

South-West Roads Project (SWRP)
KURTY – TOGYZ (BURYBAITAL) ROAD SECTION (KM2295-2380)
OTAR-UZYNAGASH ROAD SECTION (KM 63-162)

Environmental and Social Impact Assessment (ESIA)
Environmental and Social Management Plan (ESMP)

EXECUTIVE SUMMARY

Background

The South-West Roads Project (SWRP) is currently being implemented and is being restructured to include the financing of two new road sections: Kurty-Togyz road section (km 2295-2380) and the Otar-Uzynagash road section (km 63-162). Both of these road segments were previously appraised by the World Bank under different projects. This document reflects an updated summary of the environmental and social assessment process for the proposed restructuring of the SWRP (funded by the World Bank) to support GoK policy toward upgrading the main existing road corridors – the Western Europe – Western China (We-WCh) Corridor and the Center-South (CS) - as prioritized in the current national strategic documents and to operationalize the sector reform activities to make KAZ a commercially-oriented road operator.

In line with instructions provided by the Vice Minister of the Republic of Kazakhstan dated March 28, 2016, No 17-39/5257, due to cost savings under the ongoing SWRP¹ a decision was made to use these funds to rehabilitate the Kurty-Togyz road section (km 2295-2380) and the Otar-Uzynagash road section (km 63-162).

Specifically, this restructuring includes rehabilitation of:

- (i) 85km between *Kurty and Togyz* in Almaty Oblast along the CS corridor; this section impact was analysed as part of the SWRP ESIA process, and revised and cleared as part of the preparation of the second SWRP restructuring; also, the initial ESMP was prepared and cleared as part of the ESIA for KARAGANDA – BALKHASH – BURYLBAILAL» road section disclosed on May 6, 2016; and it was updated and disclosed as draft on June 1, 2017; and
- (ii) 96 km section between *Otar and Uzynagash* west of Almaty towards the border with Kyrgyzstan along the WE-WCh corridor; this section impact was analysed, reviewed and cleared as part of the East West Road Project ESIA process, for which the relevant ESIA was disclosed on June 6, 2016; also, a relevant ESMP was prepared, cleared by the Bank and disclosed as draft on June 1, 2017.

The ESMPs for the considered road sections developed on ESIA reports previously approved by the Bank and disclosed accordingly) also reflect aspects that came up during additional analysis, in particular, the proximity of the road to sensitive natural habitats and cultural resources, as well as the need to include requirements of the World Bank Environment, Health and Safety (EHS) guidelines. The ESMP mainly describes the baseline environmental and social conditions, potential negative impacts from the proposed activities and the agreed environmental and social mitigation and monitoring measures. In addition, it outlines the structure of environmental responsibilities and reporting and the requirements for public consultations and disclosure. The minutes of the public consultations with stakeholders that were conducted in several locations

¹ This proposed restructuring would constitute the third restructuring of the SWRP project funded by the World Bank

along the project alignment in April 2017 are included as attachments of the current reports. As the ongoing SWRP, the current restructuring has been process in line with category A risk investment.

Triggered World Bank Safeguard Policies

The main Project activities that require triggering of certain Operational Policies (OP 4.01; OP 4.04; OP 4.11, and OP 4.12) includes works for the reconstruction, upgrade, and new construction of the 2 noted main road sections. The Project has all the physical characteristics of a large linear infrastructure project, with significant spatial extension, visible impact on landscape, biosphere and land use patterns, and significant impacts on topography, climate, natural conditions, and human activities.

Environmental Assessment OP/BP 4.01. The main potential negative impacts during construction include development of borrow pits, generation of waste (e.g. construction materials, spent consumables, household waste, and wastewater from camps), excessive land use, topsoil destruction, and erosion. There is a potential impact on groundwater and surface water from excessive turbidity and siltation, equipment-washing in rivers (e.g. cement trucks), and accidental spills involving fuels and lubricants. During the operation of the road rainwater drainage management: main issues include soil, ground, and surface water contamination by heavy metals, soot, and organic compounds (e.g. PAH). Noise, dust, and air pollution, pose as potential issues as well. Regardless of what borrow pits will be used, the existing roads will be used for access to construction sites.

Natural Habitats OP/BP 4.04. The designed section of reconstructed corridor of “Kurty – Togyz (Burybaital)” goes through the territory of Zhusandaly natural reserve that occupies a vast territory (2 757 000 hectares). There is therefore a potential high risk of disruption of these natural habitats along this road section by poor construction management. Yet, it is also noteworthy that mainly of the birds and mammals live away from the existing road alignment. There is no permanent or seasonal migration of animals in this area. At the same time, bridges over rivers, culverts, animal passages, and agricultural passages will serve as a potential route for the occasional migration of animals in the area of road alignment.² In the case of Otar-Uzynagash section, the road will pass on the existing road A2, which does not cross any protected areas or national parks. The project is not expected to have significant adverse impacts on critical natural habitat.

Physical Cultural Resources OP/BP 4.11. Kazakhstan is a country with a rich cultural heritage, which is seen particularly along the historical silk road. Unknown physical cultural resources located in the project area and that may fall under the project influence have been considered. The policy is triggered because objects of historical and cultural heritage (hereinafter referred to as the “HCH Objects”) were identified in the Kurty-Togyz section, including archeological monuments and contemporary memorials. The Action Plan for the Research and Preservation of Archaeological Sites was prepared by the Client and mitigation measures acknowledged in the ESMP.

Involuntary Resettlement (OP/BP 4.12)

This policy covers the direct economic and social impacts that are caused by the involuntary land acquisition resulting in (i) relocation or loss of shelter; (ii) loss of assets or access to assets; or (iii) loss of income sources or means of livelihood, involuntary resettlement of involved people;

² Agricultural passages normally are of 18 m width; culverts diameter is 1.5 m; and cattle crossing size is 2 m* 2.5 m and 2m* 4m

or involuntary restriction of access to parks and protected areas, which may result in adverse social impact. A Resettlement Policy Framework (RPF) is a stand-alone document prepared by “KazdorNII” JSC and approved by the Committee for Roads (MID). Draft RAPs have been prepared and relevant site specific final RAPs will be prepared upon completion of the detailed design of the road sections according to the completed list of affected properties, businesses, and the people affected by the construction of this road section.

Baseline Environmental and Social Conditions

The project corridor for the Kurty-Togyz road section runs along the Tian Shan mountain range for about 30 km. Therefore, the project will be located inside the alluvial plain that has soft morphology, and its geology is characterized by a thick accumulation of periglacial, aeolian, and river sediments, as well as a surface water network that runs to the North and flows further into the Balkhash Lake. There is relatively a lot of groundwater in the project area, ranging in depth from shallow aquifers in young sediments to deep thermal waters.

The Climate varies from moderate in the West to arid in the East, with clear continental character: cold winters and hot, dry summers, precipitation occurring in relatively short periods in spring and fall. Erosion or rock falls, landslides, and mudflows do not pose significant risks for the project. There are no critical natural habitats identified in the project area of influence

Most of the settlements located along the road corridor are involved in human activity traditional for this area, such as cattle-breeding and farming. The entire project corridor shows anthropogenic impact mainly in the forms of animal husbandry and agriculture. There will be no transformation of naturally formed landscapes in the area.

The road section Otar-Uzynagash passes through Zhambyl district of Almaty oblast and Kordai district of Zhambyl oblast. Most of the road is located within the area of existent human activities. The road network towards the west of the section is the densest in terms of economic activity, including the production, construction, procurement of materials, and intensive irrigated agriculture. There are irrigated agricultural areas throughout the entire corridor. The entire project corridor shows anthropogenic impact mainly in the forms of animal husbandry and agriculture, residential areas, and settlements or infrastructural and transport corridors.

Local Population and Social and Economic Situation

For all settlements situated along the proposed road corridor section, impacts have been evaluated for land use, road infrastructure, water supply network, power and gas supply, health, education, culture and sport facilities, as well as industry and business.

During site visits and meetings with local residents, no impact on minority groups has been mentioned.

The principal negative impacts are:

- The proposed road can be a potential obstacle for farmer’s machinery and cattle movements,
- In some locations, the proposed road can be a potential obstacle for reaching schools, stores and other local facilities,
- During construction, water, electricity and gas supplies to the inhabitants and farms might be affected by the project,
- During construction drainage and irrigation system, the fields can be affected potentially,
- Influx of workers,

- Land acquisition and involuntary resettlement may cause adverse impacts on Project Affected Persons (PAPs), particularly if the process is not managed properly,
- During the construction, some restrictions to land use of PAPs might occur,
- Land acquisition and construction of the road may negatively impact on the livelihoods of PAPs in terms of agricultural production

The principal positive impacts are:

- The new road will provide a better connection with the rest of the districts, the regions and the country.
- The widened dual carriageway will revive local economy, as it will facilitate the construction of new stores, restaurants, bars, petrol stations, local grocery stores.

Impacts and their mitigation

Climate and air quality Impacts on air quality and climate will include air emissions from the construction equipment and road plants, and generation of dust from moving vehicles and equipment. The impacts will be mitigated by the good equipment maintenance practices and locating the plants away from the residential and protected areas. During the dry season the roads will be watered for dust suppression. The construction contractors will develop the Environmental Monitoring Program required by the RoK Environmental Code. Parameters to be monitored following the World Bank EHS Guidelines including nitrogen oxides, inorganic dust, sulfur oxide, carbon, PM10, PM2.5 and carbon monoxide, including in the reserved zone of Zhusandala.

Noise and vibration Impact of noise and vibration is supposed to be insignificant. It will be generated by the construction machinery and equipment, cement-concrete and asphalt concrete plants, crushers. The contractors will implement regular noise and vibration assessments and provide workers with the noise protection PPE. The noise from the moving vehicles will be reduced by implementing speed control measures. Equipment and plants maintenance is another measure to reduce noise and vibration.

Impacts on water The designated roads cross several rivers, which are primarily dry in the summer; however, there is considerable water and rainfall during the spring period. Several bridges have been planned and modernized culverts will aid in water flow under the road. During construction, water for technical needs will be taken from the Balkhash Lake and nearby located rivers as well as from Ungyrtas, Samsy, and Targap villages. Drinking water will be delivered by the Contractors from the existing general water supply system, of which there are enough sources within the road area. Sewage will be disposed to a specialized organization for further cleaning at wastewater treatment plants, and polluted areas will be designed to prevent accidental spills from runoff. During construction, water for technical needs will be taken.

Impacts on land The project includes the use of certified borrow pits as well as possibly new ones as selected by the contractor. Excavation of borrow pits is one of the major factors of the adverse environmental impacts. This includes a temporary loss of the topsoil, impacts on the landscape, impacts on the ground waters, possible impacts on natural habitats. Explosions and noise from the moving vehicles may scare away the animals and birds. In line with national legislation, borrow pits are not allowed to be created less than 500 m away from a river.

In order to avoid negative environmental consequences, any use of unauthorized borrow pits will be forbidden. The project design documentation describes the coordinates of the designated borrow pits. These locations have been approved by the State agencies responsible for the safety of land resources. Contractors will perform land reclamation to return the land to its original condition including the restitution of slopes, backfilling and re-vegetation.

Impacts on ecosystems, flora and fauna include impacts on vegetation along the alignment and the disturbance of fauna in the area of influence of the construction works. Though the impacts on migratory species is expected to be minimal, the Committee for Roads and their Contractors will consult with the international experts on migratory species when constructing crossing points and underpasses. Illegal hunting around the project area is prohibited. The contractors will be informed about the proximity of the Zhusandaly State reserved Zones and security measures will be implemented to eliminate construction activities (including borrow pits) and the transport within the boundaries of the protected area. However, since the road will run on the existing road, it is expected not to have a considerable negative impact on rare or endangered species as well as critical natural habitats. The assessment regarding the existence of corresponding number of places of transition for wild animals (Jeiran) and herds/stock of cattle has been designed. It will be necessary to build additional underground passages and passes, on the road following the appropriate traffic safety measures, which have been included in the design.

Impacts on Physical Cultural Resources There is a potential impact on burial mounds and archeological monuments in Section 1 of the Kurty-Togyz. Two known monuments will be fenced in for protection by the Contractor while memorial plates will be relocated in cooperation with local authorities. Any artifacts found during the process will be immediately reported to the Ministry of Culture, and construction will be halted. The safety of the cultural objects is to be ensured by construction borders 50 m away from the respective objects.

Social and Economic Impacts There may be the loss of land through acquisition for the road, carried out according to the legislation of Kazakhstan and the Resettlement Action Plan (RAP). The activities of farmers may be interrupted, in contrast to the higher prospects of employment for local laborers. There will be temporary loss of trade along the road, but compensation for the temporary usage of land plots shall be given to the affected peoples through the legislation of Kazakhstan and the RAP.

Traffic Safety. With an expected increase in traffic during the construction and operation of the road, the traffic accident rate may also increase, specifically at the road sections, located close to settlements and crossings with secondary and the bypass roads. The impact will be mitigated by the speed limit enforcement, correct road marking and signage, provision of the underpasses to the cattle and ship, and use of the construction trucks only at the designated secondary roads.

Occupational Health and Safety (OHS) issues include a wide range of various risks including traffic accidents, injuries resulted from the strokes by moving equipment, falls from height, health issues related to hygiene on campus and other. Contractors will develop their site-specific OHS plans that will reflect site hazards and associated risks in terms of probability and significance of harm. This plan will prioritize the mitigation measures and reduce the risk to the level as low as reasonably practicable. Contractors will also provide training events to raise the awareness on the HIV/ AIDS and implement strict security measures prohibiting alcohol and trespassers in the camp.

Detailed mitigation measures and the relevant monitoring activities are presented in the relevant Environmental mitigation plan and the environmental monitoring management plan (tables below).

Land acquisition and resettlement

The proposed road rehabilitation entails the acquisition of land and associated impacts. However, it is anticipated that they will be minimal given the known horizontal alignment. For the Kurty-Togyz road section, according to the Resolution of akimat of Moiynkum District of Zhambyl

oblast dated November 28, 2016, 173, 9667 ha of state-owned land of agricultural use, namely pastures, shall be subject to land acquisition for road construction. Losses of agricultural production were calculated based on the Resolution of the Government of the RoK dated 08.10.2003 No. 1037 “Norms for Reimbursement of Losses of Agricultural Production”, which shall be transferred from the funds of the national budget to the account of the State Revenue Department of Moiynkum District in Zhambyl Oblast. As per the preliminary assessment, there were no adverse social impacts to people, properties, and their livelihood activities. A draft RAP was prepared detailing necessary measures to address social impacts including a GRM.

Five quarries are designated for reconstruction and construction, with total area of 26 hectares, and an additional quarry will also be developed, the area of which will be determined at a later phase. Two land plots (1.25 hectares) have been identified for temporary use of land during construction. These land plots will be purchased through willing seller-willing buyer arrangement for the road and roadside infrastructure. The draft Resettlement Action Plan (RAP) was prepared in accordance with the Land Acquisition and Compensation to be paid. It shows that 406.8667 hectares of agricultural land, mainly owned by the State will be required for the permanent works of the project. In addition to there will be some land are required temporarily for the construction and, accordingly, for quarries. The land needed for temporary use will be received on a voluntary or rental basis, through direct negotiations between landowners and contractors who will directly work with and use the land during construction period. Contracts specifying payment of compensation for the temporary use of lands will be concluded. The draft Resettlement Action Plan provided all detailed information regarding the types of land use of the land to be acquired.

According to the initial assessment, the Otar-Uzynagash road section will follow the existing road without any major changes to alignment, except the proposed bypasses. Only a few people will be affected by the project in connection with the construction of bypasses and road widening. As per initial assessment of bypasses, under the Otar-Uzynagash road section (from km 56 to km 162), 15 land lots to be acquired. Of these ten are agricultural lands grazing and are not used for cultivation, five are commercial lands, which are underdeveloped lands with no structures, therefore no loss in incomes or demolition of structures is anticipated. no other potentially affected persons were identified. However, additional land acquisition may be required for the widening of the road and construction in certain remote areas. The RAP's requirements are binding to both the Government of Kazakhstan through the Committee for Roads and the Contractors involved in the Project implementation.

Labor influx and management of worker camps

The construction activities require both skilled and unskilled labor. As per the experience from pervious road sections completed through Bank funds, contractors may accompany a sizable number of outside labor force (It is difficult make an estimate on actual size/number required at this stage). Nevertheless, influx of labor will be kept minimal and project will employ local labor force as much as possible for construction works. The road sections completed under the previous Bank support shows that the labor camps established by the contractors are managed well and no reported incidence of adverse social impacts or disputes with local communities. A specific GRM will be established at local community and camp level to address issues related to labor camp management. “Good Practices” and experience of previous road construction projects will be replicated in managing labor camps and to minimize risks related to labor influx.

Public Hearings and Information Disclosure

Public hearings and consultations were held in August 2014, as well as in March and May 2016 for Kurty-Togyz section. The discussions focused on the design, location of junctions and cattle

crossings, the location of construction sites (concrete plants, construction camps, parking area, etc.), and water supply sources. Additional public hearings were held from April 17, 2017, to April 21, 2017. The subjects, such as description of road projects already completed, the positive conclusion of the State Expertise, all environment protection, resettlement and land acquisition issues, as well aspects of cultural heritage were communicated to all participants, including Project Institutes, representatives of the CfR of MID RK, NC Kazavto Zhol JSC, and consultants. The related ESMP has been translated into Russian and English, and published on websites of the Project, Committee for Roads, and the associated rayon akimats. The draft ESMP in English has been published on the World Bank website on June 1, 2017.

Similarly, for the settlements along the road section in the Zhambyl oblast (for Otar-Uzynagash road section), public hearing was held at the end of August 2015 as part of the ESIA preparation. The designers also held a public hearing on July 21, 2015 on the road section in the Almaty oblast in the Sarybastau settlement. Additional public hearings were held from April 17, 2017, to April 21, 2017 to reflect findings of the draft ESMP and draft RAPs. All materials were published at the Western Europe – Western China website (www.europe-china.kz) in Russian and English languages.

Conclusions

The proposed road widening project will have moderate environmental and social impacts. With appropriate mitigation measures during the project construction phase, the impacts referred to in this report will be acceptable in environmental and social aspects. The improvement and widening of Kurty – Togyz (Burybaital) and Uzynagash - Otar road section of the Western Europe – Western China Corridor will bring social and economic benefits to the communities living along the road. Under the developed ESMPs, the project will be acceptable ecologically in accordance with environmental legislation. The site specific final RAP will be prepared and specifies all mitigation measures to minimize potential social impacts and alternative solutions for temporary restrictions to people and livelihood activities during constructions. A project specific Grievance Redress Mechanism (GRM) has been established and will be available to all affected persons to submit grievances, if any.

After completion of the project, MID will be responsible for all operation and maintenance, including the reclamation of temporary work sites and monitoring of fauna. The PMC, in cooperation with the regional/oblast akimats, will conduct regular monitoring according to the schedule of the monitoring plans.

**ENVIRONMENTAL MANAGEMENT PLAN: MONITORING AND INSTITUTIONAL RESPONSIBILITY: KURTY –TOGYZ
(BURYBAITAL) ROAD SECTION (km 2295-2380)**

Construction stage - PROJECT IMPACTS; MITIGATION MEASURES, MONITORING AND RESPONSIBILITY

CATEGORY	POTENTIAL IMPACT	SIGNIFICANCE	LOCAL IMPACTS	MITIGATION	RESPONSIBILITY	MONITORING	RESPONSIBILITY	LONG TERM IMPACT
1. Air quality	<p>Air pollution: emissions from construction machinery and equipment, emissions from cement-concrete, asphalt-concrete plants, crushers, etc.</p> <p>Dust: from construction activities</p> <p>borrow pits/quarries and crushers</p> <p>transportation of materials</p>	Potentially significant, locally without mitigation, and will worsen during dry seasons	<p>Generally, in the area of construction, the existing roads or bypass roads;</p> <p>Potential impact on the adjacent areas near Kanshengel, Mynbai, Kurty, etc. villages;</p> <p>Local influences in Sections 1 and 2 are not expected</p>	<p>All vehicles and equipment used in construction must be up-to-date, regularly undergo maintenance and used according to recommendations of manufacturers.</p> <p>All access and bypass roads shall be watered.</p> <p>All plants/dust-generating equipment should be operationally faultless and located at a distance away from all sensitive zones.</p>	<p>The contractor bears responsibility for implementation of mitigation measures.</p> <p>Construction Supervision Consultant monitors the compliance with mitigation plan.</p>	<p>Regular (monthly) monitoring by licensed laboratories at designated sampling points and on-site compliance checks by Construction Supervision Consultant (CSC), Engineer and local environmental protection authorities. The sampling points will be defined by the Project monitoring programs, which will be developed by individual contractors and are required by the law.</p> <p>Parameters to be monitored follow the EHS Guidelines including: nitrogen oxides, inorganic dust, sulfur oxide, carbon, PM10, PM2.5 and carbon monoxide. Meteorological parameters during sampling include air temperature, emission rate, atmospheric pressure and air humidity.</p>	<p>Contractors</p> <p>Construction Supervision Engineer</p>	Long term impact is limited
2. Noise and vibration	Noise from construction machinery and	Potentially significant	The areas of construction; access and bypass roads.	All vehicles and equipment used must be up-to-date, undergo regular maintenance and used according to	The contractor bears responsibility for implementation of	Regular (monthly) monitoring by licensed laboratories at designated sampling	Contractor (through licensed laboratories) Construction	There will be no long term impact

	<p>equipment</p> <p>Noise from cement-concrete and asphalt concrete plants, crushers, etc.</p> <p>Transport noise on the access roads</p>		<p>Potential impacts on residential areas.</p> <p>Potential impacts on the areas near Kanshengel settlement;</p> <p>Local impacts on Sections 1 and 2 are not predicted.</p>	<p>recommendations of manufacturers.</p> <p>All plants have to work according to recommendations of the manufacturer and located at distance away from residential areas.</p> <p>Any types of works during night time near residential areas of the settlements of Kanshengel and Aidarly, Mynbai and Kurty should be prohibited.</p> <p>Speed shall be restricted to 60 km/h for all construction machinery.</p>	<p>mitigation measures.</p> <p>Construction Supervision Consultant monitors the compliance with mitigation plan.</p>	<p>points and on-site compliance checks by Supervision Engineer.</p> <p>Values should be compared versus the measurements done as baseline level (before construction starts)</p>	Supervision Engineer	
3. Water, drainage system and floods	<p>Pollution by a runoff from the construction sites in the areas of bridge construction is possible</p> <p>Infiltration of the polluted water in the water-bearing horizons</p> <p>Pollution of underground waters at pits/quarries (accidental spills)</p> <p>Pollution of surface and underground water sewage from camps.</p>	<p>Influence is moderate to low. Places of water intakes from wells (drinking water and process water) and Kurty river (process water) will be agreed with Committee for Water Resources.</p> <p>Pollution of underground waters is unlikely as deep soil excavation isn't planned.</p> <p>Pollution from camps can be moderate to significant</p>	<p>Potential impacts in the area of Kurty river (bridge construction).</p> <p>Potentially – all alignment</p> <p>Areas of location of the construction camps</p>	<p>Committee for Roads, Committee for Water Resources and Akimats of districts in consultation with contractors. The contractor shall ensure water intake only from designated sources.</p> <p>Good housekeeping at construction sites.</p> <p>Areas of potential pollution of rivers will be designed to prevent accidental spills and runoff and protected by sediment settlement ditches.</p> <p>Sewage at construction camps will be collected in septic tanks and transported/discharged at wastewater treatment plants.</p> <p>Borrow pits need to be created at minimum 500 m distance</p>	<p>Committee for Roads, Committee for Water Resources in consultation with contractors.</p> <p>The contractor bears responsibility for implementation of mitigation measures.</p> <p>Supervision Engineer monitors the compliance with mitigation plan.</p>	<p>Regular (monthly) monitoring by licensed laboratories at designated sampling points and on-site compliance checks by Construction Supervision Consultant (CSC), Engineer and Regional office of the Committee on Water Resources implement control on site. Controlled parameters include: pH, density, resistance, solid residues, chlorides, nitrogen nitrogen, nitrate nitrogen, fluoride, insoluble matter, etc (e.g., all applicable feasible water parameters referenced in the EHS</p>	Contractors in consultation with Construction Supervision Consultant and environmental protection authorities	Long-term impacts are possible water intakes are made not from the sustainable water sources

				from any river		Guidelines)		
4. Erosion and pollution of soils and subsoil layers	Soil erosion (wind and water) is possible due to removal and destruction of topsoil and subsoil layers. Pollution of the soil and subsoil layers as a result of construction and accidental spills.	Potential impacts are low to medium (earthworks on the alignment and operation of borrow pits).	Local impacts are expected only in the areas of borrow pits and earthworks on subgrade along the alignment.	All recommended methods on reduction and elimination erosion were included in the program of construction Construction methods on reduction or elimination of pollution of soils and subsoil layers. Storage of topsoil and topsoil management	The contractor bears responsibility for implementation of mitigation measures. Construction Supervision Consultant monitors the compliance mitigation plan.	Contractors Construction Supervision Engineer	Contractors Construction Supervision Engineer Committee for Roads	Erosion is possible if there is no proper management and prevention during construction.
5. Flora and fauna and the sensitive and protected territories	Impacts on vegetation along the alignment. Disturbance of fauna in the area of influence of the construction works	Potential impacts are Low to Medium Impacts on conservation areas will be minimal. Temporary disturbance of birds and animals in close vicinity to the construction sites, concrete mixing plants, crushers or borrow pits is possible.	Moderate loss of vegetation is possible. Illegal hunting is possible	Culverts, animal underpasses and bridges will serve as crossing points for wild animals. Illegal hunting near the project area will be prohibited. The contractor should prevent his personnel from hunting within the conservation area.	The contractor bears responsibility for implementation of mitigation measures. Construction Supervision Consultant monitors the compliance with design and mitigation plan.	Regular monitoring of proper vegetation and rational topsoil management by the Contractor. Construction Supervision Consultant will monitor the compliance with design and mitigation plan.	Contractors Construction Supervision Engineer Committee of Forestry and Wildlife	No significant long-term impact on flora and fauna is expected
6. Social / Economic / Farmers	Land loss/ land plots acquisition. Possibility of employment during construction Inconvenience in terms of crossing and activities of farmers Loss of trade along the	Potential impacts are low to moderate Employment opportunities emerge for local population Potential impacts on farmers (animal husbandry)	There are cases of land (open space land plots) acquisition along the alignment	Land acquisition will be carried out according to the legislation of Kazakhstan and Resettlement Action Plan (RAP) Encouragement of hiring of local labor Consideration with local population on additional cattle	Contractors Akimats	Committee for Roads, Akimats/local authorities and contractors	Regular monitoring of possible impacts on farmers by Construction Supervision Consultants Committee for Roads will monitor if the affected persons were compensated.	Long-term consequences are possible if cattle crossings are not provided

	road			crossings (August 2014) Compensation for temporary use of land plots in the form of loss of income should be paid or other appropriate mechanisms put in place according to the legislation of Kazakhstan and RAP				
7. Historical and archeological monuments	Some archaeological monuments on Section 1 are within right of Way. Danger of loss and destruction of burial mounds outside the RoW on Section1 There are no historic or cultural sites on Section 2.	Potential impacts on archaeological monuments Nos. 6 and 7	Potential impacts on archaeological monuments Nos. 6 and 7	Archaeological monuments Nos. 6 and 7 should be fenced to secure protection. Memorial plates will be relocated in coordination with local authorities. Other historic places outside Right of Way, but within 2 km from the road have to be protected from plunder and destruction. Chance finds procedure to be followed by the contractors. According to the state procedures, works will be immediately suspended, for studying, record and excavation. Ensure safety of cultural resources by observing conservation zones of 50 m from the borders of the respective objects	The contractor will be responsible for fencing of the archaeological monuments # 6 and #7 and relocation of memorial plates. In case of chance finds, the contractor should immediately inform the Ministry of Culture on any found artifacts or remnants, and stop all construction works and notify the authorities on cultural heritage. Protection of other monuments on Section 1 is responsibility of state institutions on protection of cultural and archaeological heritage (i.e. Ministry of Culture)	Construction Supervision Engineer, local authorities and authorized representative of the Ministry of Culture will check compliance with this plan and chance finds procedure.	Construction Supervision Consultants and authorized representative of the Ministry of Culture	Provided that all laws will be observed and the specified archaeological sites # 6 and 7 will be fenced and memorial plates relocated, long-term influences are not expected.
8. Traffic safety	The traffic volume on the main road can affect traffic safety.	Potential impact is low to medium	Sections of the alignment close to settlements and places of access/bypass roads joining the main road	Speed limit enforcement. Proper installation of road signs and application of marking Informing local population. Responsible actions of the	Committee for Traffic Police and the contractors	Regular monitoring and reporting of any accidents and complaints	Construction Supervision Consultants Committee for Traffic Police	There are no long-term impacts

				<p>contractor.</p> <p>Arrangement of additional crosswalks, if required.</p> <p>Compliance with occupational safety rules during construction to minimize potential impact on local communities:</p> <p>Construction machinery shall adhere to the agreed access roads and comply with speed restrictions</p> <p>Installation of information plates in relation to threats to public safety and information about contact entities in case of emergency situations</p> <p>Prevention of impacts of dangerous materials and waste that are located at the site on the population</p> <p>Accounting of livestock which temporarily cross the site territory and road and interfere with traffic</p> <p>These measures shall be a part of the Construction Plans for Environmental Management, which shall include traffic management plans</p>				
9. Waste management	Generation of the construction debris and household wastes which are subject to landfill disposal.	Potential impact is low to medium	Potential impacts near construction camps	<p>Construction debris will be used (if technically possible) for construction of subgrade.</p> <p>Household waste should be regularly disposed at designated landfills</p> <p>Hazardous waste should be properly managed and discarded by licensed companies at specific landfills</p>	Contractor together with local authorities	Construction Supervision Consultant should carry out regular monthly monitoring of sites and activities on waste collection and disposal	Construction Supervision Consultant and local authorities	Provided that all waste will be taken out to designated landfills, long-term impacts are not expected

				assigned by regions/municipalities				
10. Borrow pits/quarries and access roads	<p>Quarries/Borrow pits:</p> <p>Local violations in environment, especially dust and noise from equipment and vehicles.</p> <p>Inconveniences for agricultural activities</p> <p>Access roads:</p> <p>Inconveniences for agricultural activities</p>	<p>Potential impacts are possible. The existing pits have been already defined, but additional borrow pits will be required.</p> <p>Location of access roads shall be coordinated with local authorities within 2 weeks after the beginning of works.</p>	<p>Significant local impacts near pits and access roads are possible.</p>	<p>All borrow pits and access roads shall be coordinated prior to the commencement of works</p> <p>Only approved pits can be used, together with the plan of works production on closing and reclamation</p>	<p>Contractors</p> <p>Local authorities</p>	<p>Regular monthly and special monitoring of any impacts, cases and complaints</p> <p>Where applicable, the borrow pits used to source construction materials should undergo a closure process including backfilling and revegetation activities following construction</p>	<p>Construction Supervision Engineer and local authorities</p> <p>Contractor</p>	<p>Provided that impacts are mitigated properly, long-term influences are not expected.</p>
11. Occupational Health and Safety	<p>Air, noise pollution, operating environment risks</p>	<p>Medium</p>	<p>As a rule, the existing and bypass roads at the main construction site;</p> <p>Potential impacts on the employees of the contractor and nearby villages</p>	<p>Compliance with health and safety requirements in accordance with the laws of the RK and the WBG.</p> <p>Develop an integrated program of occupational health and safety measures, which will be in line with the national laws, monitoring and management systems, covering any works under the Project. The system shall include the following:</p> <p>Analysis and control of specific risks</p> <p>Requirements for personal protection equipment and compulsion mechanisms</p> <p>Assignment and introduction of areas for smoking</p> <p>Training of the entire personnel in safety using their language</p> <p>Review of contactors' plans for occupational health and safety, orientated on the standards</p>	<p>Contractor</p>	<p>Regular (daily) monitoring of personal safety among workers</p>	<p>Contractors</p> <p>Construction Supervision Consultant (CSC)/Engineer</p>	<p>No long-term impacts</p>

				<p>same as the plans of the design company</p> <p>Control over development/implementation of occupational safety and safety measures of the contractor, including compulsory reporting to CSC.</p> <p>Account, including common operating hours, lost operating hours due to accidents, description of time loss cases, admission to hospitals, fatal cases</p> <p>Instructions for exchange of information for risks, prevention of accidents, etc.</p> <p>Requirements for labor protection shall be followed by all parties, involved in the Project construction and operation.</p> <p>Worker Safety Action Plans developed to minimize accidents and incidents resulting from road works</p> <p>Emergency Preparedness and Response Plans developed</p>				
12. Contractor's construction camps	Increase in health problems among the community and workers, particularly STD such as HIV/AIDS and STD	Medium	<p>As a rule, existing and bypass roads on the main construction section;</p> <p>Potential impacts on the nearby villages</p>	<p>Issuance of the Code of Conduct to workers, training and creation of information educational campaigns in relation to dissemination and transmission of STD and HIV/AIDS for construction workers and local communities living near the construction camps.</p> <p>Ensuring free distribution and provision of contraceptives to construction workers by the Contractor to avoid dissemination of STD and</p>	Contractors	Regular (daily) monitoring of personal safety among workers	<p>Contractors</p> <p>Construction Supervision Consultant (CSC)/ Engineer and local authorities</p> <p>Experts for HIV/AIDS programs</p>	No long-term impacts

				<p>HIV/AIDS</p> <p>Place informative posters and brochures about HIV/AIDS using local languages in crowded places, at coach stations, schools and roadsides to minimize dissemination of HIV/AIDS.</p> <p>Sanitary and necessary requirements for training of construction workers in accordance with the laws of Kazakhstan, control and assessment of HIV/AIDS program: proper storage and handling of dangerous substances and condition of wearing protective clothing for workers.</p> <p>Construction contract shall include the provision about the Contractor's obligation to provide a first aid station in the construction camp, and that qualified paramedical personnel shall be permanently full-time employed. Simple first aid materials for different minor injuries shall be available at any time for all construction sites; etc.</p>				
13. Closure process for borrow pits	Impact on soil, land, and natural resources	Medium impact	At the borrow pits locations and surroundings	Where applicable, the borrow pits used to source construction materials should undergo a closure process including backfilling and revegetation activities following construction	Contractor or Owner of the borrower pit	Monitoring of the closure process in line with the revegetation/reclamation plan	Supervisor Engineer and Committee for Roads shall ensure proper closure process for borrow pits have taken place following construction	

IMPACTS DURING OPERATION; MITIGATION MEASURES, MONITORING AND RESPONSIBILITY

CATEGORY	POTENTIAL IMPACT	SIGNIFICANCE	LOCAL IMPACTS	MITIGATION	RESPONSIBILITY	MONITORING	RESPONSIBILITY
1. Air quality	Emissions from transport on the road Emissions from activities for repair and the maintenance of roads	Insignificant provided that vehicles are in good condition	Potential impact on adjacent sites near the settlement of Kanshengel; Other local impacts are not expected	All vehicles have to conform to standards of emissions All equipment for repair and the maintenance of the road conforms to standards of emissions Regular monitoring near sensitive areas to determine the need for additional mitigation measures	Committee for Roads and Committee of Environmental Regulation and Control of Almaty oblast	Monitoring of air quality in line with EHS Guideline (N2, NOx, CO2, CO, C, hydrocarbon) near residential areas and other areas if necessary. Frequency of monitoring will be determined based on monitoring data on traffic intensity.	Contractors during defects liability period
2. Noise	Emissions from transport on the road Emissions from activities for repair and the maintenance of roads	Insignificant provided that vehicles are in good condition	Potential impact on adjacent sites near the settlement of Kanshengel; Other local consequences are not expected	All vehicles have to conform to standards of noise Old and faulty vehicles should not be placed or located on the road To observe the minimum and maximum restriction of speed All equipment for repair and the maintenance of the road conforms to standards of noise	Committee for Roads and Committee for Environmental Regulation and Control of Almaty oblast	Monitoring of noise levels near residential areas and other areas if necessary. Frequency of monitoring will be determined based on monitoring data on traffic intensity.	Contractors during defects liability period
3. Water, drainage system and floods	Sustainability of water sources for operation Floods Pollution of surface and underground water because of activities on the road and rest/service areas	Potentially localized impacts Pollution will not be significant if the road is in effective management.	No specific local impacts are expected	To maintain drainage systems operational. Good management and the maintenance of the road will provide a normal flow of water courses.	Committee for Water Resources KazakhAvtoDor RSE Local executive authorities	Monitoring of ground water and drainage water quality in line with EHS Guidelines within the right of way of the alignment Frequency of monitoring will be determined based on monitoring data on traffic intensity.	Committee for Water Resources
4. Flora and fauna and conservation areas	Long-term impact on wild animals, particularly on the migration and relocation routes Disturbance of flora and fauna	Impacts are low	There are no specific local impacts	Underpasses for cattle will serve as crossing points for wild animals (it is already included in the project)	“Okhotzoorpom” PO” RSCE and Forestry	Committee for Roads, Committee of Forestry and Wildlife and regional administration	“Okhotzoorpom” PO” RSCE and Department of Forestry and Wildlife KazakhAvtoDor RSE together

	<p>from use of salts and chemicals for thawing of snow and ice</p> <p>The increase in illegal hunting is possible because of increased access</p>			<p>To study the need for additional crossings using culverts and under bridges for large mammals.</p> <p>To control and prohibit illegal hunting</p>	Department		with regional administration shall control the demands in additional points of crossing of the road for mammals, etc.
5. Social / Economic / Farmers	<p>Increase in economic activity because of the improved road.</p> <p>Opportunities for permanent job in the maintenance of roads</p> <p>Opportunities for business and employment in roadside service areas</p> <p>Some disturbance of activities of farmers affected by land acquisition for construction of the road</p>	<p>Significant economic and social benefits</p> <p>Some adverse impacts on activities of farmers due to the need to use underpasses for animals and/or agricultural machinery.</p>	<p>There are no specific local influences, except for agricultural and grazing lands.</p> <p>Settlements along the existing road</p>	<p>To hold informative events for local population, explaining them how to receive benefit from the improved road</p> <p>To consider additional cattle crossings and passes for agricultural machinery if necessary and as required (see mitigation measures)</p>	<p>Regional administration and KazakhAvtoDor RSE have to consider additional points of crossing (bridges) in cooperation with local population, if necessary.</p> <p>Akimats/local authorities</p>	<p>Monitoring of adverse impacts on local population and farmers</p> <p>Affected persons will be contacted to check if compensation has been paid to them or any other compensation forms took place.</p>	Administrations of districts and Almaty oblast
6. Traffic safety and aesthetics	<p>Increased number of road accidents</p> <p>Danger to pedestrians, there is not sufficient number of crosswalks</p>	Low / medium level of impact	Ordinary passes, crossing the road alignment	<p>Special measures in the project will reduce risk of accidents: median strip, good visibility, limited access, road signs, etc.</p> <p>There will be some settlements near the road, and very few pedestrians near the road and road crossing</p>	Already included in the project	Monitoring and registration of all traffic accidents	KazakhAvtoDor RSE
7. Waste management	Wastes from the maintenance of roads and rest / service areas: problems of waste collection and disposal	Low impact	In rest and service areas	Committee for Roads shall ensure regular cleaning and collection of all liquid and solid waste and its disposal according to the approved rules and procedures. The company for road operation will be responsible for collecting waste	KazakhAvtoDor RSE and local administration	Regular monthly monitoring of sites and waste collection and disposal in line with approved waste management plan.	KazakhAvtoDor RSE

				from rest / service areas.			
8. Closure process for borrow pits	Impact on soil, land, and natural resources	Medium impact	At the borrow pits locations and surroundings	Where applicable, the borrow pits used to source construction materials should undergo a closure process including backfilling and revegetation activities following construction	Contractor or Owner of the borrow pit	Monitoring of the closure process in line with the revegetation/reclamation plan	Supervisor Engineer and Committee for Roads shall ensure proper closure process for borrow pits have taken place following construction

ENVIRONMENTAL MANAGEMENT PLAN: MONITORING AND INSTITUTIONAL RESPONSIBILITY: UZYNAGASH-OTAR ROAD SECTION (km 63-162)

IMPACTS DURING CONSTRUCTION, MITIGATION MEASURES, MONITORING AND RESPONSIBILITY

CATEGORY	POTENTIAL IMPACT	SIGNIFICANCE	LOCAL IMPACTS	MITIGATION	RESPONSIBILITY	MONITORING	RESPONSIBILITY	LONG TERM IMPACT
1. Air quality	Air pollution: emissions from construction machinery and equipment, emissions from cement-concrete, asphalt-concrete plants, crushers, etc. Dust: from construction activity borrow pits and crushers transportation of materials	Potentially significant, especially during dry season	Generally, in the main area of construction, the existing roads or bypass roads; Potential impact on adjacent Akshatau village Local impacts on sites in Almaty and Zhambyl oblasts is not predicted	All vehicles and the equipment used in construction have to be modern, be appropriately maintained and used according to recommendations of manufacturers. All access and bypass roads have to be watered. All plants/dust-generating equipment should be in good repair and be located at distance from all sensitive zones.	The contractor shall bear the responsibility for implementation of mitigation measures. Supervision Engineer monitors the compliance with mitigation plan.	Regular (monthly) monitoring by licensed laboratories at designated sampling points and on-site compliance checks by Construction Supervision Consultant (CSC), Engineer and local environmental protection authorities. The sampling points will be defined by the Project monitoring programs, which will be developed by individual contractors and are required by the law. Parameters to be monitored follow the EHS Guidelines including: nitrogen oxides, inorganic dust, sulfur oxide, carbon, PM10, PM2.5 and carbon monoxide. Meteorological parameters during sampling include air temperature, emission rate, atmospheric pressure and air humidity	Contractors Construction Supervision Consultant (CSC)/Engineer	Long term impact is limited
2. Noise and vibration	Noise from construction machinery and equipment Noise from cement-concrete and asphalt concrete plants, crushers, etc.	Potentially significant	The area of construction, access and bypass roads. Potential impact on nearby residential areas. Potential impact on Akshatau village Local impacts on Almaty and Zhambyl oblasts are	All vehicles and the equipment being in use in construction have to be modern, regularly maintained and used according to recommendations of the manufacturers. All plants/noise making equipment have to be in good	The contractor shall bear responsibility for implementation of mitigation measures. Supervision Engineer monitors the compliance with mitigation plan.	Regular (monthly) monitoring, implemented by certified laboratory in specified places of selection of tests and Construction Supervision	Contractors (through licensed laboratories) Construction Supervision Consultant (CSC)/Engineer	No long term impact

	Transport noise on the access roads		not predicted.	repair and locate at distance from settlements. Any types of works during night time near villages and settlements of Almaty and Zhambyl oblasts should be prohibited. Speed limit of 60 km/h for all construction equipment shall be enforced.		Consultant (CSC), Engineer and local authorities (EP and SES bodies) on-site.		
3. Water, drainage system and floods	Pollution by a runoff from the construction sites in the areas of bridges construction is possible Infiltration of the polluted water in the water-bearing horizons Pollution of underground waters at pits/quarries (accidental spills) Pollution of surface and underground water sewage from camps	Influence is from moderate to insignificant. Places of water intakes from wells (drinking water and technical water) will be agreed with Committee on Water Resources. Pollution of underground waters is unlikely as deep soil excavation isn't planned. Pollution from construction camps can be from moderate to significant	Potential impacts on the adjacent rivers (construction of artificial bridges) Potentially – entire alignment Areas of location of construction camps	Committee for Roads, Committee on water resources and Akimats of districts in consultation with contractors. The contractor shall provide water intake only from designated sources after the receiving of special permission for water use Good management at construction sites. Areas of potential pollution of rivers will be designed to prevent accidental spills and runoff and protected by sediment basins. Sewage at construction camps will be collected in septic reservoir and transported/discharged at wastewater treatment plants.	Committee for Roads, Regional Departments of the Committee of water resources (permits for water intakes) and Akimats of districts in consultation with contractors. The contractor shall bear responsibility for implementation of mitigation measures. Construction Supervision Consultant (CSC), Engineer monitors the compliance with mitigation plan.	Regular (monthly) monitoring by licensed laboratories at designated sampling points and on-site compliance checks by Construction Supervision Consultant (CSC), Engineer and Regional office of the Committee on Water Resources implement control on site. Controlled parameters include: pH, density, resistance, solid residues, chlorides, nitrogen nitrogen, nitrate nitrogen, fluorine, insoluble matter, etc (e.g., all applicable feasible water parameters referenced in the EHS Guidelines)	Contractors (through licensed laboratories) Construction Supervision Consultant (CSC), Engineer Committee on water resources	Long-term impacts are possible in case of non-execution of mitigation measures
4. Erosion and pollution of soils and subsoil layers	Soil erosion (wind and water) due to removal of vegetation and topsoil. Pollution of the soil and subsoil layers as a result of construction and accidental spills.	Potential impacts are low to medium (excavation works and operation of borrow pits).	Local impacts are expected only in the areas of borrow pits and earthworks on embankment along the alignment.	All recommended methods on reduction and elimination of an erosion were included in the program of construction Construction methods on reduction or elimination of pollution of soils and subsoil layers. Storage of topsoil and topsoil management	The contractor shall bear responsibility for implementation of mitigation measures. Construction Supervision Consultant (CSC), Engineer monitor the compliance with design impact reduction plan.	Contractors Construction Supervision Consultant, the Engineer	Contractors Construction Supervision Consultant (CSC), Engineer the Committee for Roads	Erosion is possible if there is no proper management and prevention during construction.
5. Flora and fauna and the sensitive and protected territories	Impacts on vegetation along the alignment. Disturbance of fauna in the area of influence	Potential impacts are Low to Medium Temporary disturbance of birds	Moderate loss of planting. Illegal hunting is possible	Culverts, animal underpasses and bridges will serve as crossing points for wild animals.	The contractor shall bear the responsibility for implementation of the mitigation measures.	Regular monitoring of proper vegetation and rational topsoil management shall be	Contractors Construction Supervision Consultant	No significant long-term impact on flora and

	of the construction works	and animals in the immediate proximity to the construction sites, concrete plants, crushers or borrow pits is possible.		Illegal hunting around the project area will be prohibited.	Construction Supervision Consultant (CSC), Engineer shall monitor the compliance with design impact reduction plan.	carried out by the Contractor. Construction Supervision Consultant (CSC), Engineer shall monitor the compliance with design impact reduction plan.	(CSC)/Engineer Local Committee of forest management and wildlife	fauna is expected
6. Social / Economic / Farmers	Land loss/ land acquisition. Possibility of employment during construction Inconvenience for farmers (cattle crossing the road) Loss of trade along the road	Potential impacts are low to moderate Employment opportunities emerge for local population Potential impacts on farmers (animal husbandry)	There are cases of land (open space land) acquisition along the alignment	Land acquisition will be carried out according to the legislation of Kazakhstan and Resettlement Action Plan (RAP) Encouragement of hiring of local labor Consideration with local population on additional cattle crossings as required (October 2014) Compensation for loss of income should be paid or other appropriate mechanisms will be put in place according to the legislation of Kazakhstan and RAP	Contractors Akimats	CfR, Akimats/local authorities and contractors	Regular monitoring of possible impacts on farmers shall be carried out by Construction Supervision Engineer Committee for Roadswill monitor the compensation payment to the affected persons.	Long-term consequences are possible if cattle crossings are not built
7. Historical and archeological monuments	75 Objects of historical and cultural heritage were revealed within right-of-way, including: -24 objects are archaeological sites; - 2 objects are monuments of public art; - 8 objects are modern cemeteries; -51 objects are modern memorials.	Potential impacts on burial grounds along the road	Potential indirect impacts on archaeological sites if such are identified	During road reconstruction it is required to comply with the requirement for protection area of not less than 50 m from the borders of the objects; archaeological sites shall be fenced for protection purposes. Memorial place marks will be relocated in coordination with local authorities. Other historical places outside the Right of Way, but within 2 km from the route have to be protected from plunder and destruction. Contractors shall observe the appropriate procedures in case of findings. According to the state procedures, works will be immediately stopped, for studying, record and excavation. Ensure safety of cultural resources by observing	The contractor will be responsible for fencing of the archaeological monuments, burial grounds and for relocation of memorial monuments In case of finds of additional discovery, the Contractor should immediately inform the Department of Cultural Heritage and Art of the Ministry of Culture and Sport on any found artifacts or remains, and stop all construction works and notify the authorities on cultural heritage. Protection of other monuments is responsibility of institutions on protection	Construction Supervision Consultant (CSC)/Engineer, local authorities and authorized representatives of the Department of Cultural Heritage and Art of the Ministry of Culture and Sport will check compliance with this plan and procedures in case of finds discovery.	Construction Supervision Consultant (CSC)/Engineer and authorized representatives of the Department of Cultural Heritage and Art of the Ministry of Culture and Sport	Provided that all laws will be observed and the specified archaeological sites will be fenced and memorial place marks relocated, long-term influence is not expected.

				conservation zones of 50 m from the borders of the respective objects	of cultural and archaeological heritage (i.e. Ministry of Culture and Sport)			
8. Traffic safety	The traffic volume on the main road can affect the traffic safety	Potential impact is from low to medium	Road sections, located close to settlements and places of access/bypass roads joining the main road	<p>Speed limit enforcement</p> <p>Correct road marking and signage shall be erected</p> <p>Informing of local population.</p> <p>Responsible actions of the contractor.</p> <p>Organization of additional crosswalks, if necessary.</p> <p>Compliance with occupational safety rules during construction to minimize potential impact on local communities:</p> <p>Construction machinery shall adhere to the agreed access roads and comply with speed restrictions</p> <p>Installation of information plates in relation to threats to public safety and information about contact entities in case of emergency situations</p> <p>Prevention of impacts of dangerous materials and waste that are located at the site on the population</p> <p>Accounting of livestock which temporarily cross the site territory and road and interfere with traffic</p> <p>These measures shall be a part of the Construction Plans for Environmental Management, which shall include traffic management plans</p>	Committee of road traffic police of the MIA of the RK Contractors	Regular monitoring and reporting of any accidents and complaints	Construction Supervision Consultant (CSC)/Engineer Committee of road traffic police of the MIA of the RK	No long-term impacts
9. Waste management	Generation of the construction debris and household wastes which are subject to landfill disposal.	Potential impact is low to medium	Potential impacts near construction camps	<p>Construction debris will be used (if technically possible) for roadbed construction.</p> <p>Household waste must be regularly exported from the section to the designated landfills</p> <p>Hazardous waste should be properly managed and</p>	Contractor in cooperation with local authorities	Construction Supervision Consultant (CSC)/Engineer should carry out regular monthly monitoring of sites and activities on waste management	Construction Supervision Consultant (CSC) and local authorities	Provided that all waste will be exported to the designated landfills, long-term impacts are not expected

				discarded by licensed companies at specific landfills assigned by regions/municipalities				
10. Borrow pits and access roads	Borrow pits: Local violations in environment, especially dust and noise from equipment and vehicles. Inconveniences for agricultural activity Access roads: Inconveniences for agricultural activity	Potential impacts are possible. Existing pits have been already defined, however additional borrow pits will be required: Locations of access roads have to be coordinated with local authorities within 2 weeks after the beginning of works.	Considerable local impacts near pits and access roads are possible.	Location of borrow pits and access roads have to be coordinated prior to the works commencement Only borrow pits approved by local authorities can be used, together with the plan of works on closing and reclamation	Contractors Regional offices of the Committee for construction, housing and utilities infrastructure and land resources management of the RK	Regular monthly and special monitoring of any influences, cases and complaints Where applicable, the borrow pits used to source construction materials should undergo a closure process including backfilling and revegetation activities following construction	Construction Supervision Consultant and local authorities	Provided that impacts are mitigated properly, long-term influences are not expected.
11. Health and Safety	Air, noise pollution, operating environment risks	Medium	As a rule, the existing and bypass roads at the main construction site; Potential impacts on the employees of the contractor and nearby villages	Compliance with health and safety requirements in accordance with the laws of the RoK and the WBG. Develop an integrated program of occupational health and safety measures, which will be in line with the national laws, monitoring and management systems, covering any works under the Project. The system shall include the following: Analysis and control of specific risks Requirements for personal protection equipment and compulsion mechanisms Assignment and introduction of areas for smoking Training of the entire personnel in safety using their language Review of contactors' plans for occupational health and safety, orientated on the standards same as the plans of the design company Control over development/implementation of occupational safety and safety	Contractor	Regular (daily) monitoring of personal safety among workers	Contractors Construction Supervision Consultant (CSC)/Engineer	No long-term impacts

				<p>measures of the contractor, including compulsory reporting to CSC.</p> <p>Account, including common operating hours, lost operating hours due to accidents, description of time loss cases, admission to hospitals, fatal cases</p> <p>Instructions for exchange of information for risks, prevention of accidents, etc.</p> <p>Requirements for labor protection shall be followed by all parties, involved in the Project construction and operation.</p>				
12. Contractor's construction camps	Increase in health problems among the community and workers, particularly STD such as HIV/AIDS and STD	Medium	<p>As a rule, existing and bypass roads on the main construction section;</p> <p>Potential impacts on the nearby villages</p>	<p>Issuance of the Code of Conduct to workers, training and creation of information educational campaigns in relation to dissemination and transmission of STD and HIV/AIDS for construction workers and local communities living near the construction camps.</p> <p>Ensuring free distribution and provision of contraceptives to construction workers by the Contractor to avoid dissemination of STD and HIV/AIDS</p> <p>Place informative posters and brochures about HIV/AIDS using local languages in crowded places, at coach stations, schools and roadsides to minimize dissemination of HIV/AIDS.</p> <p>Sanitary and necessary requirements for training of construction workers in accordance with the laws of Kazakhstan, control and assessment of HIV/AIDS program: proper storage and handling of dangerous</p>	Contractors	Regular (daily) monitoring of personal safety among workers	<p>Contractors</p> <p>Construction Supervision Consultant (CSC)/ Engineer and local authorities</p> <p>Experts for HIV/AIDS programs</p>	No long-term impacts

				<p>substances and condition of wearing protective clothing for workers.</p> <p>Construction contract shall include the provision about the Contractor's obligation to provide a first aid station in the construction camp, and that qualified paramedical personnel shall be permanently full-time employed. Simple first aid materials for different minor injuries shall be available at any time for all construction sites; etc.</p>				
9. Closure process for borrow pits	Impact on soil, land, and natural resources	Medium impact	At the borrow pits locations and surroundings	Where applicable, the borrow pits used to source construction materials should undergo a closure process including backfilling and revegetation activities following construction	Contractor or Owner of the borrower pit	Monitoring of the closure process in line with the revegetation/reclamation plan	Supervisor Engineer and Committee for Roads shall ensure proper closure process for borrow pits have taken place following construction	

IMPACTS DURING OPERATION; MITIGATION MEASURES, MONITORING AND RESPONSIBILITY

CATEGORY	POTENTIAL IMPACT	SIGNIFICANCE	LOCAL IMPACTS	MITIGATION	RESPONSIBILITY	MONITORING	RESPONSIBILITY
1. Air quality	Emissions from vehicles on the road Emissions from roads repair and maintenance activities	Insignificant provided that vehicles are in good operating conditions	Potential impact on adjacent sections in Almaty and Zhambyl oblasts; Other local consequences are not expected	All vehicles must meet emissions standards All the equipment used for road repair and maintenance meets emissions standards Regular monitoring near residential areas to determine the necessity for additional mitigation measures	Committee for Roads, Committee for Environmental Regulation and Control of Almaty and Zhambyl oblasts	Monitoring of air quality in line with EHS Guideline (N ₂ , NO _x , CO ₂ , CO, C, hydrocarbon) near residential areas and other areas if necessary. Frequency of monitoring will be determined based on monitoring data on traffic intensity.	Contractors within the DLP
2. Noise	Emissions from vehicles on the road Emissions from roads repair and maintenance activities	Insignificant provided that vehicles are in good operating conditions	Potential impact on adjacent sections in Almaty and Zhambyl oblasts; Other local consequences are not expected	All vehicles must meet noise level standards Old and faulty vehicles must not be found on the road Compliance with minimum and maximum speed limits All the equipment used for road repair and maintenance meets noise level standards	Committee for Roads, Department of Environment of the Committee for Environmental Regulation and Control and Sanitary-and-Epidemiologic Institutions of Almaty and Zhambyl oblasts	Monitoring of noise levels near residential areas and other areas if necessary. Frequency of monitoring will be determined based on monitoring data on traffic intensity.	Contractors within the DLP
3. Water drainage system and floods	Stability of water sources for operation Floods, pollution of surface and ground water due to activities on the road and in services/rest areas	Potentially localized impact Pollution is insignificant if the road is effectively managed	There are no specific local impacts	Maintaining drainage system in a proper condition Good road management and maintenance will ensure normal watercourses	Committee for Water Resources "Kazakhavtodor" Republican State Enterprise Local executive authorities	Monitoring of ground water and drainage water quality in line with EHS Guidelines within the right of way of the alignment Frequency of monitoring will be determined based on monitoring data on traffic intensity.	Committee for Water Resources
4. Flora and fauna and protected territories	Long-term impacts on animals, especially migration and movement routes. Disturbance of flora and fauna resulted by the use of salts and chemical substances for deicing There might be an increase in illegal	Low impact	No specific localized impacts	Cattle droves will serve as passages for wild animals have been incorporated in the design Study the necessity of additional passages through pipes under the bridges for big mammals	Oblast regional inspection of the Department for Forestry and Fauna	Committee for Roads, Committee for Forestry and Fauna, as well as oblast administration	Oblast regional inspection of the Department for Forestry and Fauna "Kazakhavtodor" Republican State Enterprise jointly with the district administration follows the necessity in additional crossing points within the alignment for mammals and others

	hunting due to wider accessibility			Control and prohibit illegal hunting			
5. Social / Economic / Farmers	Increase in economic activities due to the improved road. Opportunities for constant work within the roads maintenance Opportunities for business and employment in roadside service areas Some disturbance to the activities of farmers who were affected by land acquisition for the road construction	Significant economic and social benefits Some unfavorable consequences in relation to the farmers' activities due to the necessity of underpasses use for movement of cattle and agricultural machinery	There no specific localized impacts, except for agricultural and grazing lands Villages along the existing road alignment	Hold informative activities for local communities on benefits that can be obtained from the improved alignment Consider additional livestock droves and passages for agricultural machinery if necessary and required (See Mitigation Measures)	Local executive authorities and "Kazakhavtodor" Republican State Enterprise will consider additional underpasses (bridges) in collaboration with local communities, if necessary Akimat/ local executive authorities	Monitoring of unfavorable impacts on local communities and farmers Affected persons will be kept in touch for checking compensation payment and other compensation forms provision	Administration of districts and Almaty and Zhambyl oblasts
6. Traffic safety/ Aesthetics	Increase in accidents Danger for pedestrians, there is not sufficient amount of pedestrian crossings	Low/ medium impact level	Regular passages crossing the road alignment	Special measures in the project will decrease the accidents risk: dividing strip, good visibility, limited access and exits, guard posts, etc. There will be several settlements near the road and a small number of pedestrians near the road or roads intersection	Have been incorporated in the design	Monitoring and registration of all road accidents	"Kazakhavtodor" Republican State Enterprise
7. Waste management	Waste generated from the road maintenance and rest/service areas: collection and disposal issues	Low impact	In rest and service areas	Committee for Roads should provide regular cleaning and collection of all liquid and solid wastes, as well as disposal in accordance with approved regulations and procedures. The company for road operation will be responsible for waste collection from rest/service areas	"Kazakhavtodor" Republican State Enterprise and Committee for Environmental Regulation and Control	Regular monthly monitoring of sites and wastes collection and disposal	"Kazakhavtodor" Republican State Enterprise