SNC·LAVALIN

IPPF SIW - Mongolia: Ulaanbaatar to Darkhan Road Environmental and Social Assessment (ESA)

Supplementary document: Non-Technical Summary (NTS)

July 2019

Notice

This document and its contents have been prepared and are intended solely as information for and use in relation to Supplementary document

SNC-Lavalin assumes no responsibility to any other party in respect of or arising out of or in connection with this document and/or its contents.

This document has 29 pages including the cover.

Document history

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	Draft	VS	KP	KP	GJ	05/07/19
Rev 2.0	Final	VS	KP	KP	GJ	09/07/19
Rev 3.0	Final for issue	VS	KP	EBRD	GJ	10/07/19

Contents

Tables

Figures

Acronyms and abbreviations

Acronym / Abbreviation	Description
ADB	Asian Development Bank
AH	Asian Highway
AoI	Area of Influence
EBRD	European Bank for Reconstruction and Development
EIA	Environmental Impact Assessment
DEIA	Detailed Environmental Impact Assessment
EN	Endangered
ESAP	Environmental and Social Action Plan
ESIA	Environmental and Social Impact Assessment
ESMMP	Environmental and Social Management and Monitoring Plan
GEIA	General Environmental Impact Assessment
IUCN	International Union for Conservation of Nature
LARF	Land Acquisition and Resettlement Framework
LARP	Land Acquisition and Resettlement Plan
LC	Least Concern
MCPC	Mongolian Construction Project Consultants Group LLC
MET	Ministry of Environment and Tourism
MNS	Mongolian National Standard
MRTD	Ministry of Road and Transport Development
NTS	Non-Technical Summary
O&M	Operation and Maintenance
PIU	Project Implementation Unit
PR	Performance Requirement
SEP	Stakeholder Engagement Plan
Soum	*Mongolian* Eng. District

1. Introduction

1.1. Project Background

The European Bank for Reconstruction and Development (EBRD) is considering providing finance to the Government of Mongolia, though the Ministry of Road and Transport Development (MRTD), for the widening of the Ulaanbaatar to Darkhan Road [Asian Highway 3 or "AH-3"]. The road currently exists as approximately 202 km, 2-lane road of improved surface which runs from the capital city, Ulaanbaatar, to the second largest city in Mongolia, Darkhan.

The widening project forms Phase II of road reconstruction works and covers the expansion of the road to a 4-lane road (referred to as "the Phase II Project or the Project"). Phase I works comprise the reconstruction of the existing 2-lane road and are being funded by an Asian Development Bank (ADB) loan (referred to as the "Phase I project").

The Phase II Project is classed by the EBRD as a Category A project, which means that a comprehensive Environmental and Social Assessment (ESA) of the Project must be undertaken, including a gap analysis of the local Detailed Environmental Impact Assessment (DEIA) and the provision of supplementary documents where necessary to meet the EBRD's 2014 Environmental and Social Policy (ESP) and Performance Requirements (PRs).

WS Atkins International (Atkins), together with Sustainability East Asia LLC (SEA) have been commissioned by the EBRD to undertake the ESA. This Non-Technical Summary (NTS) is one of a number of supplementary documents provided to meet the EBRD's ESP and PRs, as follows:

- Supplementary Environmental and Social Impact Assessment (ESIA);
- Environmental and Social Management and Monitoring Plan (ESMMP);
- Stakeholder Engagement Plan (SEP);
- Land Acquisition and Resettlement Framework (LARF); and
- Environmental and Social Action Plan (ESAP).

1.2. Purpose of the Non-Technical Summary

The purpose of this NTS is to provide an easily understandable summary of the information that is provided in the Supplementary reports identified above. It provides the public with information about the Project, including the outcomes of the ESIA, the management actions to address positive and negative environmental and social impacts, Stakeholder Engagement and Grievances.

1.3. Scope of the Non-Technical Summary

This NTS identifies:

- The Project and alternatives considered;
- Summary of environmental and social impacts associated with the Project during construction and operation;
- Mitigation measures and monitoring requirements to address negative impacts;
- Summary of management measures; and
- Overview of the Stakeholder Engagement Plan and Grievance Mechanism.

2. Description of the Project

2.1. Project Overview

In 2017 the Government sponsored a feasibility study for rehabilitation of the road between Ulaanbaatar and Darkhan; and a Government resolution for the proposed works was approved by the Government of Mongolia on 5 September 2018. The proposed works were split into two phases:

- Phase I - rehabilitation of the existing road; and
- Phase II - expansion by construction of a further 2-lane road.

Phase I is being financed by the ADB and covers reconstruction of the 2-lane road and improvements to road safety. Requests for tenders for the construction of the Phase I project were issued at the end of April 2019, and construction works are anticipated to start in Summer 2019.

Phase II works comprise the widening of the road to a 4-lane highway, which EBRD is considering funding. It is anticipated that work will be carried out between Autumn 2019 and Summer 2020.

2.2. Need for the Project

Mongolia is connected to the Asian Highway Network through three routes - the AH-3 (Altanbulag-Ulaanbaatar-Zamiin Uud), AH-4 (Yarant-Khovd-Ulgii-Ulaanbaishint) and AH-32 (Sumber-Undurkhaan-Ulaanbaatar-Tsetserleg-Uliastai-Khovd-Ulgii-Ulaanbaishint), as shown in Figure 2.1.

The AH-3, of which the Project is a part, connects Russia-Mongolia-China and is a vital part of the “Economic Corridor” of the three countries. The AH-3 route runs for 1,029 km within Mongolia and passes through the major economic region of Mongolia. One of the main aims of upgrading the road is to improve its ability to accommodate freight transportation between Altanbulag-Ulaanbaatar-Zamin Uud.

Figure 2-1. Mongolia’s road network[1]

[1] *Source: MCPC (21 May 2019), Engineering Explanatory Report – Part 1.*

Figure 2-2. AH-3 route of Asian Highway Network in Mongolia (Ulaanbaatar-Darkhan section in red)[2]

Daily traffic volumes measured in 2017 were 4,250 vehicles per day and are projected to reach 6,127 vehicles per day in the year of operation (2020) and 74,114 vehicles per day by 2040. The condition and safety of the existing 2-lane road will be improved by the Phase I works, however, Phase I alone will not be able to cope with these future increases in traffic.

Non-implementation of the Phase II Project would result in:

- Lack of capacity of the existing 2-lane road of increases in traffic;
- Failure to meet current standards for traffic capacity;
- Failure to meet health and safety requirements;
- Increase in the number of accidents; and
- Failure to provide better service for drivers and passengers.

2.3. Key Project Characteristics

2.3.1. Project Route

The route of the Project is shown in Figure 2-3. The Project has been divided into five sections or “lots” and starts from the roundabout junction of Darkhan-Emeelt outside Ulaanbaatar and passes through three aimags and six soums, finishing in the south of Darkhan City, as follows:

- Soums of Bayanchandmani and Bornuur and Sumber in Tuv aimag;
- Soums of Bayangol and Mandal in Selenge aimag; and
- Khongor soum and Darkhan city in Darkhan-Uul aimag.

[2] *Source: MCPC (21 May 2019), Engineering Explanatory Report – Part 1.*

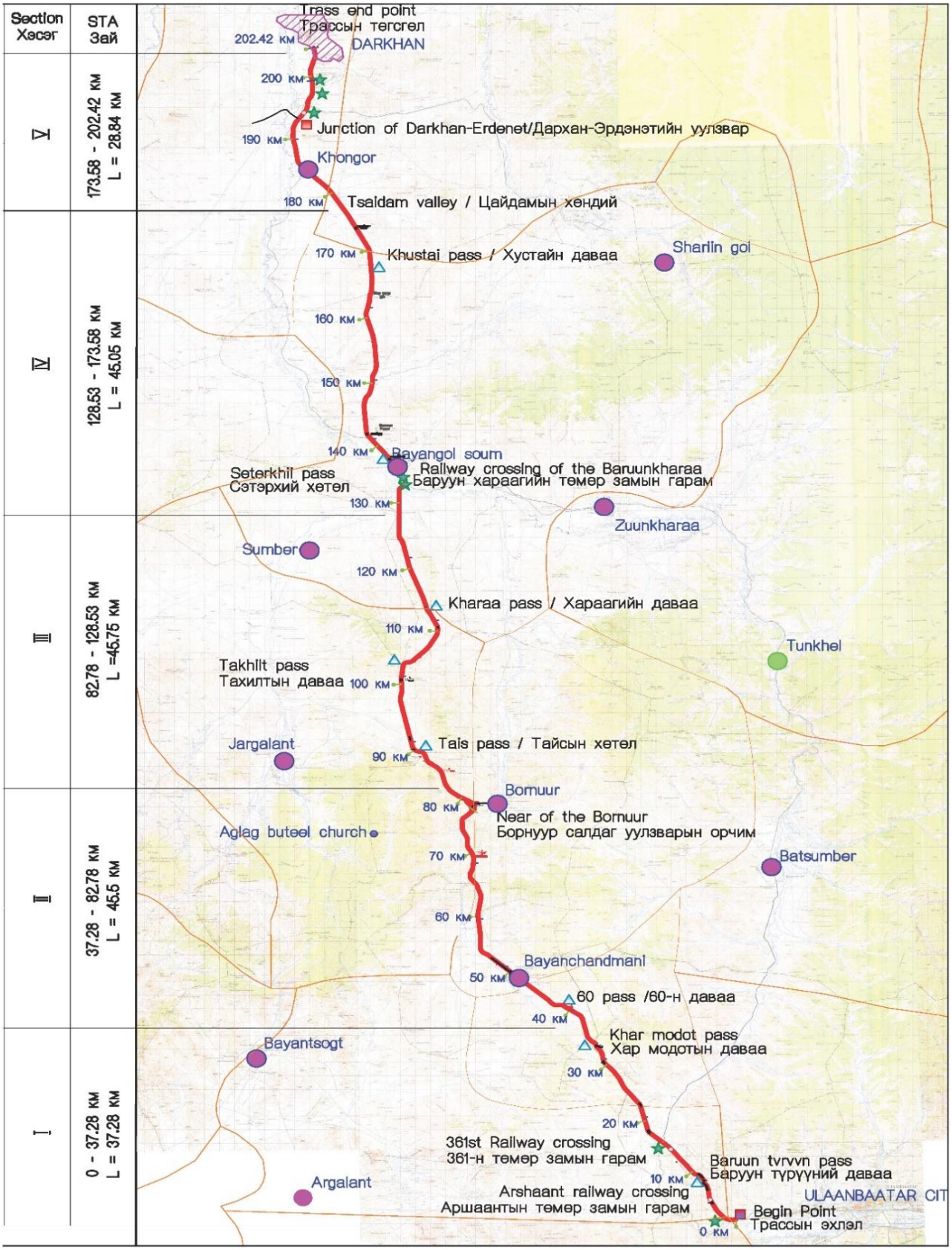

Figure 2-3. Project road location[3]

[3] *Source: MCPC (21 May 2019). Engineering Explanatory Report – Part 1.*

2.3.2. Proposed Works

The Project will include:

- construction of a new road, including roundabouts, U-turns and stopping areas;
- provision of road furniture (barriers, lights, pedestrian crossings, etc.);
- construction of crossings over eight railways;
- construction and rehabilitation of bridges and culverts; and
- rehabilitation of toll booths.

The road will be widened both on-line and off-line, with approximately 68 km to be widened adjacent the existing road and the remaining 134 km to be offline from the existing road by approximately 16-18 m from the centreline of the existing road.

A number of structures will be required as follows:

Table 2-1. The list of the proposed structure at Ulaanbaatar – Darkhan road

Section	Length, km	Location	Proposed Structures	Comments
Section I	37.28	From roundabout junction for Darkhan and Western aimags to north of Khar Modot (52nd pass) Pass	2 bridges, 50 culverts; 14 of which are for animal and typical sedan crossings.	N/A
Section II	45.49	From north of Khar Modot Pass to south of Tais Pass	5 bridges, 66 culverts; 26 of which are for animal and typical sedan crossings.	This section of road goes through centre of Bayanchandmani Soum of Tuv aimag and crosses the minor rivers of Darigant, Shariin Gol, Saikhan, Shivert and Shavart.
Section III	45.75	From the vicinity of Urikhan diner to road junction of Sumber Soum, Tuv aimag or Bor Tolgoi	64 box and pipe culverts are designed for this section; 8 of which are animal and typical sedan crossing.	The section goes through parts of Tais, Takhilt and Kharaa Passes.
Section IV	45.06	From Bor Tolgoi or road junction of Sumber Soum, Tuv aimag to Tsaidam Valley	Works comprise 44 box and pipe culverts and 2 bridges; animal and human crossings are proposed at 13 points.	This section goes through the centre of Bayangol Soum, Selenge aimag, and crosses the Kharaa and Bayan Rivers.
Section V	28.84	From Tsaidam Valley to roundabout junction in Darkhan	Works comprise a total of 34 drainage culverts; animal and human crossings are proposed at 16 points.	N/A

2.3.3. Construction Phase

Typical works that will be required during construction include:

- Development of the work sites and workers' accommodation camps;
- Mobilisation and installation of crushing and concrete plant;
- Mobilisation of supplies and materials necessary for construction (vehicles, trucks, construction equipment);
- Temporary signage and the setting up of deviations where necessary;
- General cleaning, clearing and cutting of trees where necessary; and
- Installation of drainage.

Earthworks will include cutting and/or embankments, however, at this stage it is yet to be determined if all earthworks will be undertaken under the Phase I works to avoid two stages of earthworks.

The types of equipment that will be required includes:

- Bulldozers
- Graders
- Dump trucks
- Mechanical shovels on wheels or on track
- Finisher
- Sweeper
- Pneumatic compactors
- Water tanks
- Fuel tanks
- Loaders
- Concrete mixer
- Generators
- Mobile crane
- Mixer trucks
- Pumps
- Circular saw
- Painting equipment

2.3.4. Operation Stage

The road has been designed for a 20-year lifespan.

The design speed is 100 km per hour for almost 70% of the road, with 80 km per hour adopted for difficult sections of Baruunturuu, Khar modot and Takhilt passes and 60 km per hour in urban areas. Two speed cameras and five video surveillance cameras linked to traffic monitoring centres are currently proposed.

Operational and maintenance activities typically include routine maintenance such as clearing the road and unplanned maintenance such as repairing potholes.

2.4. Project Alternatives

The Project has considered alternatives to site locations and layout, and to the road pavement technology. A 'No Project' alternative was also considered and rejected as this could result in failure to meet standards related to traffic capacity, health and safety requirements, accidents and failure to provide better service for drivers and passengers.

Three options were considered with relation to the route of the road, including a new road and an online road adjacent to the existing road. The construction of the road along the existing route, which runs both adjacent to the road where technically feasible, and offline where this is not feasible, has been chosen.

Two options were considered for road pavement technology. It was decided to choose asphalt concrete pavement rather than cement concrete due to the lower pavement and maintenance costs, and to tie into the Phase I pavement type.

3. Legal Aspects and Compliance

3.1. National Requirements

The Environmental Impact Assessment (EIA) requirements of Mongolia are regulated by the Law on EIA, 1998 (amended in 2002 and 2012). The terms of the law apply to all new projects, as well as rehabilitation and expansion of existing industrial, service or construction activities and projects that use natural resources.

The type and size of the planned activity define responsibility as either Ministry of Environment and Tourism (MET) or aimag (provincial) government.

There are two types of EIAs defined in Law, a General EIA (GEIA) and a Detailed EIA (DEIA); the EIA procedure requires the following:

- **Preparation of a Baseline Environmental Survey Report –** this is prepared by the project implementer.

- **GEIA - screening** - to initiate a GEIA, the project implementer submits to MET a number of the documents including a Finalized Project Design or an approved Feasibility Study, Baseline Environmental Survey Report, a letter from the soum governor, technical details, and drawings.

  The GEIA may lead to one of four conclusions:

  - no detailed EIA is necessary,
  - the project may be completed pursuant to specific conditions,
  - a Detailed EIA is necessary, or
  - the project cancellation.

- **DEIA** – the scope is defined by the GEIA. The DEIA report must be produced by a Mongolian company which is authorized by MET with a special license to conduct DEIA. The developer of the DEIA should submit it to the MET. Based on the conclusion of the expert, MET takes a decision about approval or disapproval of the project.

The process and status of the national EIA for the Project is summarised in Table 3-1. The DEIA has been approved by MET in May 2019.

The Project will also comply with relevant Mongolian environmental and social legislation.

Table 3-2. Status of national EIA process

Date	EIA stage
January 2019	The Feasibility Study for the Project included an Environmental Baseline Assessment, which was submitted to MET in accordance with EIA law.
24 January 2019	The MET issued a GEIA statement advising the need to undertake DEIA. As such, in 2019, the Project has been subject to a DEIA in accordance with Mongolian law.
12 April 2019	A DEIA Report was prepared and submitted to MET.
2 May 2019	The report was discussed by the DEIA assessment panel and has been approved by MET.

3.2. EBRD Requirements

The EBRD requirements include compliance with their PRs. The PRs applicable to this Project are:

- PR 1: Assessment and Management of Environmental and Social Impacts and Issues;
- PR 2: Labour and Working Conditions;
- PR 3: Resource Efficiency and Pollution Prevention and Control;
- PR 4: Health and Safety;
- PR 5: Land Acquisition, Involuntary Resettlement and Economic Displacement;
- PR 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- PR 8: Cultural Heritage; and
- PR 10: Information Disclosure and Stakeholder Engagement.

The EBRD also requires the Project to meet all relevant European Union (EU) environmental standards.

The most relevant EU Directive in relation to the Project is EU Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment, as amended by 2014/52/EU (the EIA Directive) and the EU Directive on the conservation of wild birds (2009/147/EC), referred to as the Birds Directive.

EBRD also observes the Aarhus Convention (on Access to Information, Public Participation in Decision-making and Access to Justice in Environmental Matters), the Espoo Convention (on Environmental Impact Assessment in a Transboundary Context) and the International Labour Organization (ILO) conventions.

4. Summary of Environmental and Social Impacts and Mitigation Measures

4.1. Construction Phase

4.1.1. Air Quality

Main potential impacts on air quality during construction will be associated with generation of dust and gaseous emissions.

Earth works will result in exposed areas of soil which will potentially generate dust when it is windy. Road construction activities will result in dust generation from site preparation, site excavation, construction activities and movement of heavy goods vehicles. The presence of concrete batching plant could also result in significant emissions of dust. Although unlikely to cause long-term or widespread changes to local air quality, the Project road is in an area where dust is already a concern for residents, and for example living quarters such as yurts/gurs are not equipped with glass windows to prevent dust ingress. Impacts will mainly be felt where properties are within 50 m of construction roads or 350 m of the construction sites, which may affect a few properties, particularly where works are undertaken in the towns.

The main sources of gaseous emission during construction will be road construction machinery, equipment and trucks used for material transportation. The greatest impact on air quality from these emissions will be in the areas immediately adjacent to site works and access.

With the implementation of mitigation measures proposed below, the overall impact on air quality from dust during construction is considered to be Minor to Moderate Adverse (depending on weather conditions) and Minor adverse for gaseous emissions. These impacts will be temporary where construction works are in progress.

The following mitigation measures have been recommended:

- An Air Quality Management Plan will be prepared and implemented.
- Compliance with Mongolian dust emission standard (MNS 4585: 2007).
- Soil stripping during windy periods will be prohibited where this does not constrain the construction programme; or water dousing will be employed.
- Blasting activities will be restricted during windy conditions.
- Construction vehicles will strictly follow approved routes to avoid creating multiple earth tracks.
- Earth material transporting trucks will be covered with tarpaulin.

Monitoring requirements will include:

- Monthly monitoring of sulphur dioxide, carbon oxide and nitrogen dioxide at active construction spots and at locations of sensitive sites (e.g. residential properties) in the Project Area.
- Monthly monitoring of dust emissions at the select locations in the Project Area.

4.1.2. Noise and Vibration

During construction, vehicle engine and transmission mechanisms are a source of noise and vibration. The road corridor is already subject to traffic noise from the existing road. Excavation and reconstructing embankments will be major noise sources however these sites are generally far from settlements. Based on the likely activities to be employed during construction, it is inevitable that some disturbance to those living nearby will arise however, overall, noise impacts during construction are temporary and for the most part localised.

With the implementation of mitigation measures proposed below, the overall impact on noise and vibration during construction is considered to be Minor Adverse.

The following mitigation measures have been recommended:

- A Noise and Vibration Management Plan will be prepared and implemented.

- Noise emission levels of vehicles and machinery will comply with national standards.
- Location and duration of noisy activities will be limited near sensitive receptors.
- No noise generating activities will take place from 10 pm to 6 am unless this unavoidable. If night-time works are required, noisy activities should not be carried out during core sleep hours.
- Advance warning to local community regarding construction activities (e.g. construction schedule). Community grievance mechanism will be in place.

Monitoring requirements will include:

- Monthly monitoring of noise and vibration levels.
- Regular monitoring of noise emission levels of equipment and machinery at all construction vehicles

4.1.3. Soils

Loss and disturbance of soils, compaction, potential soil loss though erosion where vegetation is disturbed or removed, and contamination are anticipated from construction activities. The road will be constructed on State land located within the existing road's 50 m right of way as set out in Mongolian Road law. No loss of agricultural land or pastureland is anticipated. Potential pollution to soils may also occur from accidental spills.

With the implementation of mitigation measures proposed below, the overall impact on soils will be Minor Adverse.

The following mitigation measures have been recommended:

- A Soil Management Plan and Spill Prevention and Response Plan will be prepared and implemented.
- Construction sites will be properly organized and managed to reduce the amount of degradation to adjacent areas.
- Rehabilitation of soils will be undertaken at disturbed areas according to a Reinstatement Plan.

Monitoring requirements will include:

- Quarterly monitoring of heavy metals in soils from sampling points along the road corridor.

4.1.4. Surface Water and Groundwater

The Project crosses several rivers and seasonal streams. Works in and near rivers could result in changes to the hydromorphology of the rivers, pollution and flood risks.

Impacts on surface water and groundwater may occur due to demand for the construction works and the workforce which may deplete local resources, construction site clearance and activities that may result in changes to the natural drainage regime and the risk of pollution from accidental spills. Accidental damage may also occur above ground well infrastructure during the construction works.

It is anticipated that groundwater wells will be developed and used for construction water requirements.

With the implementation of mitigation measures proposed below, the overall impact on water resources and quality will be Minor Adverse with the exception of the water demand during construction which, even with the implementation of water efficiency measures, will still result in a demand above current baseline use, and therefore potentially result in a Moderate Adverse effect.

The following mitigation measures have been recommended:

- A detailed Water Needs and Supply Assessment will be undertaken; All necessary permits will be obtained from the basin administration. No surface or groundwater to be used without prior permissions in place.
- A Water Management Plan, Spill Prevention and Response Plan and Emergency Preparedness and Response Plan will be developed and implemented.
- **Special water protection zones** will be established around the crossing points of the Kharaa, Saikhan and Bayangol rivers and Bornuur lake with a **50 m** radius. Within this zone, construction workforce washing vehicles or throwing waste will be prohibited.
- **Water protection zones** will be established at the crossing points of the Kharaa, Saikhan and Bayangol rivers and Bornuur lake with a **200 m** radius. Within this zone, it will be prohibited to: establish worker camps, use quarry and borrow sites, use crushing plant and concrete batching plant, implement a waste disposal site or erect toilets.

- No local herder wells will be used for the Project water source. Local herder wells will be mapped within and adjacent to the Project footprint. Any local herders' wells adjacent to construction works will be demarcated and protected from damage. Any loss of wells by local herders will be replaced.

Monitoring requirements will include:

- Monthly monitoring of surface water quality in Bornuur lake, Kharaa river, Saikhan river and Bayangol river for general chemical quality and heavy metals.
- Quarterly monitoring of groundwater from nearby water wells – detailed chemical analysis and heavy metals.

4.1.5. Materials Use and Waste Management

The consumption of materials and generation of waste will occur as part of the Project. During construction materials required will include aggregate, concrete, sand and bitumen. The consumption of natural and non-renewable resources will have an adverse impact on material resources. Specific details in quantities required are not currently available, however the potential for significant effects will depend on the volumes required, origins and sources of materials, including their general. The majority of the materials will be provided in country, from existing resources which will re reduce the potential impact of sourcing new borrow pits.

Both non-hazardous and hazardous waste will be generated during the construction works. The generation, storage and disposal of waste can have an adverse effect. Anticipated waste types will include excavated material, construction material, municipal solid waste and liquid waste.

Hazardous waste such as used oil, empty drums or replaced parts of the construction machinery may cause environmental pollution if poorly disposed of.

There are no official landfills within the Project Area and the local area does not have a high standard of waste management. It is therefore likely that specific arrangements in relation to the waste management will be made.

With the implementation of mitigation measures proposed below, the overall impact on materials use is considered to be minor adverse and on waste, Minor to Moderate Adverse, depending on final waste disposal measures used.

The following mitigation measures have been recommended:

- A Materials Use and Waste Management Plan and Spill Prevention and Response Plan will be prepared and implemented.
- Primary materials consumption will be reduced by the reuse of material generated through demolition and excavation arisings in particular from the works undertaken during Phase I
- Waste permitting documentation/licenses will be obtained.
- Waste storage, collection, transportation and disposal will be undertaken according to the legal requirements, by licenced/certified companies.
- Waste will be disposed of to an official landfill site to be determined as part of the Project.

4.1.6. Flora and Fauna

There are no protected sites in or immediately adjacent to the Project footprint and vegetation species within the road corridor mostly consists of grass species and no rare and endangered species of plants. There is no detailed scientific study for fauna species for the road corridor, however local community surveys and a one day field reconnaissance survey have indicated some wildlife species occurrences along the road corridor area, including nesting birds, marmot (Endangered International Union for Conservation of Nature (IUCN) and Mongolian Red Data Book List) and the potential for red deer.

Impacts such as direct loss of flora and fauna habitats in the footprint of temporary and permanent landtake, degradation of natural habitats, disturbance and displacement of fauna, severance, and potential road traffic collisions are anticipated however, are not anticipated to be significant.

Damage may also arise to habitats from poor management of construction activities and equipment movement on site, and the unmanaged disposal of waste at undesignated off-site locations.

Damage to aquatic flora and fauna may occur from uncontrolled discharges e.g. chemical spills and fine sediment ingress, during works over and adjacent to river and stream crossings. There may be some small losses of watercourse and riparian habitat where new bridges and drainage culverts are constructed, and/or existing bridges and culverts are rehabilitated.

With the implementation of mitigation measures proposed below, the overall impact on vegetation and wildlife loss and disturbance due to road construction is expected to be Minor Adverse.

The following mitigation measures have been recommended:

- A survey of wildlife movement and distribution will be undertaken prior to construction. This will include a survey of marmot holes within any project landtake areas. Any mitigation measures proposed will be taken into account in the Biodiversity Management Plan.
- A Biodiversity Management Plan, Traffic Management Plan and Reinstatement Plan will be prepared and implemented.
- Special attention will be paid to protection of plant species in water protection zones.
- Any vegetation clearance should be programmed to be completed outside of the nesting and breeding bird season. Where this is not possible, it will be necessary for a pre-clearance walkover to be completed by a suitably qualified ecologist. Should any nests be identified, it is recommended that these are excluded from works until such time that the young birds have fledged the nest.
- Illegal hunting practices by the construction workforce will be strictly prohibited. Appropriate training awareness will be provided.
- All affected areas will be rehabilitated.

Monitoring requirements will include:

- Number and composition of species, biomass, growth rate and density prior to start of construction and then on annual basis along the road corridor.
- Percent of pastureland species, anthropogenic species and plant productivity change prior to start of construction and then on annual basis near grazing areas.

4.1.7. Cultural Heritage

All Project works that involve earthworks may potentially result in physical damage to previously identified or unidentified tangible cultural heritage sites, both archaeological objects and sacred sites, and loss or limitation of access to sacred sites.

A number of *ovoos* (scared stone piles) have been identified for relocation and are in the process of being moved in consultation with the owners. In addition, the ESIA Team identified two potential burial circular tombs/mounds of unknown age within the study area that could potentially be affected by the footprint or proposed temporary works areas.

Potential physical damage to both identified and unidentified tangible cultural heritage can be also caused by the presence of non-local workforce during construction.

Intangible cultural heritage in the context of the Project could be affected by the disturbance to traditional lifestyles due to the influx of non-local workforce during the construction works, that might lead to tensions/conflicts between workers and host population, especially nomadic herders.

The overall effect on identified and unidentified buried tangible cultural heritage, and intangible cultural heritage is considered likely to be Minor Adverse, provided that further survey work and a Chance Finds Procedure is implemented for all areas where earthworks will take place.

The following mitigation measures have been recommended:

- A Cultural Heritage Chance Finds Procedure and chance find register/reports will be prepared and available.
- If chance finds occur construction works will be stopped immediately, the project administration will notify the soum, district Governor, the police and the relevant authorities, and the professional to identify the finding will be hired.
- A professional organization will be hired to conduct archaeological and paleontological survey prior to construction, including review of two potential burial mounds identified in the ESIA.
- A Code of Conduct will be established to advise construction workers how to protect cultural heritage.

4.1.8. Employment, Economy and Livelihoods

Project construction will have a number of positive national, regional and local economic and employment benefits. The construction phase will be in the order of 24 months and it is expected that during this period, short term direct employment opportunities will be created. There will also be an increased demand for local

services and goods. Benefits may be enhanced if local companies are employed during construction and local business are promoted for use by the Construction contractors.

In the Project Area, unemployment is generally highest amongst the young (aged 16-34) therefore the livelihood opportunities of Project construction represent significant benefits, particularly, and most directly, for Project workers and their families for whom improved financial security, extended skills and experience, and enhanced self-esteem, will be relatively quickly realised.

With the implementation of mitigation measures proposed below, the overall impact on the economy, employment and livelihoods overall is considered to be Minor to Moderate Positive.

The following mitigation measures have been recommended:

- A Labour Management Plan and Grievance Mechanism will be in place.
- Contractors shall ensure their recruitment process is fully disclosed to the public and open to all people locally of working age and ability, including women.
- Contractors should ensure employment and training of the local workforce and collaborate with local authorities to reduce discrimination against local workers in the community.
- Contractors shall procure goods locally wherever possible, including perishable goods provided by stall holders who could adversely affected by the Project.

4.1.9. Land Use and Displacement

The land required for the road is immediately adjacent to the existing road in some sections and close to the existing road in other. As such, there are not anticipated to be any major permanent land use changes as a result of the Project. Areas of pasture land close to the existing road will mainly be lost to the road footprint. On a temporary basis, there may also be a loss of access to pasture associated with the location of construction workers' accommodation camps.

The road footprint and Project activities will also result in some physical and economic displacement. The MRTD and their Project Implementation Unit (PIU) have identified structures in the footprint of the road, which consists of Ovoos, road traffic accident memorials and other structures such as commercial structures and are consulting with the asset owners to agree compensation procedures for relocation of these structures. No residential properties are understood to be affected as a result of the Project footprint.

Temporary land take may also be required for workers' accommodation camps, haul roads and temporary storage areas.

A separate Land Acquisition and Resettlement Framework (LARF) has been prepared to report on these activities to date and the LARF sets out further actions that will need to be taken to meet EBRD requirements, such as the consideration of potential economic displacement of the Project e.g. the potential loss of, or damage to, crops, or loss of income to local businesses and employees due to potential restrictions in access during construction.

With the implementation of mitigation measures proposed below, the overall impact related to displacement is considered to be Minor Adverse.

The following mitigation measures have been recommended:

- A Land Acquisition and Resettlement Plan (LARP) will be prepared to identify all Project related displacement related to the Project footprint and construction activities and to identify appropriate compensation packages in line with EBRD requirements.
- A Grievance Mechanism will be in place.

4.1.10. Transport and Access

During construction, construction vehicles may need to use the existing road, which could result in increased traffic, congestion and general nuisance. Where works occur adjacent to the existing road, this may also result in access restrictions which will cause some general nuisance to local road users (road users and pedestrians). The route is considered a busy road, with traffic volumes in summer (when works are likely to be undertaken) higher. However, in general it is anticipated that construction related traffic will use haul roads which will reduce the impact of construction traffic on road users.

During the works, there may also be access restrictions across the works sites.

With the implementation of mitigation measures proposed below, the overall impact on transport and access is considered to be Minor Adverse.

The following mitigation measures have been recommended:

- A Traffic Management Plan will be prepared and implemented.
- Contractors will provide access points during construction across works areas, including provision for vulnerable people e.g. disabled.
- A Grievance Mechanism will be in place.

4.1.11. Community Health, Safety and Security

There are a number of public health, safety and security risks and impacts that need to be considered during construction, including public injuries as a result of, for example; increased road traffic; construction materials and equipment being dropped; and, machinery or operator loss of control. There are also elevated risks to public health as a specific result of increased construction traffic and equipment use, including, respiratory damage from protracted vehicle idling and delayed treatment as a result of reduced emergency response times due to demand on existing services; as well as increases in noise levels especially if equipment such as crushers are close to local properties.

These potential health and safety impacts will be associated mainly with the communities living in close proximity to road, including schools and health centres, as well as the isolated properties in close proximity to the road; herders and their livestock crossing the road; and road users. As site construction works will be restricted access areas, the main source of risk of injury will be from construction traffic.

In relation to safety and security, the presence of the construction workforce may lead to risks associated with 'local influx' if expat/or inter-regional workers move to the Project area for jobs. It is expected that the international Project workforce will be accommodated in temporary construction camps, with up to 10 camps being required (5 major camps and 5 sub-camps).

This influx of non-local workers could potentially cause local discomfort and nuisance as well as a health risk from the spread of Sexually Transmitted Diseases. During the community consultation local people expressed that road construction workers, especially foreign workers, should have respect for local people's livelihoods and customs.

With the implementation of mitigation measures proposed below, the overall impact on the community health and safety is considered to be Minor Adverse for health and safety and Moderate Adverse for security due to the number of contractors that will be on site.

The following mitigation measures have been recommended:

- A Traffic Management Plan and Community Health, Safety and Security Plan will be prepared and implemented.
- A Grievance Mechanism will be in place.
- Speed limits shall be imposed on construction traffic to minimise risk of accidents.
- Contractors shall undertake community liaison in advance of works to ensure that the local community and road users are aware of the risks associated with construction sites.
- Community awareness and responsibility training will be included as part of the induction programme for workers an all workers will be issued and trained in the Project Code of Conduct.

4.1.12. Labour and Working Conditions

Details about the labour procedures and management and construction camps are not yet known. However, it is expected that contractors will comply with the Mongolian Labour Code and will ensure that all employees, permanent and temporary, will be provided with a contract. In Central Asia, there have been cases of child labour and forced labour, which arises mainly due to the lack of supply chain monitoring. Construction workers' camps will be required to comply with EBRD PRs.

In relation to occupational health and safety, it is assumed that the contractors selected will have sufficient workforce and equipment to deliver the Project. However, as with all construction sites, there is a potential that workers could be exposed to an additional level of personal safety risk relating to workplace activities. The contractors will be required to develop management arrangements and procedures to remove hazards and, where this is not possible, to reduce risks to workforce health and safety.

With the implementation of mitigation measures proposed below, the overall impact on the labour conditions is anticipated to be Minor Adverse and on occupational health and safety, Minor Adverse though with significant consequences if an accident were to occur.

The following mitigation measures have been recommended:

- A Labour Management Plan will be prepared and implemented.
- A Labour Grievance Mechanism will be in place.
- Worker camps will be established in accordance with EBRD/IFC guidance: Workers' accommodation: processes and standards.
- An Occupational Health and Safety Plan will be prepared and implemented.
- Contractors shall ensure employment and training of the local workforce.
- Job and task specific hazard analysis and controls will be undertaken for all activities.

4.1.13. Infrastructure and Services

During the construction phase, there will be a demand for electricity, water and health facilities. Specific details on these demands are not currently known, however it is assumed that contractors will use both the national electricity grid and generators on site; and water will likely be obtained from boreholes sunk for the purposes of the Project.

There is also expected to be an increase in demand for general health services. Whilst there are a number of health facilities in the Project Area, of varying capability and capacity, the budgets for these facilities are provided locally and the stakeholder engagement exercise highlighted that their budgets are already stretched. This would be further impacted by workforces who rely on local health services when they are in the area.

With the implementation of mitigation measures proposed below, the overall impact on the infrastructure and local services is anticipated to be Minor Adverse.

The following mitigation measures have been recommended:

- Contractor will prepare details on resource use and efficiency and use of local services.
- As part of an Emergency Preparedness and Response Plan, Contractors will identify suitable health facilities for workers in liaison with local health facilities to ensure demand is not to detriment of local users. Requirements for local health facilities will be carefully coordinated.

4.1.14. Vulnerable People and Gender

The main groups that are considered vulnerable in the context of this Project, to both displacement and wider construction impacts, are herders; women, in particular young girls and children; the elderly; disabled; and the chronically ill. By virtue of their vulnerability, these people may be more adversely affected by Project impacts than others.

Most unskilled and skilled labour jobs are expected to be undertaken by men. However, there will be opportunities for local women to obtain jobs in catering, accommodation camps, service industry and administration. There may also opportunities for women experts to conduct technical work in planning, designing and mapping the Project. The influx of construction workers may cause conflict with local communities, in particular women and young girls; and poor ethically conduct with construction workers has been identified by Project stakeholders in the past along this road.

With the implementation of mitigation measures proposed below, the overall impact on the vulnerable people is considered to be Minor Adverse and Gender impacts Minor Adverse to potentially Minor Positive in relation to employment opportunities.

The following mitigation measures have been recommended:

- Temporary construction access points for local communities will be provided that make provision for vulnerable people e.g. disabled and elderly.
- Equal opportunities will be provided for women.
- A Grievance Mechanism will be in place.

4.2. Operation Phase

4.2.1. Economy and Livelihoods

Project operation will have a number of positive national, regional and local economic and employment benefits. The upgraded road will provide better transportation and operation parameters which will allow greater

traffic movements, including of trade along the economic corridor between Mongolia, Russia and China, ultimately benefitting the international and national economies as well as international and national traders.

Operations and maintenance staff will be required, serviced both from within the MRTD and through contracts with local road maintenance companies, however at this stage it is not known if additional workforce would be required.

Adverse livelihood impacts may be experienced by economically displaced persons where changes in their access rights continue into the operation phase; this may be the case for nomadic herders both during construction and operation. The design of the road has incorporated culverts under the road at regular intervals to provide access for herders, and therefore no adverse effects in operation are anticipated. During construction, restrictions of access across work fronts may limit herder access; this will need to be investigated by the contractor based on their working arrangements and where economic impacts are identified, the contractor will report thisin a Land Acquisition and Resettlement Plan (LARP).

With the implementation of mitigation measures proposed below, the overall impact on the economy and livelihoods is considered to be up to Moderate Positive, though there could be a residual Minor Adverse effect on herders due to restricted access across the road compared to the baseline situation. With the provision of the culvert crossings, overtime this adverse effect will be minimised as herders and livestock accommodate to the new access routes.

The following mitigation measures have been recommended:

- Ensure appropriate spacing of culverts in the design to accommodate main movements of herders along the route; based on advice provided during stakeholder engagement.
- Provision of educational meetings in relation to livestock use of the road, in particular herder households should be informed about potential collusions and penalties imposed by relevant law.

4.2.2. Transport and Access

The implementation of the Project will contribute to the improvement of transport links along a section of the AH-3, which is seen as an “Economic Corridor” connecting Russia, Mongolia and China. One of the main aims of upgrading this road is to improve its ability to accommodate freight transportation and increased future traffic on his axis.

Improved road conditions will result in improved transport links between soums, though it could impact on the current use by local traffic who will have to contend with 4-lanes and u-turns rather than the most simplified current configurations.

Whilst there will be some changes to the way people use the road, overall the impact on transport and accessibility, in particular at a national and international level, will be Moderate Positive. No mitigation measures are proposed.

4.2.3. Community Health, Safety and Security

Once completed, Phase I and II works will reduce potential risks to, and negative impacts on, the health and safety of road users. There are currently large areas of sub-standard surfacing on the existing road which cause drivers to swerve to avoid potholes and surface defects, often meaning they cross the centre line into incoming traffic. As part of the Phase I works, the road design at the ten major accident blackspots will be improved. The repair to road voids, cracks and obtrusions (Phase I), and the introduction of road traffic regulating measures like signage, barriers and crossroads (Phase I and II) will significantly improve road safety and, therefore, reduce the accident risk for Project road users. A moderate to Major Positive effect is therefore anticipated.

The provision of 4-lanes, particularly on mountainous passes, as part of Phase II works will improve safety conditions through the provision of a passing lane avoiding overtaking on blind bends. The majority of existing mountain passes which contain sharp bends include road restraint systems, but these do not always extend for the full length of the bend; these restraints will be included across the whole length of the road as a result of the Project.

On any road there is a risk of accidents/collisions with people and, in the Project case, livestock. The proposed speed limit will increase to 100 km per hour in sections, an increase over the current 80 km per hour, however the urban infrastructure and reduced speed limits in urban areas (60 km per hour) is likely to be improved over the current situation. There are currently pedestrian crossings in the soums, some of which have speed humps on their approach but not all. Street lamps are only present in larger soums. Whilst there is little information on

the final configuration of urban settlements, it is anticipated that improved facilities will be provided that cater for greater accessibility by all members of the community.

Driver behaviour was observed to be poor on many occasions, with opportunistic overtaking manoeuvres and aggressive driving techniques. Whilst the proposed road layout will not remove the causes of the driver behaviour, it should help reduce some of them. However, there may be a resultant issue in that drivers could be using the road without having any prior experience of the type of road (especially if from rural areas).

In rural areas, the occasional roundabout will serve to reduce speeds however, in general, it is likely that as currently, speed limits will not be observed. Speed cameras will be provided; however, their effect will depend on enforcement.

There are large sections of the road where animals currently roam freely and were observed to be on the carriageway in multiple locations. This could lead to collisions with vehicles, particularly during darkness as there is no lighting provided for large sections of the road. The change in access will reduce this risk.

Measures to warn of the presence of rail crossings sufficiently in advance of the crossings and consistent layout at each rail crossing point will improve the safety at these crossings.

The extent of the benefits to community health and safety will depend on the final road design however, assuming that the recommended measures are put in place, the effect will be Major to Moderate Positive. It is important to acknowledge that the Project will result in a likely increase in traffic over time, as expressed above; though increased traffic volumes are not a safety concern in isolation, and with the appropriate signage and speed limits risks should be minimised.

The road layout and the increase in traffic could, however, result in delays to local travel. In relation to safety and security, the presence of increased through traffic will result in a greater number of non-locals in the area that can result in potential physical health risks and impacts stemming from an increased risk of contracting HIV/AIDs or other sexually transmitted diseases (STDs) and the dangers this poses for the carrier's health and that of unwitting current or future partners. The road connectivity may also raise the risk of people trafficking. There could therefore be a Minor Adverse effect on local community safety and security.

The following mitigation measures have been recommended:

- Provision of appropriate road restraint systems that protect errant vehicles from drops, ditches and unprotected roadside objects such as signs and heating pipelines.
- Road surface should be able to withstand the likely extremes of temperature for the area, along with usual weather conditions.
- Educational meetings with local communities and media adverts in relation to driver behaviour and speed limits and also locally, to help make drivers aware of the new road layout when complete.
- Adequate design for pedestrian crossings (including vulnerable people) and traffic calming measures in urban areas.
- Provision of shelters, protective barriers, pavements and street lighting along all high pedestrian use road sections.
- Provision of grate drain covers over drains to prevent the risk of accidents and the ingress of rubbish into the drains which then cause blockages and flooding.
- Ongoing maintenance and repairs.

4.2.4. Labour and Working Conditions

Operations and maintenance staff will be required, serviced both from within the MRTD and through contracts with local road maintenance companies, however at this stage it is not known if additional workforce would be required. It is expected that the MRTD and contractors will comply with the Mongolian Labour Law and will ensure that all employees, including permanent and temporary, will be provided with a contract.

Occupational Health and Safety (OHS) risks during operation are low, however, exist in relation to road maintenance activities; as above, it is assumed that the contractors will have sufficient workforce and equipment to deliver operation and maintenance (O&M) activities in accordance with Mongolian law.

The potential impacts on labour and working conditions and occupational health and safety are anticipated to be low risk and overall could have a Minor Positive effect during operation.

The following mitigation measures have been recommended:

- An Operation and Maintenance Management Plan will be prepared and implemented. This will cover Labour

Management and Occupational Health and Safety.

- A labour Grievance Mechanism will be in place.

4.2.5. Infrastructure and Services

The main impact on existing infrastructure during operation will be local health facilities. They have already reported that the demand to address first response road traffic accidents puts significant pressure on budgets. Whilst improved road conditions may reduce accidents, an overall increase in traffic will mean that road traffic accidents will not be avoided altogether. Local governments / facilities should liaise with the national level so that sufficient budget is allocated to first response units for road traffic accidents, that is not to the detriment of local communities using these facilities. Overall, it is considered that there will not be a change to the baseline, however that there is currently an impact on local health services that should be addressed. With mitigation in place to reduce the demand on local health servcies to response to road traffic accidents, there could even be a Minor Positive effect over the current situation.

The following mitigation measures have been recommended:

- MRTD to review provision of health services and budget for serious road traffic accidents along the road in liaison with local service providers.

4.2.6. Vulnerable People and Gender

No information is currently available on the standards proposed for road design such pedestrian crossings, lighting, barriers, signage, etc. within the towns and it is not known whether any provision has been made for vulnerable groups such as disabled people at crossings however, design proposals have been made by the EBRD and it is anticipated that the with the implementation of these measures, conditions will be improved over the current situation.

During operation there will be few job opportunities in general, however, there may be opportunities for women within the MRTD.

The above would result in Minor to Moderate Positive effects.

The influx of non-locals in the area from increased traffic may cause some conflict with local communities, in particular women and young girls which would result in a residual Minor Adverse effect.

The following mitigation measures have been recommended:

- Ensure appropriate spacing of culverts to accommodate main movements of herders along the route; based on advice provided during stakeholder engagement.
- Adequate design for pedestrian crossings, traffic calming measures and signage for vulnerable people.
- Ensure adequate pavement for pedestrians, in particular vulnerable groups such as wheelchair users.
- Provide equal opportunities for women in job opportunities.
- Adequate policing to reduce the risk of unwanted social behaviour from increased truckers along the route.

4.2.7. Waste

The anticipated waste streams during operation are likely to be both non-hazardous/inert and hazardous, and will include concrete, asphalt concrete materials, oil and lubricants, oily rags and waste electrical and electronic equipment. Maintenance and repair works may also require workers to be based on site for an extended period of time, requiring temporary welfare facilities. Operational waste types that are likely to be generated as a result of maintenance/repair works include organic waste, paper, plastic, glass, metal and other both hazardous and non-hazardous wastes.

Uncontrolled municipal solid waste is present along all the road due to lack of availability of appropriate storage containers and lack, or infrequency, of collection. Along the road, 13 stopping locations are planned. Such stopping areas are frequently contaminated with waste thrown by road users, due to either lack of available waste bins and/or irregular removal of waste.

As identified for construction, there are no licensed landfills or hazardous waste management facilities in the Project Area, and therefore wastes will need to be disposed of to a designated site approved by local authority.

The potential for waste impacts are anticipated to be Minor to Moderate Adverse during operation, depending on the extent to which mitigation measures are realistically implemented.

The following mitigation measures have been recommended:

- A Waste Management Plan within the Operation and Maintenance Management Plan will be prepared and implemented.
- Municipal solid waste will be collected on a regular basis.
- Budget from the relevant authority will be allocated to supply and service waste collection bins and signage for the public at all locations.

4.2.8. Noise

A high level assessment of operation noise impacts has shown that there would be minor impacts in the short term and potential major impacts in the long term due to an increase in road traffic movements which are approximately ten fold. Noise surveys undertaken of the existing ambient noise and the predicted change in noise levels has shown that the Mongolian noise standards are exceeded at five survey locations and at various distances from the road kerb in the commissioning year (2020) and future year (2040). The noise predictions show that increases greater than 3dB, which is considered a maximum increase by the World Health Organisation (WHO), may be experienced in the future years. This is anticipated to result in at least a Moderate Adverse effect, if these impacts occur.

Further work is required to undertake a detailed assessment of the proposed widening impacts. Noise surveys should be undertaken in each of the five sections to establish the existing ambient noise levels at noise sensitive receptors in settlement areas and the number of receptors close to the road likely to be affected within 100 m.

The following mitigation measures have been recommended:

- Further work is required to undertake a detailed assessment of the proposed widening impacts. Noise surveys should be undertaken pre-construction in each of the five sections to establish the existing ambient noise levels at noise sensitive receptors in settlement areas and the number of receptors close to the road likely to be affected within 100 m.
- Post-construction noise monitoring will be undertaken in residential areas at noise sensitive receptors.
- In the case that noise level exceedances are identified, additional noise mitigation measures (e.g. barriers) will be provided.

4.2.9. Air Quality

As the road will be paved and in improved condition compared to the current road condition, there will be no additional dust generation from the new road operation, thus no additional mitigation measures are recommended for dust mitigation.

The Project will not result in changes to origin-destination of road users. However, there will be an increase in average speed of over 20 km per hour is proposed in some sections, however, with a reduction in speed limits over the baseline in urban areas. There will also be a change in alignment of 5 m or more with the road widening, and there will be an increase in traffic flows in future years.

It is anticipated that during operation there will be improved efficiency of journeys on the improved road with the current situation of heavy, slow traffic, particularly during summer, being eliminated or greatly reduced by the Project road.

However, residential properties within 200 m of the new road could be affected by changes in traffic. An increase in gaseous emissions is anticipated, with the greatest contribution occurring nearest the road and concentrations decreasing with distance from the source. Concentrations are also expected to increase in future years, as a result of the projected increase in traffic. However, overall it is considered that the potential increase is acceptable in terms of potential effects on nearby receptors, in line with the air quality standard, provided that background concentrations (i.e. from other sources) are not present.

In addition, there should be less congestion, particularly through urban areas, with potentially lower emissions from traffic during peak times, and a potential improvement in air quality, offsetting any increase in concentrations in these areas arising from increases in traffic or road realignment.

There no mitigation measures proposed for the operational phase of the Project, as these are not considered to be necessary given the magnitude of the predicted change in concentrations, and assuming total concentrations would not exceed Mongolian air quality standards. The residual effects of the operational phase on local air quality are considered to be Minor Adverse (due to the increase over baseline levels).

4.2.10. Surface Water and Groundwater

Drainage from the road, and operation and maintenance activities, including accidental release of fuel or chemicals are among the key sources of impact on surface water and groundwater during operation.

Road construction inevitably alters, to a certain degree, the natural drainage regime by altering natural sheet run-off and stream hydrology. The runoff characteristics during rainfall events may be altered by the presence of hardstanding. Without proper spacing of culverts and rehabilitation of disturbed hydrology, road construction could impact natural flows.

Accidental leaks or spills might occur during the maintenance of the drainage system. There may also be accidental leaks or spills from vehicles using the roads during operation. Other than major spills, the impact is considered to be low due to the dilution from rainwater and the distance over which any pollutant will travel in the drainage channel to a discharge point.

The Project crosses several existing rivers and seasonal streams. The works could lead to an increased risk of flooding to road users if the capacity of the streams and culverts is not designed for current and future climate change. Flood risks will be most significant during periods of heavy rainfall and when there is notable flow within the rivers.

Considering the existing and well-defined road alignment and planned number of culverts and passages on the new stretch of road, it is anticipated that the new road effects on drainage and its implications for surface and groundwater will be Minor Adverse.

The following mitigation measures have been recommended:

- Design of drainage, culverts and ditches should be commensurate local run-off and flooding events.
- Spill kits shall be kept in accessible locations at all times, and employees trained in their use and disposal.
- ESMMP, Spill Prevention and Response Plan, and Operation and Maintenance Plan will be prepared and implemented.
- The drainage system, sediment and erosion controls, including appropriate drainage systems, will be routinely inspected and maintained to manage runoff.
- Inspection and reinstatement should occur following a major flood event.

4.2.11. Flora and Fauna

The main potential impact on biodiversity during operation is road traffic collisions. The increase in traffic volumes and speeds will increase the potential risk of collisions involving animals (livestock / wildlife), resulting in fatalities or injuries. The increased traffic may also result in indirect impacts through wildlife avoidance of crossing the road due to increased traffic. There is no mitigation measure to reduce the impact of the road presence, however the Project design includes fencing to prevent livestock access across the road and includes livestock underpasses which should mitigate and reduce the risk of livestock fatality.

Minor routine maintenance will be required of vegetation, however, as there are no rare plants adjacent the proposed works, no significant impacts are expected from the road operation on flora; and no dust emissions during operation are anticipated. No impacts are expected on protected sites, as the existing road already dissects these sites.

With the implementation of mitigation measures identified below, the overall impact during operation will be Minor to Moderate Adverse, depending on whether protected species are affected.

The following mitigation measures have been recommended:

- Additional signs will be placed warning motorists of potential collision risk and speed restrictions applied to known fauna corridors, based on the advice of the wildlife survey expert.
- Spring time inspection and maintenance of road corridor fencing.

4.3. Cumulative Impacts

During construction, the combined effects of dust, air emissions and noise on humans and flora and fauna will be greater than the effect of a single impact on these receptors. Local communities living in the vicinity of the main construction sites will experience increased nuisance and disturbance as a result of increased air and noise emissions and traffic volumes and poor waste management practices. Flora and fauna adjacent to these sites may also be affected by a combination of noise and dust, as well as mismanaged wastes and pollution events.

During operation, the combined effects of air emissions and noise on humans and flora and fauna could be greater than the effect of a single impact on these receptors. The increase in traffic after commissioning of the road will give rise to increased traffic volumes and associated gaseous and noise emissions which in combination could affect humans, flora and fauna.

In relation to other projects in the study area, the main associated facility for this Project is the Phase I works which involve reconstruction of the existing 2-lane road. This road will be commissioned in 2019/20. The combined effects of dust, air emissions and noise, and waste management of the Phase I and Phase II could be greater than the effect of the Phase I Project alone where the works are undertaken at the same time in the same location. In the event that works are undertaken at the same time for Phase I and Phase II, the number of construction camps and influx of people will increase, which could place greater pressure on the local communities.

The combined impacts on the displaced persons could be greater considering both Phase I and II works together. However, the combined total of direct and indirect impacts on the economy, employment and livelihoods could be greater in terms of positive effects than from the Phase II Project alone. Overall, there will be increased potential for employment opportunities and increased revenue due to the demand for construction personnel, raw materials, equipment and goods and services.

During operation, changes to traffic patterns and generation of new traffic flows due to the overall likely increase in traffic may generate residential development, better transportation of goods and services, income generation, and improved tourism.

5. Environmental and Social Management

5.1. Project Management and Delivery

Given the stage of the Project, the organisational structure for delivery of Phase II is still under review. The MRTD has overall responsibility for delivery of both Phase I and Phase II.

A Project Implementation Unit (PIU) has been set up within the MRTD for implementation of the Phase I and II works.

Construction contractors will be appointed for the construction of the Project.

A summary of the relevant responsible bodies for Project delivery is provided in Table 6-1.

Table 5-1. Project proponent and responsible organisations

Organisation	Project function	Report to
MRTD	Loan beneficiary, responsible for developing and implementing the Project Phases I and II. Responsible for all land acquisition. Also responsible for operation and maintenance activities.	Government EBRD
Road police	Responsible for road safety and will be required to approve the road safety measures that have been proposed.	Government
Local Provincial (aimag) governments	Support MRTD in all permanent and temporary acquisition of land for the Project. Liaise with local communities.	MRTD
Regional Departments of various Ministries	Project approval, issue of permits for various construction works.	Ministries
MCPC	Mongolian road design engineering contractors.	MRTD
ADB	Funding Phase I works.	ADB Board
EBRD	Potentially funding Phase II works.	EBRD Board
PIU	General control of the Phase I and II project construction. Selection and control of contractors in accordance with contract conditions and schedule.	EBRD, ADB, MRTD
Consultants	Surveys and studies.	MRTD, ADB, EBRD
Construction contractors	Responsible for constructing the road to tender specifications for each relevant lot they are commissioned for.	MRTD, PIU

Organisation	Project function	Report to
Operation and maintenance (O&M) contractors	Contractor for various O&M activities.	MRTD

5.2. Environmental and Social Action Plan

An Environmental and Social Action Plan (ESAP) has been prepared for the Project to meet EBRD requirements. The purpose of the ESAP is to detail the objectives, schedule of activities and responsibilities to manage, limit and mitigate negative impacts (and enhance positive impacts) from the Project and set indicators against which Project (and Contractor) performance can be measured.

The ESAP sets out the requirement for the Project to have an Environmental, Social, Health and Safety Management System (ESHS), which is summarised below.

During design, construction, and operation, Project staff and Contractors will be accountable for completing work in a way that is compliant with the expectations set out in the ESAP. The ESAP is designed to ensure compliance with Mongolian permitting requirements and legislation, the mitigation commitments made in the DEIA and Supplementary ESIA, and the terms of the Phase II project approval.

5.3. ESHS and Management Plans

A Project ESHS will be prepared that will provide the framework for the Contractors' management systems, enabling a common standard to be met by all contractors. The ESHS will cover:

- Policies and procedures;
- Project Environmental and Social Management and Monitoring Plan (ESMMP);
- Roles and roles and responsibilities; and
- Project schedule.

An ESMMP has been prepared as part of this current ESA work, that addresses Project impacts and provides the means to manage and monitor the predicted impacts, to provide reassurance as to the compliance with Mongolian legislation and EBRD requirements. The ESMMP will be disclosed together with the NTS and other Supplementary documents prepared as part of the ESA.

The ESMMP will be updated by the MRTD/PIU prior to construction, on the basis of further survey work undertaken as identified in the mitigation measures in this NTS. Each Construction contractor will also be expected to develop a detailed ESMMP for the section of the road that they are working on.

5.4. Temporary Site Requirements

At the time of writing, no information is available on the location of the contractors' camps or other temporary sites such as works areas and access roads. Contractors will therefore be required to select sites on the basis of minimal environmental and social impacts, and assess final sites chosen so that, where necessary, additional mitigation measures can be applied to reduce adverse impacts.

5.5. Site Handover

Prior to handover of the sites from the contractor to the MRTD following the construction works, the contractors will be required to undertake the necessary rehabilitation of sites including all temporary works areas and removing all wastes from the Project corridor, to the satisfaction of the MRTD.

5.6. Road Safety Audits

The MRTD will develop and implement a programme of road safety audits to assess safety performance along the alignment and village access roads, and to identify any unsafe conditions. This should include a Road Safety Audit at Pre-Opening to confirm recommendations accepted during the design stage Road Safety Audit have been implemented. A further Road Safety Audit should be undertaken 12 months post opening and then periodically thereafter to assess road traffic collisions along the road and identify any trends/blackspots that required remedial actions.

6. Stakeholder Engagement and Grievance Mechanism

6.1. Stakeholder Engagement

6.1.1. Phase I Engagement

Stakeholder consultation was carried out by the consultant team who undertook the DEIA for the Phase I project, from 30th March 2017 to 2nd April 2017 and reported in the ADB's Initial Environmental Examination (IEE) Report for the Regional Road Development and Maintenance Project, issued in 2018. Engagement included a questionnaire-based survey among roadside communities and residents of major settlement areas along the road corridor. A total of 85 local residents participated in the survey.

In addition to this stakeholder consultation exercise, four meetings were held with five government officials on the 31st of March and 1st of April 2017. These government officials included:

- Governor of Sukhbaatar soum, Selenge aimag;
- Head of Environmental Department, Selenge aimag;
- Head of Forestry Department, Selenge aimag;
- Two Officers from the State Emergency department, Selenge aimag; and
- Deputy Governor, Altanbulag soum in Selenge aimag.

6.1.2. Phase II Engagement

The DEIA undertaken for the proposed road widening Phase II works provided information on community consultations conducted between February and April 2019, as well as suggestions given by local authorities in the six soums and settlements along the Ulaanbaatar-Darkhan road.

Community consultation meetings were held between 18 February 2019 and 13 March 2019, in two forms, namely 15 Bagh public meetings (and four community meetings. At the meetings, the potential environmental impacts of the Project were presented, and feedback was sought from stakeholders in terms of their views/perceptions on the Project impacts and their proposals/suggestions to mitigate potential impacts.

During these meetings the Chair of the Citizens' Representatives Khural (*Hural*) of Darkhan soum, Darkhan-Uul aimag and Jargalant soum, Tuv aimag were requested to provide their comments or recommendations.

6.1.3. Supplementary Engagement

As part of the ESA to meet EBRD requirements, further stakeholder engagement was undertaken from the 5 to 8 May 2019. The purpose of the engagement was to obtain an updated understanding of the social conditions in Darkhan-Uul aimag and detailed information on Bayangol soum of Selenge aimag, Bayanchandmani, Bornuur, and Jargalant soums of Tuv aimag and Khongor soum of Darkhan-Uul aimag.

The need for additional consultation, in particular with vulnerable groups, was a key objective based on the Gap Analysis conducted in May 2019 and therefore the May 2019 stakeholder engagement focused on vulnerable individuals and groups, including herders, people with disabilities, women and children, the elderly, health centres and business owners.

Focus Group Discussions were held with women and elderly stakeholders (a total of four) and Key Informant Interviews were held with aimag and soum officials, health centre staff, toll station and railroad officers, police and emergency officers, business owners and workers identified as affected by land acquisition and resettlement, herders, and people with disabilities.

6.2. Stakeholder Engagement Plan

A Stakeholder Engagement Plan (SEP) has been developed as part of the disclosure package and covers the following:

- Introduction

- Project Description
- Legal framework for stakeholder engagement and information disclosure
- Summary of previous stakeholder engagement activities
- Stakeholder identification
- Supplementary engagement
- Stakeholder engagement programme
- Grievance mechanism
- Monitoring and Reporting
- Resources and responsibilities

The SEP defines the consultation approach, the key identified stakeholders and how to provide feedback and how any feedback and comments are addressed. Any stakeholders requiring to be included within the consultation process should contact the MRTD.

6.3. Grievance Mechanism

A Grievance mechanism is set out in the SEP. This will be developed and open to all stakeholders to receive and facilitate resolution of stakeholders' concerns and grievances, in particular, about the Project's environmental and social performance. It will allow the Project to be aware of and respond to stakeholders' concerns related to the Project in a timely manner.