. In general they supported implementation of the project and alongside with that they expressed their opinion regarding additional works that could enhance the output of the project.

Follow Up Actions Defined:

Public Consultations were conducted on 30 October 2025 in Kumkurgan district, on 31 October 2025 in Dzarkurgan and Termez districts. Public consultations were organized with sufficient place to sit. All attendants were recorded. Public consultations were chaired by local Hokimiyat

officials. All participants were free to ask questions, give comments, express their opinions. The full text of presentation is enclosed below.

INFORMATION LETTER FROM CAR

O'ZBEKISTON RESPUBLIKASI
AVTOMOBIL YO'LLARI
QO'MITASI TASARRUFIDAGI
AVTOYO'LINVEST AGENTLIGI



AVTOYO'LINVEST AGENCY
UNDER THE COMMITTEE
FOR ROADS OF THE
REPUBLIC OF UZBEKISTAN

« 17 » 10 2025y. JD 11-1325 -sonli

Surxondaryo viloyati hokimligi

Qumqo'rg'on tumani hokimligi

Jarqo'rg'on tumani hokimligi

Termiz tumani hokimligi

O'zbekiston Respublikasi Prezidentining 2023-yil 10-oktabrdagi "Yo'l xo'jaligi sohasini yanada takomillashtirish chora-tadbirlari to'g'risida"gi PQ-330-son qarori hamda Investitsiyalarni jalb qilish, sanoatni rivojlantirish va savdoni tartibga solish masalalari bo'yicha Hukumat komissiyasi yig'ilishining 2025-yil 26-avgustdagi 192-son bayoniga muvofiq Jahon banki ishtirokida Surxondaryo viloyati hududidan o'tuvchi "M41 "Bishkek-Dushanbe-Termiz" avtomobil yo'lining 1525-1622 km (97 km) qismini rekonstruksiya qilish" loyihasini amalga oshirish belgilangan.

Mazkur loyihaning atrof-muhitga va ijtimoiy ta'sirini baholash bo'yicha konsultant "Al Mar Consulting" MChJ tomonidan joriy yilning 30-31-oktabr kunlari Surxondaryo viloyatining Qumqo'rg'on, Jarqo'rg'on va Termiz tumanlarida manfaatdor tashkilotlar hamda shaxslar ishtirokida jamoatchilik konsultatsiyasi va eshituvi quyidagi taqvimga asosan o'tkazilishi rejalashtirilgan:

t/r	Tuman nomi	Sana, vaqt	Manzil	Ishtirokchilar soni
1	Qumqo'rg'on tumani	30-oktabr, 12:00	Tuman hokimligi	50 kishi
2	Jarqo'rg'on tumani	31-oktabr, 10:00	Tuman hokimligi	50 kishi
3	Termiz tumani	31-oktabr, 14:00	Tuman hokimligi	50 kishi

Jamoatchilik eshituvi va muhokamalariga quyidagi manfaatdor shaxs va tashkilotlar taklif etilishi maqsadga muvofiqdir:

- Tuman hokimliklari vakillari (qurilish, irrigatsiya, qishloq xo'jaligi masalalari bo'yicha mas'ullar);

100000, Toshkent sh., Mustaqillik shoh ko'chasi, 68
Tel.: (+998 71) 268-97-08, 268-90-41
Pochta manzili: avtoyulinvest@uzavtoyul.uz
Exat manzili: avtoyulinvest@exat.uz

68, Mustaqillik avenue, Tashkent, 100000.
Phone No.: (998 71) 268-97-08, 268-90-41
Mail address: avtoyulinvest@uzavtoyul.uz
Exat address: avtoyulinvest@exat.uz

- Ekologiya, atrof-muhitni muhofaza qilish va iqlim o'zgarishi vazirligi Surxondaryo viloyati boshqarmasining tuman bo'limlari vakillari;
- Mahalla qo'mitalari vakillari;
- Yo'l bo'yidagi tadbirkorlik faoliyati bilan shug'ullanadigan vakillari (tuman tadbirkorlari);
- Tumanlarning fermer va dehqon xo'jaliklari;
- Mahalliy aholi, qurilish davrida ta'sir doirasiga tushadigan obyektlar egalari;
- Tegishli davlat tashkilotlari va boshqalar.

Yuqoridagilarni inobatga olib, Hukumat topshiriqlari ijrosini belgilangan muddatlarda bajarilishini ta'minlash hamda Jahon banki bilan tegishli qarz bitimi imzolanishi jarayonlarini jadallashtirish maqsadida, Sizdan ushbu **tadbirlarni o'tkazilishida amaliy yordam berishingizni** so'raymiz.

Hurmat bilan,

Direktor o'rinbosari



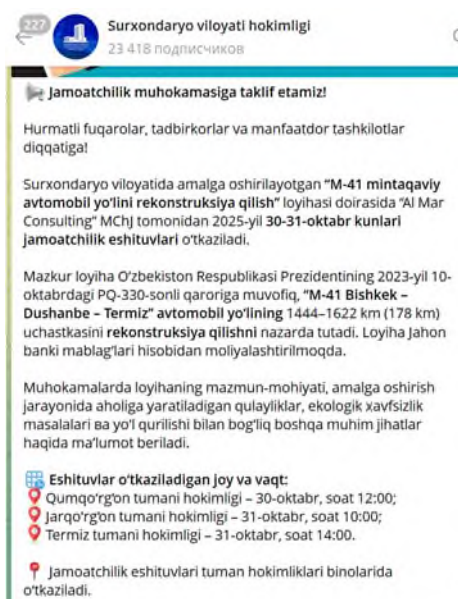
J. Djumayev

Ijr.: J. Karimov
Tel.: (71) 286-11-74

PHOTOS FROM PUBLIC CONSULTATION



Announcement placed at Kumkurgan Hokimiyat



Official Telegram channels of Khokimiyat of Surkhandarya region

https://t.me/axborot_xizmati/50746



Official Telegram channels of Kumkurgan District Hokimiyat @qum_axborot



Official Telegram channels of Dzharkurgan District Khokimiyat @jarmatbuotxizmati

РЕКЛАМА

МАНФААТДОР ШАХСЛАР ВА ТАШКИЛОТЛАР ВАКИЛАЛАРИНИ ЖАМОАТЧИЛИК МАСЛАҲАТИГА ТАКЛИФ ҚИЛАМИЗ

«Сурхондарё вилоятидаги «М-41» минтақавий йўлини реконструкция қилиш (Ўзбекистоннинг мултимодаь алоқа ва логистика дастури (R180602))» лойиҳаси доирасида «Al Mar Consulting» МЧЖ 2025 йил 30-31 октябр кунлари Сурхондарё вилояти аҳолиси ва манфаатдор томонлар билан жамоатчилик муҳокамаларини ўтказди.

Ўзбекистон Республикаси Президентининг 2023 йил 10 октябрдаги ПҚ-330-сон «Йўл ҳўжалиги соҳасини янада такомиллаштириш чора-тадбирлари тўғрисида»ги қарори 3-иловасига мувофиқ, Сурхондарё вилоятида «М-41» Бишкек — Душанбе — Термиз автомобиль йўлининг 1444 — 1622 км. (178 км.) участкасини реконструкция қилиш» лойиҳасини амалга ошириш назарда тутилган (биринчи bosqich — 1525 — 1622 км. участкаси). Лойиҳа Жаҳон банки маблағлари ҳисобидан амалга оширилмоқда.

ЖАМОАТЧИЛИК ЭШИТУВЛАРИ ЎТКАЗИЛАДИГАН ЖОЙ ВА ВАҚТИ:

- Кумқўргон тумани ҳокимлиги — 30 октябр, соат 12:00
 - Жарқўргон тумани ҳокимлиги — 31 октябр, соат 10:00
 - Термиз тумани ҳокимлиги — 31 октябр, соат 14:00.
- Эшитувлар туман ҳокимликлари биноларида ўтказилади. КИРИШ ТЕКИН.

МАНФААТДОР ШАХСЛАР ВА ТАШКИЛОТЛАРНИ ЖАМОАТЧИЛИК МАСЛАҲАТИГА ТАКЛИФ ҚИЛАМИЗ.

«Сурхондарё вилоятидаги М-41 минтақавий yo'lini rekonstruksiya qilish (O'zbekistonning multimodal aloqa va logistika dasturi (R180602))» loyihasi doirasida «Al Mar Consulting» MChJ 2025-yil 30-31-oktabr kunlari Surxondaryo viloyati aholisi va manfaatdor tomonlar bilan jamoatchilik muhokamalarini o'tkazadi.

O'zbekiston Respublikasi Prezidentining 2023 yil 10 oktyabrda gi PQ-330-son "Yo'l xo'jaligini yanada takomillashtirish chora-tadbirlari to'g'risida" gi qarorining 3-ilovasiga muvofiq, Surxondaryo viloyatida "M-41 "Bishkek - Dushanbe - Termiz" avtomobil yo'lini 1444-1622 km. (178 km.) uchastkasida rekonstruksiya qilish" loyihasini amalga oshirish nazarda tutilgan (birinchi bosqich - 1525-1622 km. uchastkasi).

Loyiha Jahon banki mablag' lari hisobidan amalga oshirilmoqda.

ЖАМОАТЧИЛИК ЭШИТУВЛАРИ ЎТКАЗИЛАДИГАН ЖОЙ ВА ВАҚТИ:

- Qumqo'rg'on tumani hokimligi - 30 oktabr, soat 12:00
- Jarqo'rg'on tumani hokimligi - 31 oktabr, soat 10:00
- Termiz tumani hokimligi - 31 oktabr, soat 14:00

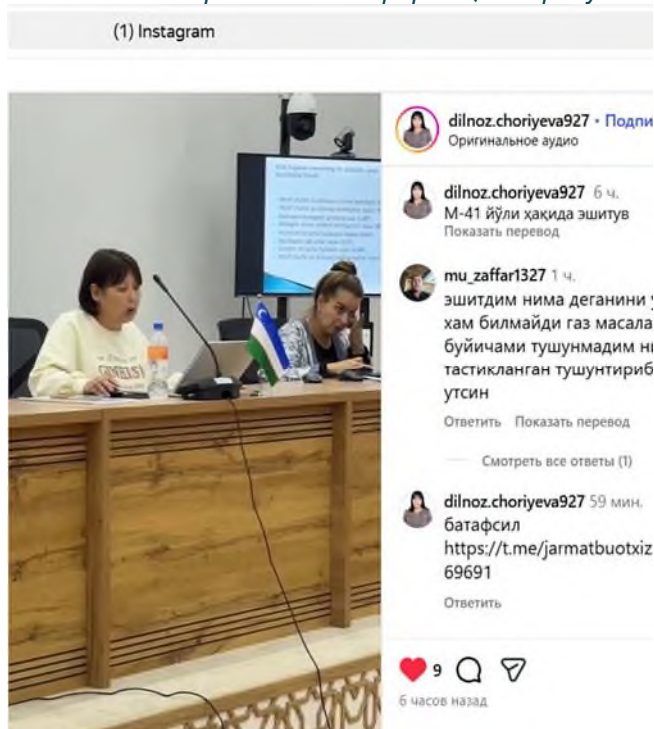
Eshituvar tuman hokimliklari binolarida o'tkaziladi. KIRISH TEKIN.

Announcement placed at newspaper Hulk suzii



Photo report of the public consultation was posted on the Dzharkurgan District Khokimiyat's Telegram channel: <https://t.me/jarmatbuotxizmati/69690>

Announcement placed at newspaper Qishloq hayoti



Video report in Instagram, posted on the page of the journalist of the Khokimiyat News Channel of the Dzharkurgan region dilnoz.choriyeva927



Public consultation in Kumkurgan district



Public consultation in Dzarkurgan district



Public consultation in Termez district

LISTS OF PUBLIC CONSULTATIONS PARTICIPANTS
Dzarkurgan district

ISHTIROKCHILARI RO'YXATI

Sana: 2025 yil 21 oktyabr

O'tkazilish joyi: Surxondaryo viloyati Dzarkurgan tumani

№	To'liq ismiz	Mahalla nomi	Ish joiingilavozingiz	Telefon raqamingiz	Imzo
1	Shukurjon Gulalievich	"Mallalabattipa" mahallasi	Baraj		
2	Shukurjon Gulalievich		Baraj		
3	Shukurjon Gulalievich		Baraj		
4	Shukurjon Gulalievich		Baraj		
5	Shukurjon Gulalievich		Baraj		
6	Shukurjon Gulalievich		Baraj		
7	Shukurjon Gulalievich		Baraj		
8	Shukurjon Gulalievich		Baraj		
9	Shukurjon Gulalievich		Baraj		
10	Shukurjon Gulalievich		Baraj		

№	To'liq ismiz	Mahalla nomi	Ish joingiz/Lavozingiz	Telefon raqamingiz	Imzo
11	Мамамов Ашраф		Жамоат раёсати раҳбари Бон муҳасабаси		[Signature]
12	Ибрагимов Сайрат		Жамоат раёсати раҳбари Полиция бон муҳасабаси		[Signature]
13	Бобжонов Ахил		Жамоат раёсати раҳбари Бон муҳасабаси		[Signature]
14	Расулوف Музаффар		Расулوف Музаффар		[Signature]
15	Абдурашимова		ЗЕД		[Signature]
16	А. Хусенов А.		Хасанов Раҳмон Тўғриси		[Signature]
17	Абдурашимова Ойшахон	Ойшахон	Ойшахон		[Signature]
18	А. Аликулов		Аликулов Раҳмон Тўғриси		[Signature]
19	Турсаев Илхом Ишмоилов		Сурвиз ЕР раҳбари		[Signature]
20	Ахмедов Ёўтбол	Ёўтбол	Ахмедов Ёўтбол		[Signature]
21	Султонов Шавкат	Ёўтбол	Султонов Шавкат		[Signature]
22	Ахмедов Шавкат	Ёўтбол	Ахмедов Шавкат		[Signature]
23	Ахмедов Шавкат	Оби-хўст	Ахмедов Шавкат		[Signature]

№	Тойгу томи	Матрица томи	Иш јилиги/авангиги	Телефон сымалыгы	Томо
24	Томога барды	Томога барды	477		Томога
25	Мамары Агымов	Агымов Агымов	877		Агымов
26	Томога барды	Томога барды	Томога барды		Томога
27	Томога барды	Томога барды	Томога барды		Томога
28	Томога барды	Томога барды	Томога барды		Томога
29	Томога барды	Томога барды	Томога барды		Томога
30	Томога барды	Томога барды	Томога барды		Томога
31	Томога барды	Томога барды	Томога барды		Томога
32	Томога барды	Томога барды	Томога барды		Томога
33	Томога барды	Томога барды	Томога барды		Томога
34	Томога барды	Томога барды	Томога барды		Томога
35	Томога барды	Томога барды	Томога барды		Томога
36	Томога барды	Томога барды	Томога барды		Томога

No	To'liq ismiz	Mahalla nomi	Ish joingiz/Lavozingiz	Telefon raqamingiz	Imzo
37	Ташмуров Абдулла	Хайитов	депутат ХТ-раёдар		
38	Абдуллаев Турра	Хайитов	депутат ХТ-раёдар		
39	Худайберган Рахмонов	Махмудий маха	ФК, Хайитов, 666'		
40	Рахмонов Абдулла	Махмудий маха	ФК, Хайитов, 666		
41	Абдуллаев Абдулхалил Рахмонов		Ташкент шаҳар ҳокимлиги		
42	Ташмуров Абдулла	Даргома	депутат ХТ-раёдар		
43	Ибрагимов Ибрагим	Даргома	депутат ХТ-раёдар		
44	Хайитов Абдулла		депутат ХТ-раёдар		
45	Ибрагимов Ибрагим		депутат ХТ-раёдар		
46	Абдуллаев Абдулла	Даргома	депутат ХТ-раёдар		
47	Ибрагимов Ибрагим	Даргома	депутат ХТ-раёдар		
48	Худратов Абдураҳмон	Даргома	депутат ХТ-раёдар		
49	Абдуллаев Сафар	Даргома	депутат ХТ-раёдар		
50	Рахмонов Абдулла	Даргома	депутат ХТ-раёдар		

ISHTIROKCHILARI RO'YXATI

Sana: 2025 yil 31 oktyabr

O'tkazilish joyi: Surxondaryo viloyati Jirg'at'on tumani

№	To'liq ismiz	Mahalla nomi	Ish joingiz/Lavozingiz	Telefon raqamingiz	Imzo
51	Мурбасова Рифза	Хўжаликчи еса	Мухаммад Раиси		
52	Кертисаев Рамазон	Хўжаликчи еса	Мухомидий		
53	Алиев Турда	Додгур	Мухомидий		
54	Алиев Шара	Бемидул	Мухомидий		
55	Мурмаев Усманов	Мухомидий	Мухомидий		
56	Каримов Шахонгир		Мухомидий амалга ошириш мурув директору		
57	Хамидов Шахонгир		Мухомидий амалга ошириш мурув мухондиси		
58	Мурбасов Фариддин	Мухомидий	Мухомидий раиси.		
59	Мамматовна Марис		ALMAR CONSULTING		
60	Турдиева Динора		ALMAR CONSULTING		

ISHTIROKCHILARI RO'YXATI

Sana: 2025 yil 30 oktyabrO'tkazilish joyi: Surxondaryo viloyati Yangi-Yul tumani

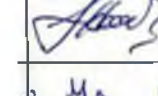
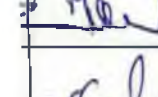
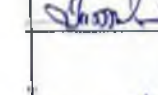
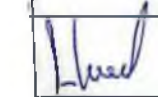
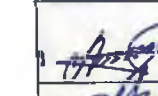
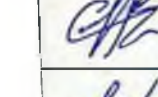
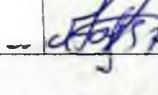
№	To'liq ismiz	Mahalla nomi	Ish joingiz/Lavozingiz	Telefon raqamingiz	Imzo
1	Алимов Абдул	Навои	Махалла раиси		
2	Ташев Ташев	Нарин	Махалла раиси		
3	Исмаилов Фаррух	Бешархон	Махалла раиси		
4	Бозоров Масур		Рўшнўрчи Тўрқўли		
5	Беркешев Бозор	Элдар	МҚВ Раиси		
6	Каримов Карим	Тўрқўли	МҚВ Раиси		
7	Исмаилов Эраш	«Хуррият»	МҚВ Раиси		
8	Мамажонов Абдул	Мажмак	МҚВ Раиси		
9	Исмаилов Шерзод	Жарқиниш	28-маҳалла раиси		
10	Зайтов Ўткир	Нарин	Таълимкор Б/К		

№	To'liq ismiz	Maballa nomi	Ish joyligiz/Lavozingiz	Telefon raqamlingiz	Imz
11	Shigomov Shigomov		Shigomov Shigomov	-295-10-04	
12	Shigomov Shigomov		Shigomov Shigomov	-544-51-31	
13	Shigomov Shigomov		Shigomov Shigomov	7-532-50-70	
14	Kapurov Shigomov		Shigomov Shigomov	0-919-11-44	
15	Xanugol Shigomov		Shigomov Shigomov	99-076-61-11	
16	Shigomov Shigomov		Shigomov Shigomov	144-45-50	
17	Shigomov Shigomov		Shigomov Shigomov	143-36-31	
18	Shigomov Shigomov	Shigomov Shigomov	Shigomov Shigomov	18-244-6062	
19	Shigomov Shigomov		Shigomov Shigomov	2-262-2422	
20	Shigomov Shigomov		Shigomov Shigomov	9120482	
21	Shigomov Shigomov	Shigomov Shigomov	Shigomov Shigomov	2-076-8284	
22	Shigomov Shigomov		Shigomov Shigomov	94-884-8879	
23	Shigomov Shigomov		Shigomov Shigomov		

№	То'лиқ исми	Маҳалла номи	Иш юнгузи/авозингиз	Телефон рақамингиз	Имзо
24	Абдулҳасанов Азизбек	Девон	Мурчи		
25	Абдулҳасанов Азизбек	Девон	Маркани		
26	Абдулҳасанов Азизбек	Девон	"Дарак йол"		
27	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		
28	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		
29	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		
30	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		
31	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		
32	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		
33	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		
34	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		
35	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		
36	Абдулҳасанов Азизбек	Девон	Абдулҳасанов Азизбек		

ISHTIROKCHILARI RO'YXATI

Sana: 2025 yil 31 oktyabrO'tkazilish joyi: Surxondaryo viloyati Termez tumani

№	To'liq ismiz	Mahalla nomi	Ish joingiz/Lavozingiz	Telefon raqamingiz	Imzo
1	Мамаданов Амурат	—	Мамаданов йўл. 101Б ва 9 Босм. маҳкамаси		
2	Даворонов Азиз	—	Мамаданов йўл. 101Б ва 9 Босм. маҳкамаси		
3	Иброҳимов Абдуқайyum	—	Мамаданов йўл. 101Б ва 9 Директор		
4	Иброҳимов Фахрат	—	Мамаданов йўл. 101Б ва 9 Лоўк ва баш. маҳкамаси		
5	Шамсидин Шамсидин	—	Термиз тумани йўл. 101Б ва 9 Фойдаланиш керт. Директор		
6	Ғафуров Нурман	—	Сурхондорё вилоят АБТ мобил йўл. 101Б ва 9 баш. маҳкамаси		
7	Мамаров Умар	—	Тумани маҳкамаси раҳбари		
8	Амударов Амир	—	"Жорахон"		
9	Рахмонов Умиджон	—	Ш. Рахмонов		
10	Алиқаров Эмоми	—	Ш. Рахмонов		

№	To'liq ismiz	Mahalla nomi
11	Shukurzodov Farziddin	Boroxon
12	Monorov Durr	D. To'jur m. q. v
13	Qodimov Adolatmurod	Qodimov m. q. v
14	Qodimov Durr	
15	Qodimova Korr	Qodimov m. q. v
16	Karimov Naxongir	
17	Xamidov Naxongir	
18	Shukurzodov Karimova	Shukurzodov m. q. v
19	Xosonov Durr	Shukurzodov m. q. v
20	Shukurzodov Muxommadxon	Shukurzodov m. q. v
21	Shukurzodov Durr	Shukurzodov m. q. v
22	Oralov Baxram	Shukurzodov m. q. v
23	Shukurzodov Muxommadxon	Shukurzodov m. q. v

Ish joingiz/Lavozingiz

Telefon raqamingiz

Imzo

население

[Signature]

население

[Signature]

население

[Signature]

Термиз тумани
66 уй-йўл қўлланмаси

[Signature]

население

[Signature]

Лойиҳани амалга ошириш
гўруҳи директори
Лойиҳани амалга
ошириш гўруҳи муҳонзи

[Signature]

наҳл қилиш

[Signature]

население

[Signature]

население

[Signature]

(загран)
декан декан

[Signature]

фурқатин фуқаро
фурқатин фуқаро
фурқатин фуқаро

[Signature]

№	To'liq ismiz	Mahalla nomi	Ish joingiz/Lavozingiz	Telefon raqamingiz	Imzo
24	Хурамова.Отжамол	И.Ташмуров	оқоми		
25	Шомирзаев Карир	И.Ташмуров	оқоми		
26	Б.Буроев, Бунёд	—	Термиз.Т. ХОЖИММАН		
27	Шамара Сунодиқова	Бўйини юрт	футзалар келасин		
28	Нобуллов Орзулло	Қорахон маҳалласи	Автомобил фуқаро- Парки ўқитиш маркази		
29	Мамматовна Марин		ALMAR CONSULTING		
30	Турсиева Дилора		ALMAR CONSULTING		
31	Мамина Рим		ALMAR CONSULTING		
32					
33					
34					
35					

THE FULL TEXT OF PRESENTATION

REPUBLIC OF UZBEKISTAN
CONNECTIVITY AND TRANSPORT SECTOR IMPROVEMENT PROJECT
(P509487)

**M-41 REGIONAL ROAD CORRIDOR RECONSTRUCTION
(SECTION 1525-1622KM)**

**ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT (ESIA) and
RESETTLEMENT POLICY FRAMEWORK (RPF)**

Public Consultation and Information Session

Date: 30-31 October 2025

Content of the session

- Present Project details and possible environmental and social issues and solutions;
- Discussions of environmental and social issues likely to occur along the project road sections;
- ESF instruments;
- Preliminary resettlement impacts;
- Environmental Assessment Requirements;
- Proposed mitigation measures;
- The proposed Grievance Redress Mechanism (CRM);
- Listening to opinion of public representatives community, organizations and local residents;
- Discussions;
- **Conclusions.**

REGIONAL ROADS DEVELOPMENT PROJECT

Financed by: World Bank (WB)

Executing Agency: Project Implementation Unit
under Avtoylinvest Agency of the Committee for
Automobile Roads (CAR)

The ESIA is part of a package of documentation, which includes:

- Environmental and Social Impact Assessment (ESIA);
- Environmental and Social Management Plan (ESMP)
- Labor Management Procedures (LMP);
- Biodiversity Management Plan (BMP);
- Resettlement Action Plans (RAP);
- Stakeholder Engagement Plan (SEP);
- Gender Action Plan (GAP);
- Environmental and Social Commitment Plan (ESCP).

Project Road Sections

Road sections within district boundaries

District	KM	Distance (km)	Settlements
Kumkurgan District	23 km	1525 – 1548 km	10 mahallas – Hunmet, Murochoktepa, Elabod, Jiydal, Besh-Kahraman, Jarkeshak, Oltepa, Navbakhor, Mehrobad, Surkhan-sakhili.
Djarkurgan District	58 km	1548 – 1606 km	9 mahalla – Otintepa, Surkhon-schi, Ohi, hayot, Ismoli, tepa, Dostik, Isukiol, Nurli diyor, Oktepa, Gur gur.
Termez District	16 km	1606-1622 km	5 mahallas – Korahon, Amir Temur, Sharof Rashidov, Kuyoshii yurt, Termez



WB Safeguards Policy and Environmental Assessment Requirements

- For legal aspects, the work during reconstruction and operation will follow the Uzbekistan laws and the World Bank's Environment and Social Framework 2018 (ESF).
- According to both Uzbek Environmental Protection laws and regulations and the World Bank's *ESS1: Assessment and Management of Environmental and Social Risks and Impacts*, the proposed project is rated as "Substantial," with both environmental and social risks individually rated as substantial.

World Bank's Environment and Social Framework

ESS Category	ESS	ESS Status
ESS1: Environmental and Social Management	ESS1 is triggered.	Since the proposed project is likely to have negative environmental and social impacts, an ESSA has been conducted in compliance with the ESS 1 Environmental Management Plan (ESMP) will be prepared based on the screening outcome.
ESS2: Labor Working Conditions	ESS2 is triggered.	This project will employ direct, contracted and primary supply workers who might be at risk of such as inadequate accommodation, non-payment of wages, non-payment of discrimination at employment, child labour, forced labour, human trafficking, Occupational and Safety (OHS) issues including workplace accident and work-related diseases, communicable diseases including Sexually Transmitted Infections (STIs), grievances related to workers. The contracted workers are more susceptible to such risks.
ESS3: Resource Efficiency and Pollution Prevention and Management	ESS3 is triggered.	The project's impacts and risk would be of significance on sensitive receptors due to dust, noise, and vibration, blocking or filling of irrigation canals, emission from CG vehicles, equipment and plants, dust from earth works, fill cutting, stock yards, transport materials, noise pollution and settlements along road, damage to structure, waste movement of machine and equipment (structure, etc. embankment), handling of hazardous wastes, quarry and borrow area. All these impacts are more prominent during construction stage and can be managed through specific measures described in the chapter according to national standards for air, noise and water quality as well as the practices applicable to road construction projects.

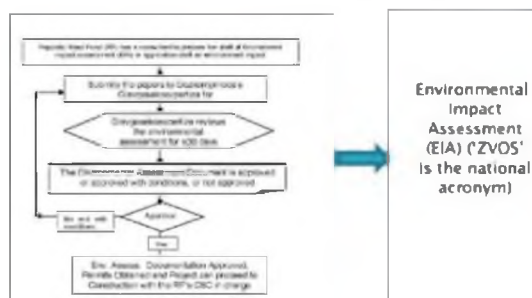
World Bank's Environment and Social Framework

ESS4: Health and safety	ESS4 is triggered.	Transporting construction materials will cause hazardous to community. The project activities such as hill cutting, road excavation, use of vibratory equipment might result in landslides, mass wasting and dust pollution. The stockpiling of construction materials, debris generated during construction will disturb the landscape and cultivated lands and contaminate the water bodies. Direct and indirect impacts are likely with the construction activities and drying of construction vehicle, storage of construction materials along the existing highway. Presence of outside laborer force can cause negative impact on environment and local communities and should be managed through specific measures, including OHS.
ESS5: Acquisition, Restrictions on Land and Involuntary Resettlement	ESS5 is triggered.	Land will be required for widening, upgrade works in identified corridors and possibly for rehabilitation corridor works, curbside, drainage, and spots, etc. Hence impacts on land, private and community owned assets including structures, trees and crops within existing and proposed ROW is required. Physical and economic displacement is required. Full Resettlement Action Plan (RAP) will be prepared. Activities under the project could result in some land acquisition, displacement and restriction of access to means of livelihood and environment on right of way. The project involves economic displacement due to the filling of the gullies. Given such impacts, ESS5 is triggered.
ESS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources	ESS6 is triggered.	This ESS plays a minor role during the assessment as impacts on biodiversity and habitats are likely to appear. Site clearance activities for road construction will involve removal of riparian vegetation and felling of trees. The habitat in the ROW and in surrounding areas of the project road is already fragmented and anthropogenic pressure on the area is very much prevalent. A robust habitat screening conducted as part of the ESSA indicates that there are no critical habitats within the ROW. The Project activity does not pass through any protected areas or ecologically sensitive areas. There are no known populations of threatened species in the immediate vicinity of the project sites.

World Bank's Environment and Social Framework

ESS7: Indigenous Peoples	ESS7 is not triggered.	The ESS will identify the measures to minimize disruption of the livelihoods due to the project development. Currently, no indigenous population has been identified.
ESS8: Cultural Heritage	ESS8 is triggered.	There are no known cultural and/or archaeological heritage in project intervention. The alignment of project road does not have any ancient monuments and/or religious, cultural, historical and archaeological sites.
ESS9: Financial Intermediaries	ESS9 is not triggered.	ESS9 is not triggered.
ESS10: Stakeholder Engagement and Information Disclosure	ESS10 is triggered.	Relevant as the project will involve a wide range of stakeholders during the project cycle including Police Department that are associated with activities, and other components of the project such as Road Safety. The project will ensure: - Stakeholders have been consulted during the preparation of the SEP. - The project-level Stakeholder Engagement Plan (SEP) has been prepared to follow during the implementation of the project. During the stakeholder consultation, the key issues raised were: compensation of impacted land, affected private and public structures, construction of public structures, mitigation of landslide risks during construction of road, establishment of road safety measures, establishment of green level, GRM, ensuring employment to locals (including female).

Arrangements of Environmental protection



Potential Environmental and Social impacts

Physical Resources	Biological Resources	Socio-Economic Resources
Soil	Flora	Noise
Air Quality	Fauna	Vibration
Hydrology	Protected Areas	Waste Management
Geohazards		Traffic and Transportation
		Land acquisition
		Community Health, Safety and Security
		Socio-economic and gender aspects

Air Quality

Impacts

- › Release of Exhaust Gases
- › Dust
- › Odor
- › Emissions of Volatile Organic Compounds (VOC)

Mitigation and management

Control over speed regime and emissions into air;

- › Saving of time and fuel as well as contraction of CO₂ will be obvious after completion of the project;
- › During periods of high wind any dust generating act not be permitted within 200 m of populated settlement in the direction of prevailing wind;
- › Regular watering/spraying of unpaved project road: unpaved roads being used for haulage of materials d dry season;
- › Construction equipment has to be to a good standard with pollution control devices.

Noise and Vibration

Impacts

- › Construction Equipment and Vehicle noise
- › General work site noise
- › Potential cosmetic damage
- › Potential structural damage to properties

Mitigation and management

- › The Contractor will consult with the community in construction activities and potential noise and impacts.
- › Control Noise and Vibration by requiring contractor to a strict equipment maintenance schedule;
- › Prohibition of any construction activities between 11 6 am in settlements or close to sensitive receptor: hospitals and schools;
- › Operate equipment with specifications;
- › Travel according to assigned speed limits and restr vehicle horns.

Water Quality

Impacts

- › Drainage
- › Bridge Construction
- › Blockage of or Damage to Canals and Drainage Channels
- › Hazardous Liquids



Surk

Mitigation and management

- › Streams, rivers and watercourses (including drains) with adjacent to the work sites will be kept free from debris any material or waste arising from project works;
- › Discharge or deposit any material or waste into any except without the approval from the relevant re authorities will not be permitted;
- › All water, waste-water and other liquids used or gene execution of project works and activities will be collec disposed in an approved manner in an approved locat will not cause either pollution or nuisance;
- › All storm drainage will be adequately contoured, siz lined where necessary.

Soils, Erosion and Slope Stability

Impacts

- › Damage and/or loss of topsoil
- › Contamination due to spills or hazardous materials
- › Borrow Pits
- › Contamination Due to Spills or Hazardous Materials

Mitigation and management

- › Random and uncontrolled deposition of excava will not be permitted;
- › Re-vegetation of exposed areas including; (i) sele growing and grazing resistant species of pre grasses and shrubs; (ii) immediate re-vegetation and embankments if not covered with gabion bask
- › Material that is susceptible to erosion will be adequate material around bridges and culverts;
- › All land will be rehabilitated to its original or bett upon completion of the project works;

Biological Resources

Impacts

- › Removal of Roadside Vegetation
- › Cutting trees
- › Impacts to general flora and fauna
- › Degradation of riverbed habitat -increased turbidity arou bridge piers and downstream



Mitigation and management

- › Preparation of a Biodiversity Action Plan (BAP)
- › Cutting of trees shall be undertaken according to requirements
- › Affected trees along the road side should be reloca vegetation and green area around the project route shoul protected during construction
- › Construction should be well managed to keep landscape cl
- › Minimize land occupation, properly plan for the construc progress. Clean the site, restore green area after construc completes

Community health, safety and security

Impacts

- › Health & safety issues for vulnerable community groups
- › Traffic and transportation
- › Labour influx
- › Conflict between
- › Communities and workers
- › Overload of local infrastructure
- › Community health, safety and security

Mitigation and management

Contractor will prepare the following plans:

- › Health and Safety Plan
- › Construction Environmental and Social Management Plan (CESMP)
- › Emergency Management Plan

Impacts on Access and Traffic

Impacts

- Partial or complete blockage of roads and junctions
- Increased congestion, risk of accidents
- Potential temporary disruption of services, including public utility

Mitigation and management

- Prior to construction activities, the contractor will install all barriers and control devices needed to ensure the safe use of road by traffic and pedestrians, as required by the traffic plan.
- Signs, crossing guards and other appropriate safety features be incorporated at grade level rail and road crossings.
- Local authorities and residents in a working area will be notified before any detours for construction or diverted public traffic established.
- Footpaths and roads will be kept free of debris, spoil and other material at all times.
- Construction vehicles will use temporary roads constructed that purpose to minimize damage to agricultural land and access roads.

Social Impacts (preliminary resettlement impacts)

District	Distance (km)	Tree cutting (pcs)		Demolition of buildings		Acquisition
		Low-value tree species, pcs	Valuable tree species, pcs	Residential	Non-residential	
Ternyol district	1525-1548	32	575	1	0	0
Dzharkurgan district	1548-1606	175	2379	5	26	5
Kumkurgan district	1606-1622	19	123	1	9	0
TOTAL		226	3077	7	35	54

Entitlement Matrix

Type of asset	Specifications	Displaced Persons/Organisation Entitled Persons
Agricultural land	Permanent land acquisition	Landholders/land users with a legal right to use a land (agricultural farms, grazing land)
	Temporary land acquisition for laydown areas used during construction	Informal land users
Commercial land	Either permanent or temporary	Informal land users (informal sellers)
	Permanent land acquisition	Landholders/land user with a legal right to use a land (gas filling stations, commercial buildings, container shops)
Residential land	Temporary land acquisition for laydown areas used during construction	Land users who have lifelong inheritance possession or permanent possession
	Either permanent or temporary	Informal land users
Property losses & located within RoW	Permanent	Any activity that is restricted within RoW as per requirements of Sanitary Protection Zone
Residential structures	Permanent	Owners of residential structures
	Temporary	Renters of residential structures

Entitlement Matrix

Type of asset	Specifications	Displaced Persons/Organisation Entitled Persons
Non-residential structures	Permanent	Owners of non-residential structures
State buildings/offices/schools/hospitals/ kindergartens	Permanent	Relevant departments of organisations
Temporary Business disruption	Income loss due to the temporary restriction of road use and customer access is blocked or restricted.	1. Industries, companies income due to the restriction of road use; 2. Informal sellers using road selling purposes
	Temporary loss of wages due to the restriction of road use and customer access is blocked or restricted.	Workers of industries, companies
Employees loss of wages	Permanent and Temporary	Workers (both temporary and permanent)
Crops	Permanent and Temporary	Owner of crops (irrespective of land use rights)
Trees	Permanent and Temporary	Owner of decorative (timber) trees (irrespective of land use rights)
Loss or damage to public infrastructure	Permanent	Affected communities

Grievance Redress Mechanism

Level 1 Mahalla / Village Assembly

Level 2 District Hokimiyat

Level 3 Regional Khokimiyat

Level 4 Project Implementation Unit

Level 5 Court

Grievance Process and Timeline

Stage	Timeline
Grievance Received / Submitted	-
Grievance logged and acknowledged	Within 7 working days of grievance being submitted
Grievance investigated	Within 14 working days of grievance being submitted
Proposed resolution conveyed to grievant	Within 14 working days of grievance being submitted
Reassessment of grievance in case if the complainant is not satisfied with the previously provided response	Maximum 2 weeks after notification of dissatisfaction by the complainant
If applicable following dissatisfaction of resolution, the grievant may request a reassessment	Maximum 2 weeks after notification of dissatisfaction by the complainant
Actions to reassess grievance, propose resolution, inform Grievant of final decision	Within 14 working days of notification of dissatisfaction by Grievant
In the event that a grievance cannot be resolved between the two parties a mediator will be involved i.e. local leaders who understand the culture and practices within the Project area.	Within 14 working days of notification of dissatisfaction by the Grievant.
Grievances that are not resolved at the project level - a grievance committee involving senior management from Contractor, municipality and any other relevant authorities will be involved.	Within 30 working days of notification of dissatisfaction by the Grievant.

Availability of ESIA

- ▶ Website of the Committee for Roads (CR) under the Ministry of Transport;
- ▶ Local and regional Hokimiyats;
- ▶ PIU of Committee for Roads;
- ▶ Website of WB (InfoShop).

Actions to be taken

- ▶ Complete ESIA
- ▶ Confirm that ESMP details are defined in the Contractor bid documentation and later in the contract(s)
- ▶ Monitoring during road construction, compliance with ESIA's ESMP;
- ▶ Apply mitigation and monitoring measures.

ANNEX 3: CHANCE FINDS PROCEDURES (CULTURAL HERITAGE)

PURPOSE OF THE CHANCE FIND PROCEDURE: The chance find procedure is a project-specific procedure that outlines actions required if previously unknown heritage resources, particularly archaeological resources, are encountered during project construction or operation. A Chance Find Procedure, as described in IFC Performance Standard 8 and WB ESS 8 and law on Cultural Heritage of Uzbekistan, is a process that prevents chance finds from being disturbed until an assessment by a competent specialist is made and actions consistent with the requirements are implemented.

SCOPE OF THE CHANCE FIND PROCEDURE: This procedure is applicable to all activities conducted by the personnel, including contractors that have the potential to uncover a heritage item/site. The procedure details the actions to be taken when a previously unidentified and potential heritage item/site is found during construction activities. Procedure outlines the roles and responsibilities and the response times required from both project staff, and any relevant heritage authority.

INDUCTION/TRAINING All personnel, especially those working on earth movements and excavations, are to be inducted on the identification of potential heritage items/sites and the relevant actions for them with regards to this procedure during the Project induction and regular toolbox talks.

CHANCE FIND PROCEDURE If any person discovers a physical cultural resource, such as (but not limited to) archaeological sites, historical sites, remains and objects, or a cemetery and/or individual graves during excavation or construction, the following steps shall be taken:

1. Stop all works in the vicinity of the find, until a solution is found for the preservation of these artefacts, or advice from the relevant authorities is obtained;
2. Immediately notify a foreman. The foreman will then notify the Construction Manager and the Environment Officer (EO)/Environmental Manager (EM);
3. Record details in Incident Report and take photos of the find;
4. Delineate the discovered site or area; secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be arranged until the responsible local authorities take over;
5. Preliminary evaluation of the findings by archaeologists. The archaeologist must make a rapid assessment of the site or find to determine its importance. Based on this assessment the appropriate strategy can be implemented. The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage such as aesthetic, historic, scientific or research, social and economic values of the find;
6. Sites of minor significance (such as isolated or unclear features, and isolated finds) should be recorded immediately by the archaeologist, thus causing a minimum disruption to the work schedule of the Contractor. The results of all archaeological work must be reported to the Agency on Cultural Heritage under the Ministry of Tourism and Sport, once completed.
7. In case of significant find the Agency on Cultural Heritage should be informed immediately and in writing within 7 days from the find.
8. The onsite archaeologist provides the Heritage team with photos, other information as relevant for identification and assessment of the significance of heritage items.
9. The Agency must investigate the fact within 2 weeks from the date of notification and provide response in writing.
10. Decisions on how to handle the finding shall be taken by the responsible authorities. This could include changes in the layout (such as when finding an irremovable remain

of cultural or archaeological importance) conservation, preservation, restoration and salvage;

11. Construction works could resume only after permission is granted from the responsible authorities.
12. In case no response received within the 2 weeks period mentioned above, this is considered as authorisation to proceed with suspended construction works.

One of the main requirements of the procedure is record keeping. All finds must be registered. Photolog, copies of communication with decision making authorities, conclusions and recommendations/guidance, implementation reports kept.

Additional information

Management options for archaeological site

- ❖ **Site avoidance.** If the boundaries of the site have been delineated attempt must be made to redesign the proposed development to avoid the site. (The fastest and most cost-effective management option)
- ❖ **Mitigation.** If it is not feasible to avoid the site through redesign, it will be necessary to sample it using data collection program prior to its loss. This could include surface collection and/or excavation. (The most expensive and time-consuming management option.) **Site Protection.** It may be possible to protect the site through the installation of barriers during the time of the development and/or possibly for a longer term. This could include the erection of high visibility fencing around the site or covering the site area with a geotextile and then capping it with fill. The exact prescription would be site- specific.

Management of replicable and non-replicable heritage Different approaches for the finds apply to replicable and non-replicable heritage.

Replicable heritage Where tangible cultural heritage that is replicable⁴⁵ and not critical is encountered, mitigation measures will be applied.

The mitigation hierarchy is as follows:

- Avoidance;
- Minimization of adverse impacts and implementation of restoration measures, in situ;
- Restoration of the functionality of the cultural heritage, in a different location;
- Permanent removal of historical and archaeological artefacts and structures ; Compensation of loss - where minimization of adverse impacts and restoration not feasible.

Non-replicable heritage

Most cultural heritage is best protected by in situ preservation, since removal is likely to result in irreparable damage or even destruction of the cultural heritage.

Nonreplicable cultural heritage⁴⁶ must not be removed unless all of the following conditions are met:

- There are no technically or financially feasible alternatives to removal;
- The overall benefits of the project conclusively outweigh the anticipated cultural heritage loss from removal; and

⁴⁵ Replicable cultural heritage is defined as tangible forms of cultural heritage that can themselves be moved to another location or that can be replaced by a similar structure or natural features to which the cultural values can be transferred by appropriate measures. Archaeological or historical sites may be considered replicable where the particular eras and cultural values they represent are well represented by other sites and/or structures.

⁴⁶ Nonreplicable cultural heritage may relate to the social, economic, cultural, environmental, and climatic conditions of past peoples, their evolving ecologies, adaptive strategies, and early forms of environmental management, where the (i) cultural heritage is unique or relatively unique for the period it represents, or (ii) cultural heritage is unique or relatively unique in linking several periods in the same site. Examples of non-replicable cultural heritage may include an ancient city or temple, or a site unique in the period that it represents.

- Any removal of cultural heritage must be conducted using the best available technique advised by relevant authority and supervised by archaeologist.

Human Remains Management Options

The handling of human remains believed to be archaeological in nature requires communication according to the same procedure described above.

There are two possible courses of action:

- **Avoid.** The development project is redesigned to completely avoid the found remains. An assessment should be made as to whether the remains may be affected by residual or accumulative impacts associated with the development, and properly addressed by a comprehensive management plan.
- **Exhume.** Exhumation of the remains in a manner considered appropriate by decision makers. This will involve the predetermination of a site suitable for the reburial of the remains. Certain ceremonies or procedures may need to be followed before development activities can recommence in the area of the discovery.

EMERGENCY CONTACTS

Agency of Cultural Heritage of the Republic of Uzbekistan

Address: Taras Shevchenko street, 1 house, Mirabad district, Tashkent city

Tel: +998712000118

E-mail: info@madaniymeros.uz

National Center of Archeology Academy of Sciences of the Republic of Uzbekistan

Address: 100060, Uzbekistan, Tashkent, Mirzo Ulugbek district, M. Ulugbek street, 81.

Tel: +998 71) 262-64-62; +998 71 262-95-31

E-mail: uzarchae@academy.uz