

**Republic of Belarus**

**Ministry of Transport and Communications (MoTC)**

**TRANSIT CORRIDOR IMPROVEMENT PROJECT**

**Environmental Impact Assessment and Environmental Management Plan**

*(Draft)*

**Belgiprodor**

**September 2014**

## Contents

Abbreviations and acronyms

Executive Summary

1. Project background
2. Project description and structure
3. EIA scope and objectives, project environmental category
4. Baseline conditions
  - 4.1 Physical environment
  - 4.2 Biological environment
  - 4.3 Socio-economic environment
5. Potential resettlement issues and land acquisition
6. Analysis of project alternatives
7. Assessment of potential project environmental impacts
8. Environmental Management Plan
  - 8.1 Mitigation of environmental impacts
  - 8.2 Monitoring plan
  - 8.3 Implementing arrangements
9. EIA disclosure and consultation

Annexes:

Annex 1. Project road section layout

Annex 2. Overview of WB safeguards policies and their relevance to the project

Annex 3. National requirements for EIA and SEE

Annex 4. National standards and guidelines relating to the environmental mitigation measures during road construction and operation

Annex 5. Potential environmental impacts and mitigation measures for road construction phase

Annex 6. Environmental impacts and mitigation measures during operation phase

Annex 7. Example of the environmental clauses for contract documents

Annex 8. Monitoring plan

Annex 9. Minutes of public consultation in Iveye district of Grodno oblast

Annex 10. Minutes of public consultation in Lida district of Grodno oblast

Annex 11. Minutes of public consultation in Shchuchin district of Grodno oblast

Annex 12. Minutes of public consultation in Volozhin district of Minsk oblast

## ABBREVIATIONS AND ACRONYMS

CAS	Country Assistance Strategy
EA	Environmental Assessment
UNECE	United Nations Economic Commission for Europe
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EU	European Union
GoB	Government of Belarus
MA-C	Minskavtodor-Center
MoNREP	Ministry of Natural Resources and Environmental Protection
GOCoNREP	Grodno Oblast Committee for Natural Resources and Environmental Protection
MOCoNREP	Minsk Oblast Committee for Natural Resources and Environmental Protection
MoTC	Ministry of Transport and Communications
NGO	Non-governmental organization
OP/ BP/ GP	Operational Policies/ Bank Procedures/ Good Practices
SEE	State Environmental Expertise
SEIA	Statement on the Environmental Impact Assessment
SEI	State Environmental Inspectorate
TA	Technical Assistance
UNDP	United Nations Development Programme
WB	World Bank

### Executive Summary

*Project background.* The project will upgrade 75 km of the M-6 road located between Pershai settlement in Minsk oblast and the town of Shchuchin in Grodno oblast. The upgrade will include (i) refurbishment of the existing two lanes and construction of two additional lanes for an axle load of 11.5 tons, (ii) multiple road safety features in line with EU road standards, (iii) construction of 9 two-level interchanges, 31 new bridges and overpasses, pedestrian underpasses, (iv) a number of environmental impact mitigation features, such as protective noise

screens and passages for animals. Project component 2 will be aimed at strengthening of the institutional capacity of the MoTC of the Republic of Belarus.

*Project environmental category.* The project has been assigned Environmental Category "B" in accordance with World Bank Operational Policy 4.01, "Environmental Assessment". This classification was based on the fact that (i) construction works as such will essentially be confined to the existing right-of-way, (ii) there is no resettlement of businesses and resettlement of people will be of small scale, and (iii) the potential environmental impacts of the project are not expected to be significant.

*Location of the road.* The total length of the road under consideration is 272 km, including 91.0 km in Minsk oblast and 181.0 km in Grodno oblast, of which 34 km in Minsk region and 120 km in Grodno region need upgrading.

The major part of the road section to be impacted by the project runs through sparsely populated rural areas (isolated farmsteads), traversing a slightly sloping landscape with minor horizontal and vertical curvatures.

*Potential environmental impacts.* The potential project impacts and environmental issues are typical for road construction activities and road operation (after project completion) and include local air pollution, increased noise, local (within the right of way) loss of vegetation, disturbance of fauna, accumulation and disposal of construction solid waste, labor camp management (which will be temporary with only localized negative effects). Most of these impacts are minor and could be easily managed during the project implementation by applying a set of preventive and mitigation measures.

*Potential social impacts.* As the road section proposed for upgrading under this project will pass in the immediate vicinity of some villages. In order to reduce the potential noise as the result of increased traffic, the EMP proposes installation of special anti-noise screens. At the same time, the project will bring a series of positive social impacts, including increases in traffic, economic activities, better connectivity and further economic development along the road corridor. The project will also have positive impacts due to enhanced road safety, reduced air pollution and improved general road conditions.

*Resettlement issues.* The upgrading of the road from two to four traffic lanes will require land acquisition. However, physical resettlement is expected on a very limited scale and concerns a few households. The specific number and exact location of the mentioned houses were identified after the detailed design had been finalized and RPF and RAPs were prepared.

*Environmental Management Plan.* The borrower prepared a detailed EMP which contains: (a) mitigation plan, (b) monitoring plan, and (c) implementation arrangements. Proposed mitigation plan include activities to be undertaken for all project stages: design, construction and operation. During construction negative impacts will be mitigated through: proper management of construction waste; control measures for waste fuel, oil and lubricants, other materials/substances used during construction; provisions for protection of flora and fauna; actions to reduce noise and dust levels; soil erosion control and water quality protection, along with rehabilitation of areas under construction camp, asphalt-concrete plants and temporary storage of construction materials once the project is completed, as well as the provision of adequate crosswalks for local population. Regarding impacts of road operation, in order to minimize potential noise impacts, the project will support installation of anti-noise screens within villages. These mitigating measures would constitute the integral part of the project implementation including the contract conditions binding the contractor to carry out the appropriate environmental obligations during road construction works.

*Monitoring plan.* It includes measures that will be employed to track the effectiveness of the EMP, as well as environmental indicators to be monitored, monitoring methods and frequency, and reporting procedures. Monitoring of implementation of environmental mitigation measures will be the responsibility of: (a) construction contractors; (b) Belgiprodor environmental expert; (c) construction supervision; and (c) local environmental inspectors. During the construction phase Belgiprodor environmental expert and local environmental inspectors will

ensure that measures specified in the EMP are followed by the contractors who have contractual responsibility towards these actions. In case of non-compliance, the client will undertake the necessary actions in accordance with the contract conditions. During the road operation phase the main responsibility for monitoring activities will be borne by the two road operational institutions: RUE “Minskavtodor-Center” (MA-C) and RUE “Grodnoavtodor”.

*Traffic safety.* The project would provide for splitting of counter flows onto separate lanes equipped with appropriate safety elements and also for installation of traffic lights within the boundaries of road shoulders, flexible delineator posts and traffic lights, application of road marking, arrangement of accumulation lanes for left-hand turn and “safety islands”. New bus stops will be provided and the existing ones will be refurbished. When implemented the project would produce positive effect on traffic safety and would result in reduction of accident rates

*Implementing arrangements and institutional capacities to perform environmental safeguards.* Direct responsibility for project implementation would rest with the Ministry of Transport and Communications and the client (MA-C). Client’s responsibilities include: procurement, financial management, contract management, project and program monitoring and evaluation, reporting, as well as ensuring implementation of environmental safeguards. To perform the scope of tasks in terms of safeguard issues and ensuring the project EMP implementation Belgiprodor team of environmental specialists will be involved and a key environmental expert will be appointed. The primary tasks of the environmental expert will include : (a) integration of environmental requirements in contracts issued for carrying out of construction works; (b) ensuring adequate implementation of the EMP provisions and especially of the stipulated mitigation measures; (c) monitoring and supervision; and (c) reporting. The EA institutional capacity of the borrower was assessed during the project preparation. It was concluded that Belgiprodor had adequate capacities to perform duties concerning enforcement of the EMP provisions. There is a highly qualified staff as well as analytical equipment and software to perform needed environmental analyses, measurements and calculations. Furthermore, this institution has experience in dealing with environmental safeguards while implementing other similar projects in the country.

*Costs.* The total cost of mitigation measures will be calculated on the stage of detail design finalization. EMP supervision and monitoring will be carried out by Belgiprodor in cooperation with biodiversity experts of the National Academy of Sciences. The costs of these services will be estimated and paid by the client from the local funds but not from the IBRD loan. No additional funding will be provided to the State Environmental Inspectorate for monitoring compliance with agreed measures, enforcing laws, regulations and covenants; these costs would be borne by the institution itself as the mentioned activities relate to its main duties.

*EIA disclosure and consultation.* Per requirements of the national legislation and the World Bank Disclosure Policy (BP 17.50) the EIA reports prepared for road sections to be upgraded in Minsk oblast and Grodno oblast were disclosed and consulted. RUE “Minskavtodor-Center” and RUE “Grodnoavtodor” (operators of the M-6 road sections) were responsible for arrangement of public consultations. Experts from Belgiprodor involved in design and environmental impact assessment procedures presented the project goals and objectives, as well as its potential impacts and benefits. The main scope and objectives of the EIA study were discussed as well as potential environmental impacts of the project and mitigation approaches. Participants raised questions related to potential impacts of the increased traffic on air pollution and noise levels within the vicinity of the settlements. The project itself was accepted by all stakeholders.

## **1. Project background**

*Belarus road network and Government plans.* Belarus road sector plays an important strategic role providing nearly 30% of freight and 45% of passenger traffic. The total length of public roads in Belarus is 85,668 kilometers including 15,476 km of main and republican roads and 70,192 km of local roads, of which about 90% are paved. In general main and republican

roads are in good and fair condition, while local roads need substantial improvement. There are 5,276 bridges and viaducts of 177.2 km total length with great number out of these requiring heavy repairing and rehabilitation.

The top priorities of the state road policy include such objectives as rational development and improvement of technical condition of public roads allowing to meeting the demands of the republican economy and population in facilitating road traffic, provision of conditions for social development and also integration of major roads into the European transport system and into the common international road network of the CIS states.

The territory of the Republic of Belarus is crossed by five “E” category roads of 1,841 km total length, including Trans-European transport corridors:

- Number 2 Berlin – Warsaw – Minsk – Moscow – Nizhny Novgorod,
- Number 9 Helsinki – St.-Petersburg – Moscow/Pskov – Kiev – Chisinau – Bucharest – Dimitrovgrad – Alexandropolis,
- Number 9B Kaliningrad /Klaipeda – Kaunas – Vilnius – Minsk – Kiev – Odessa.

Key road corridors are now being upgraded to the 1<sup>st</sup> category standard with dual separated carriageway, paved shoulders and controlled access. These roads are now being equipped with high standard safety elements including central/side crash barriers, road lighting, delineators, effective road marking and traffic signs allowing to reduce accident rates and fatalities. Currently the main concern is put to protection of vulnerable road users including pedestrians and two-wheelers, and the major focus of the design under the proposed project will be concentrated on at-grade pedestrian crossings.

In 2006 the Program “Roads of Belarus” for the period of 2006-2015 was endorsed by the Resolution of the Council of Ministers of the Republic of Belarus No.468 dated 6<sup>th</sup> April 2006. The objective of the Program is to create an “enabling environment for the development of the national economy, enhancement of safety and defence capacity of the state, implementation of the government social policy and facilitation of business initiatives of the population”.

The top priorities of the Program include (i) rehabilitation of the most heavily trafficked sections of republican roads, including those, which are part of Trans-European transport corridors; (ii) removal of non-infrastructure related bottlenecks, affecting the flow of transport in and across Belarus; (iii) substantial improvement of traffic conditions, both for local and international vehicles, (iv) reduction of travelling time of goods and passengers, (v) reduction of transport costs, (vi) increase of traffic safety, (vii) improvement of the environmental conditions. Improvement, in compliance with the environmental needs of the country, of the major transport and logistics systems is also one of the main goals.

The Program reflects, inter alia, the need to improve the M-6 Minsk-Grodno-Polish border (Bruzgi) road, the section of which from km 57.2 to km 211.0 is to be upgraded under the proposed project.

*Project rationale.* The M-6 road to be improved under this project is an important transit corridor to support cross border trade and provides one of the priority routes identified under the Eastern Partnership program of the EU. It is the shortest and the most convenient itinerary for transportation of goods and passengers from the EU member countries to the Republic of Belarus, the Russian Federation and further to the Central Asia countries. The road section between the city of Minsk and Pershai settlement is included in Trans-European Corridor No. 9B Klaipeda – Vilnius – Minsk – Kiev – Odessa.

The M-6 Minsk-Grodno-Polish border (Bruzgi) road connects Minsk, the capital of Belarus, with the oblast center, the city of Grodno, and is of important economic value. It passes through the territories of two oblasts (Minsk and Grodno) having exits to international transport corridors East – West and North – South and to the state border.

Road service areas are in operation along the road including 9 fuel stations, 1 vehicle maintenance station, 1 guarded parking lot, 11 permanent cafes, 3 motels, 6 rest areas.

Development of large industrial enterprises in the cities of Minsk, Grodno, Lida, Iyve, Shchuchin, Skidel assigns the road with priority tasks first of all relating to transportation of industrial and agricultural goods.

The road mainly has category II sections with two traffic lanes, except sections from Minsk to Pershai and from Shchuchin to Grodno, which correspond to category I road parameters with dual separated carriageway and asphalt pavement.

Road section from km 57.2 to km 211.0 (between Pershai and Shchuchin) is characterized by insufficient capacity (2 traffic lanes), at-grade intersections (only 2 interchanges), low riding comfort and inadequate safety measures which result in high rates of traffic accidents. During the last three years (2011-2013) there were 89 accidents with 48 fatalities and 108 injured persons.

Traffic volumes on the above section vary from 4,058 to 8,305 vehicles per day with about 70% of cars, 28% of trucks and 2% of buses in the total traffic flow. The road is overloaded during peak hours and also during rest days and summer vacations. Increase of demand for international transportation services is expected due to the raise of flows between the Republic of Belarus, Russian Federation and EU member states. According to the 20 year perspective forecast traffic volumes will constitute from 13,560 to 28,470 vehicles per day assuming the annual increase of 3% for trucks and buses and 5% for private cars. Taking into account the fact that the above road section goes in the vicinity of numerous villages increase of traffic flows will lead to sharp worsening of the situation in terms of traffic safety and negative environmental impacts. Improvement of the road section is needed which could be achieved due to its upgrading to a 4-lane motorway under the proposed WB-supported project.

*Project objectives.* The key objective of the project is to reduce traffic accident rates along with improving access to the public road network of the Republic of Belarus, their operating conditions and road safety through upgrading and modernization of road sections between km 57.2 - 211.0 on the M-6 highway and elimination of “black spots” that have been identified by RUE “MA-C” and RUE “Grodnovavtodor” over the entire length of the road in Minsk and Grodno oblasts; increasing the throughput capacity for transit transport; and mitigating adverse environmental impacts.

The road upgrading will promote progress of Belarus integration in transport networks of the neighbouring states, intensification of regional freight and acceleration of product distribution, increase of population mobility, improvement of driving comfort and traffic safety, decrease of negative environmental impacts.

The project objectives would be achieved mostly by improving the condition, quality and capacity of the road section and by implementing appropriate environmental mitigation measures.

*Project benefits.* Upgrading of the road would improve its transport and operational parameters which in turn would directly influence social and economic development aspects of the economic sectors of Belarus, Poland, Russian Federation, Lithuania, Ukraine (primarily transport sector), business efficiency and living standards of the population. Improved traffic conditions would reduce air pollution, soil and vegetation contamination thus improving environmental situation in the region. Public economic effect of the project would be achieved through reduction of travel time between the main population centers of Grodno oblast and the capital of the republic – the city of Minsk and also reduction of transport costs (fuel, lubricants, spare parts and servicing, depreciation, drivers’ wages, overheads and etc.). Lower transport costs in Grodno oblast will enable retailers and traders of agricultural products to increase the share of traded agricultural production at a better price for producers. Finally, in the medium to longer term, better road infrastructure could ultimately translate into productive investments in beneficiary communities and employment opportunities for residents, which would improve household income and consumption.

*Project financing, coordination and management.* The project will be financed from the proceeds of the IBRD loan and the local budget. The estimated IBRD loan amount for the project is US\$ 250 million.

## 2. Project description and structure

The Project will consist of the following two components:

*Component 1: Road upgrading.* This component would fund the upgrading of 153 km of the M-6 road within sections from km 57.2 to km 211.0. It will include (i) reconstruction of the existing two lanes and construction of two additional lanes with the pavement bearing capacity to withstand the standard axle load of 11.5 tons, (ii) multiple road safety elements in line with EU road standards, (iii) construction of 9 grade separated interchanges, 31 new bridges and overpasses, pedestrian underpasses, (iv) implementation of appropriate environmental impact management features, such as anti-noise screens, passages for animals. The upgrading would bring the existing road to a dual carriageway motorway with 2 lanes in each direction separated by a central reserve in order to split opposing traffic flows, to prevent traffic congestion, to meet projected traffic growth and to ensure traffic safety. The upgraded road will follow the existing alignment in most sections with the geometric standards of Category I-v according to national standards. Where the route goes in the vicinity of residential areas safe conditions for pedestrian traffic would be provided due to illuminated underpasses and traffic noise would be reduced by anti-noise screens.

*Key design options.* The subgrade is designed with regard to the road category, type of road pavement, natural conditions of the construction site and engineering and geological conditions of the construction site thus providing stability of embankment slopes, prevention of snow drifting and traffic safety. It should be noted that during the road upgrading the existing subgrade will be used to the maximum

The longitudinal profile is designed with regard to condition to provide visual smoothness of the road and the most comfortable driving conditions.

As mentioned above, the road pavement structure is designed for 11.5 t axle load with regard to future traffic volumes and vehicle classes, as well as climatic, geological and hydrological conditions.

Parameters of longitudinal and cross-section profiles would provide safe and continuous traffic of vehicles with the traffic volume exceeding 14000 equivalent cars per day.

The design speed on the project section is 120 km/h.

The key parameters of the project road section are given in Table 1.

Table 1. Key parameters of the project road section

Parameter description	Design value	As required by TCP 45-3.03-19-2006
Number of traffic lanes, pcs	4	4
Width of traffic lane, m	3.50	3.50
Width of carriageway, m	2x7.0	2x7.0
Width of shoulders, m	3.0	3.0
Minimal width of hard shoulder, m	2.5	0.5
Minimal width of central reserve dividing traffic directions, m	5.0	2+S (width of safety barriers)
Minimal width of hard strip on central reserve, m	0.5	0.5
Width of subgrade, m	25.5	22+S



The system of road drainage, as per the design, is composed of a number of facilities and constructive measures aimed at prevention of subgrade over wetting and also at capture and removal of water penetrating from the road surface.

To provide water drainage on small embankments and in cuts making of a side ditch of 0.4 m width is specified by the design. Slopes and bottom shall be stabilized with grass seeding. Ditch bottom with >10% grade shall be stabilized with non-woven geotextile containing seeds of perennial herbs.

To provide water drainage from the carriageway of the project road section and also in front and behind bridges and viaducts for the purposes to prevent shoulders and subgrade slopes from erosion and to remove storm waters outside water protective zones and off-shore lanes of water objects the design stipulates for making edge gutters and closed drainage with storm water inlets equipped with damping and dissipating facilities.

On swampy areas removal of peat soil until mineral bottom with subsequent backfilling of sandy undusted soil is stipulated by the design.

To provide surface drainage on the roadside lane and preserve the existing hydro-geological balance installation of reinforced concrete culverts in low areas of relief are stipulated by the design.

Bus stops shall be arranged along the entire length of the project section, including provision of acceleration and deceleration lanes, boarding and parking lots, pavilions. Arrangement of pedestrian lanes is also stipulated by the design.

As upgrading of the M-6 road section km 57.2 – km 211.0 should be carried out under Category I road standard norms, stopping and parking of vehicles will be allowed on special sites only (vehicle parking lots), marked with road signs “Parking lot”, “Rest area” (as per clause 131.2 of the “Road Traffic Code”).

In general no significant technical problems are expected during the construction.

*Component 2: Modernization of road sector institutions, Logistics and Impact Analysis*  
This component of the project will finance technical assistance studies to support the on-going reform of the road sector. It will also support the MoTC in developing its capacity to control traffic. Besides, under component 2 concepts of a new Logistics Strategy and the M-6 transit corridor strategies could be considered.

### **3. EIA scope and objectives, project environmental category**

*EIA objectives and methodology.* The main scope of the Environmental Impact Assessment is to: (a) ensure that environmental issues have been taken into account during preparation of design documents and implementation of the project; (b) determine the future potential environmental and social impacts of the project; (c) specify the mitigation and monitoring measures to be undertaken during the road construction. The study was conducted based on the following: (i) analysis of the existing national EIA and road construction legal documents, regulations and guidelines; (ii) EIA reports prepared for similar WB projects in other countries; (iii) WB safeguard policies, as well as guiding materials; (iv) field investigations on the project baseline conditions, including study of the geological and hydrological conditions, biodiversity, socio and economic situation, etc.; (v) measurements and simulation of the traffic air emissions and noise; and (vi) results of consultations with the representatives from all interested stakeholders.

Prediction and assessment of likely positive/negative impacts of the proposed project activities are based on the assessment of reduction/increase of the risk of environmental media contamination/degradation and impact on human health. The following risk assessment criteria are used: (a) scale of impacts on population or on environmentally important areas, including wetlands, native forests, grasslands, and other major natural habitats; (b) direct pollutant discharges that are large enough to cause degradation of environment; (c) large-scale physical disturbance of the site and/or surroundings; (d) measurable modification of hydrologic cycle; (e)

involuntary resettlement of people; (f) location in or near sensitive and valuable ecosystems: wetlands, wild lands, and habitat of endangered species; (g) sites in densely populated areas, where resettlement may be required or potential pollution impact and other disturbances may significantly affect communities; and (h) probability of occurrence of the cumulative impact of the proposed construction activities.

EIA is carried out for the estimated (the least favorable) condition of the environment and combination of affecting factors during the estimated period of the project operation including assessment of the essential level of all the detected impacts and permissible level of each essential type of impacts for each component of the environment on the site crossed by the road. Based on the results of EIA conclusion is made on acceptability (non-acceptability) of the project implementation, necessity for application of appropriate protective measures and possibility or impossibility of implementation of planned investments.

Procedure of carrying out of the environment impact assessment, requirements to appropriate documents and content of the report on the environment impact assessment are set force in “Regulations on Procedure of the Environment Impact Assessment” approved by the Council of Ministers Resolution No.755 of 19.05.2010, in Technical Code of Routine Practice TCP 17.02-08-2012 “Environment Protection and Environmental Management. Regulations on Environment Impact Assessment Procedure (EIA) and Report Preparation” and Technical Code of Routine Practice TCP 480-2013 “Environment Impact Assessment for Road Construction and Upgrading Projects”.

The purpose of the assessment shall be:

- comprehensive study of all the environmental factors and relating social, economic and other consequences of the project implementation;
- scanning of optimum design solutions promoting prevention or mitigation of possible considerable adverse impact of the project on the environment;
- adoption of efficient mitigating measures against adverse impact of the planned investment project on the environment and human health;
- assessment of admissibility (inadmissibility) of the project implementation on the selected land plot.

Assessment results include:

- key conclusions on the character and scale of the environment impact of the planned investment;
- description of the environmental and relating social, economic and other consequences of the planned investment and estimation of their significance.

Procedure of the EIA involves the client, designer, public, local agencies of the Ministry of Natural Resources and Environment Protection, local administrations as well as authorized state bodies carrying out control and enforcement during implementation of projects.

The EIA of the M-6 road is comprised of (i) identification of the scope of the works; (ii) collection of the detailed baseline data; (iii) assessment of the expected environmental and social impacts; (iv) outlining of mitigation measures; and (v) development of environmental management and monitoring plans.

The EIA procedure was a combination of desk and field works, including literature review, data collection from various agencies, engineering, geological and topographic survey, visual inspections (flora and fauna survey), noise monitoring and simulation, comprehensive analysis of all the collected data. Design options for road and bridge works were fully considered as well as impacts of the project activities to be implemented outside the right-of-way, such as construction camps, temporary access roads, etc. On the initial stage of the EIA spatial boundaries of the project area were defined to allow identification and assessment of the expected environmental and social impacts and to enable comparative analysis of the project alternatives in the given environment.

*Project environmental category.* The project has been assigned Environmental Category "B" in accordance with World Bank Operational Policy 4.01, "Environmental Assessment". This

classification was based on the fact that (i) construction works as such will essentially be limited to the existing right-of-way, (ii) there is no resettlement of businesses and (iii) the potential environmental impacts of the project are not expected to be significant and only of a temporary nature. For a category B project it is necessary to conduct a site specific EIA and prepare an Environmental Management Plan for both construction and operation phases. Furthermore, the EIA and EMP have to be disclosed and consulted with all interested stakeholders, including potentially affected people in the country, as well as in the WB Infoshop. Overview of the WB safeguards policies and their relevance to the project activities is presented in Annex 2.

*EIA study team.* The EIA study was carried out by and EMP report was prepared by a team of specialists from the State Enterprise “Belgiprodor” (specialized Belarus institution dealing with road, bridge and airfield design). Biodiversity experts of the National Academy of Sciences were also involved to carry out biodiversity studies and field surveys.

In general the functions of the team may be categorized into the six main activities that are common to most EIA studies carried out in compliance both with Belarus and international standards. These include:

1. Collection of baseline data describing the existing environment (physical, biological, human) within the area of the proposed project impact. Desktop studies and field surveys were carried out to address important gaps in the existing data.
2. Identification of impacts, assessment of their significance and development of appropriate mitigation measures with regard to the fact that avoidance of impacts is preferred by both the Bank safeguards and national environmental protection policy.
3. Analysis of alternatives in terms of location, design, construction methods and operation, including “do nothing” alternative.
4. Preparation of the environmental management plan (EMP) according to the World Bank OP 4.01.
5. Public consultation and disclosure.
6. Preparation of the EIA and EMP report.

*EIA approval at the national level.* One of the key directions of nature protection activities of the state comes to enforcement of ecological norms and specifications in road and transport infrastructure projects.

Environmental safety of roads is achieved by elaboration and application in the design documents for road construction, reconstruction and maintenance of appropriate engineering solutions limiting negative impact on the environment to permissible levels which do not produce adverse impacts on human health, do not give rise to irreversible changes of the environment and worsening of social and economic conditions of people life. Assigned rules of nature management and environmental protection should be strictly followed in the course of preparation of design documents and implementation of road projects.

The environmental impact assessment (EIA) is carried out for the purposes to evaluate compliance of pre-design, design and other documents relating to planned investments to standard norms and specifications stipulated by the legislation on the environmental protection, efficient use and reproduction of natural resources, provision of environmental security.

EIA is carried out for the estimated (the least favorable) condition of the environment and combination of affecting factors during the estimated period of the project operation including assessment of the essential level of all the identified impacts and permissible level of each impact for the environment components on the site crossed by the road. Based on the results of EIA conclusion is made on acceptability (non-acceptability) of the project implementation and necessity for application of preventive and protective measures.

The proposed project, as per the Law of the Republic of Belarus “On the State Ecological Expertise” No.54-Z of 09.11.2009 is subject to obligatory review and consideration of the SEE. National requirements for EIA and SEE are described in Annex 3. Annex 4 contains brief

description of the key national standards and guidelines relating to the environmental mitigation measures during road construction and operation.

#### 4. Baseline conditions

*Location of the road and its main environmental characteristics.* The project site is located in the north-western part of the country between Pershai settlement near Minsk and the town of Shchuchin. Part of the proposed road section (km 57.20 – km 91.07) goes through the territory of Volozhin district in Minsk oblast in the vicinity of the following villages: Pershai, Yashkovichi, Dovbeni, Kapustino, Tsaiuny. The second part of the road section (km 91.07 – km 211.00) is located in Iveye, Lida and Shchuchin districts of Grodno oblast. Here the road goes in the vicinity of residential areas of the following villages: Patsevichi, Ostrovtsy, Borisovka, Lezhnevichi, Lugomovichi, Starcheniaty, Zaleiki, Biskuptsy, Filonovtsy, Poddubno, Tsybory, Kosilotsy, Radivonishki, Dmitrovtsy, Gostilovtsy, Shpilki, Plianty.

The road section from km 78.5 – to km 91.07 goes through the territory of the Republican Landscape Forest “Naliboki” named after a small town of Naliboki situated in the middle of it. It is a large forest complex located in the north-western part of Belarus, on the right bank of the Neman river on the Belarusian Ridge.

The road will mainly follow the existing alignment and only very minimal changes to the alignment are planned for leveling, horizontal contouring and correction of curves. Alternative alignment options for the road were reviewed, and the selection of road alignments was made with a view to minimize, to the extent possible, the need for resettlement.

There were 3 options of the road layout reviewed in Minsk oblast in the most critical segments causing resettlement:

1. Road layout to the right from the current position in Pershai village (would have caused acquisition of the 5 residential houses with the land plots attached to them instead of currently 1 non-residential (summer) house, plus this would require significantly increased amount of ground works.
2. Road layout near the town of Volozhin with the optimal radius would have resulted in shortening of this segment of the road by nearly 1km and its moving away from the residential buildings. However this would require construction of the two transport hubs at the exits from the town and would have required drainage along the whole segment due to complex soils. In addition to that the old road would have to be preserved as a local connection road. This option was not socially and economically viable.
3. Road layout to the right from Tsaiuny village would have caused resettlement of 5 households instead of one. In addition road layout bypassing the village would have required drainage along the whole segment due to complex soils. This option was not socially and economically viable.

The road section layout is shown in Annex 1.

#### 4.1 Physical environment

*Climate.* The territory of the project site, similar to the entire territory of the Republic of Belarus, is characterized by moderately continental and unstable humid climate.

The climate is generally soft with the sum of frost degree-days in the amount of 387 – 740 and average annual ambient air temperature of 5.3 – 6.5°C. The coldest month is January with the average monthly temperature of –5.8°C, while the warmest month is July with the average monthly temperature of +17.4°C. Increase of the annual daily air temperature above +5°C in spring normally is observed between 10<sup>th</sup> and 15<sup>th</sup> April. Duration of the period with temperature above +5°C 185-195 days and with temperature above +10°C – 140-145 days.

Annual amount of precipitation is 600–700 mm and evaporation level is about 635 mm per year.

In winter the west, south and south-west winds prevail, while in summer the west winds predominate.

The stable snow covering is normally formed from 10<sup>th</sup> to 25<sup>th</sup> December and comes off on 10-25<sup>th</sup> March. The average height of snow covering is 19 cm, duration of stable snow covering is 82 days. The average maximum annual depth of soil freezing is 58 cm.

Geographical location of the project site predetermines the amount of solar radiation and the character of atmospheric circulation. The annual sum of radiation balance amounts to 1,500-1,600 MJ/m<sup>2</sup> for road section km 57.20 – km 91.07 and 1,500-1,700 MJ/m<sup>2</sup> for road section km 91.07 – km 211.00. The annual sum of aggregate solar radiation is 3,400-3,800 MJ/m<sup>2</sup> and 3,600-4,000 MJ/m<sup>2</sup> for road sections km 57.20 – km 91.07 and km 91.07 – km 211.00 respectively.

The following unfavorable meteorological conditions may be observed, which, if being of high intensity, may aggravate traffic conditions and result in accelerated deterioration of road pavement:

- fogs (in average 60 foggy days per annum for road section km 57.20 – km 91.07 and up to 89 days for road section km 91.07 - km 211.00);
- thunder storms (in average >25 days per annum for road section km 57.20 – km 91.07 and 25-30 days for road section km 91.07 - km 211.00);
- black ice (in average 15-20 days per annum for road section km 57.20 – km 91.07 and 25-30 days for road section km 91.07 - km 211.00);
- strong wind and tornado (in average 10-20 days per annum for road section km 57.20 – km 91.07 and 20-30 days for road section km 91.07 - km 211.00);
- snow thawing (in average 30-35 days per annum for road section km 57.20 – km 91.07 and 30-40 days for road section km 91.07 – 211.00);
- snowstorms (in average 15-25 days per annum for road section km 57.20 – km 91.07 and up to 43 days per annum for road section km 91.07 – km 211.00).

*Relief.* In terms of geomorphological conditions the major part of the project section from km 57.20 to km 91.07 is located in the northern periphery of Stolbtsy flatland of the West Belarus sub-region of the Central Belarus region of marginal glacial hills and ridges. A smaller part of this section is located in the north of the Minsk marginal glacial hill.

The relief of section km 57.20 – km 91.07 is moderately hilly and moderately ridged with relative elevations of 5-10 m. Denudation hollows and gulches break hillsides into ridges with 5-6 m moraine hills observed on their peaks.

The major part of the section between km 91.07 – km 211.00, in terms of geomorphological conditions, is located within the limits of Lida glaciofluvial moraine flatland of the West Belarus sub-region of the Central Belarus region of marginal glacial hills and ridges. The topography is formed by glacial accumulation and is gently undulating.

*Soils.* According to soil-geographical zoning the soils of the major part of the project site relate to Shchuchin-Voronovo-Lida sub-district of sod-podzolic sandy loams and sandy soils, developing on bottom-moraine sandy loams, of the Western area of the Central (Belarussian) province. Soil forming rocks are represented mainly by fluvio-glacial sandy loams containing inclusions of small stones and gravel, and less frequently by sands. Individual spots of moraine loams occur.

A small part of the project site relates to Oshmiany-Minsk district of sod-podzolic sandy loams and sandy soils, developing on bottom-moraine sandy loams, of the Western area of the Central (Belarussian) province.

In terms of mechanical composition the project site soils are classified as loams, sandy loams, sands and peat.

To assess the level of the existing soil contamination and define the rate of anthropogenic impact on soils in the course of the project implementation, background content, maximum

permissible concentrations or approximately permissible concentrations of the defined chemical elements in soil cover and their clarke for the Republic of Belarus were used. It is concluded that the content of anthropogenic toxicants in the soil cover does not exceed the permissible concentrations.

*Ambient air quality.* The situation in terms of ambient air quality on the project site is favorable. The major source of air pollutant emissions (such as carbon monoxide and dioxide, nitrogen oxides, formaldehyde) is road transport. Routine monitoring is carried out by the Environment Laboratory of the Belorussian Road Research Institute on various sections of the road network, including the M-6 Minsk-Grodno-Polish border (Bruzgi) road. The obtained results in combination with the data obtained from the Republican Center for Radiation Control and Environmental Monitoring show that harmful emission concentrations are generally falling and are well below the maximum permissible values adopted in Belarus, which are in line with standards of the WHO, and do not pose a threat to people's health.

*Surface and ground water hydrology streams, lakes, water quality.* According to hydrological zoning of the Republic of Belarus the projected road sections relate to the IV–Neman hydrological area of the Neman river basin. The section km 57.20 – km 91.07, on its entire length, shall cross the rivers Pershaika, Baranovka, Litanka (Vyazinka), Nosovka, Kapustinka, Rachevka and also a number of brooks and drainage channels, while the road section from km 91.07 to km 211.00 shall cross the rivers Berezina, Chapunka, Ivenka, Narva, Lideika, Ditva and Lebeda, and the brook at km 98.173.

Ground waters within the projected sections were discovered at different levels. In swamped areas (within river flood plains) ground waters are exposed on the surface, while in raised areas ground waters may reach up to 1.9-8.7 m depth. The waters are depressurized. Aquiferous rocks include medium size, fine and dusty sands as well as boggy deposits.

Surface runoff conditions are satisfactory, the runoff is provided by the existing reinforced concrete culverts.

The existing levels of surface waters contamination within the area of the project road section km 57.20 – km 91.07 and km 91.07 – km 211.00 were defined based on the data of the National System of the Environmental Monitoring of the Republic of Belarus. On the average the content of majority of heavy metals and persistent organic pollutants of surface waters do not exceed the standard values prescribed by the environmental legislation.

Environmental status of the Neman river tributaries, which are crossed by the entire project road section is stable and characterized by II-III classes of water quality (“clean”, “moderately polluted”).

During construction the following factors should be taken into consideration:

- ground waters were discovered at different levels;
- there are swamped areas where complete peat removal is needed;
- specific construction methods should be used to prevent worsening of soil properties (soaking, erosion due to surface waters, freezing, damaging due to operation of construction machinery and equipment).

## **4.2 Biological environment**

In order to provide an assessment of biological diversity of the project site as well as to identify potential environmental impacts, mitigation and monitoring measures two specialized institutions were hired: the Institute of Experimental Botany and the Scientific and Practical Center of Biological resources of the National Academy of Science.

*Project site ecosystems.* The territory of the M-6 road section from km 57.20 to km 91.07 is located within the limits of Minsk-Borisov geobotanical district of Oshmyany-Minsk region of oak and dark coniferous forests. Planted forests are the predominant ecosystems on the project site. The most widely spread are sphagnous and blueberry pine forests, blueberry spruce forests, black alder forests with boggy and filical vegetation, blueberry and haircap moss birch forests.

Forest communities are mainly represented by medium productive growing stock. High productive growing stock of 1<sup>st</sup> class bonitation index occupy about 33.5% of forest lands within the 200-meter zone along the road. Valuable overgrowth forests are not available.

Bushes and shrubs are represented by hydrophytic bushes and shrubs spread on marshlands (mostly lower bogs) and swampy lowlands; and mesophytic bushes on flood lands. Meadow ecosystems are located in the river valleys floodplains and are used as hayfields and pastures.

Vegetation of the territory of the project section km 91.07 – km 211.00 relates to the Neman and Naliboki complex of forestlands of the Neman-Predpolesye region of oak and dark coniferous forests. The following classes of vegetation were detected: forest, boggy, meadow, aquatic, segetal, residential, weed-ruderal vegetation and also protecting forest shelter belt . The predominant classes are those of forest and segetal vegetation.

The average age of forests on the surveyed project site is 46 years. The most widely spread are sphagnous and blueberry pine forests, mossy and sorrel spruce forests, oxalis oak forests, sedge and spiraea black alder forests, sedge birch forests, secondary forests (birch and aspen forests).

*Flora.* The project section km 57.20 – km 91.07 located on the territory of Volozhin district of Minsk oblast goes through the open terrain, which currently is mainly occupied by agricultural lands. Here tilled cultures and cereals, as well as perennial grasses are generally spread. As the road crosses numerous small water flows (drainage channels) there are sections of bush thickets and grasslands.

Part of this project section from Perelesanka village to the administrative boundary of Volozhin district of Minsk oblast with Iveye district of Grodno oblast will go through the Republican Landscape Forest “Naliboki” and grasslands in floodplains of the Isloch and Volozhinka rivers. Level of protection corresponds to IUCN Category V – Protected Landscape.

The project section km 91.07 – km 211.00 goes through the forested terrain and crosses large forest areas on the watershed of the Isloch, West Berezina and Chapunka rivers.

*Fauna. Migration corridors.* Entomofauna of the project road section km 57.20 – 91.07 is represented by widespread species common for open terrain and coniferous forests. Such insects are of minor value. Rare and protected insect species were not detected. Entomofauna of the project road section km 91.07 – km 211.00 is rather diverse which is determined by the extant fragments of relatively insignificantly transformed coniferous and oak forests.

Ichthyofauna of the projected road sections km 57.20 – km 91.07 and km 91.07 – km 211.00 is represented by widespread species, except for the protected species of brook trout in the Baranovka river (road sections km 57.20 – km 91.07) and grayling in the Gavya river (road section km 91.07 – km 211.00). Ichthyofauna composition of water flows crossed by these sections is depleted and quantitatively reduced in various degree.

Performed field surveys showed that amphibians and reptiles are characterized by poor species composition and low density of localities. Amphibian species typical for this region of Belarus are of no particular interest in terms of protection and preservation. Mass migration corridors on the road section km 57.20 – km 91.07 are not observed, while on road section km 91.07 – km 211.00 migration of amphibians was identified. However, due to various intensity of movement and numbers of potential migrants only three corridors are considered to be significant and would require appropriate mitigation measures.

Avifauna both of the road section km 57.20 – km 91.07 and km 91.07 – km 211.00 is mainly represented by common species. Widening of the road bed would not produce significant impact on avifauna of the adjacent area. Bird species which negatively react on anthropogenic impacts have not been registered during field surveys.

The terrestrial fauna of the road sections km 57.20 – km 91.07 and km 91.07 – km 211.00 is determined by prevailing vegetation and in general is similar to other regions of the country.

Frequency of traffic accidents with hooved animals involved on the road section in Minsk oblast is low, while the situation on the road section from km 91.07 to km 211.00 in Grodno oblast

is less favorable. According to formal data of hunting grounds there are 2 permanent stretches here which are characterized by the average annual accident rate of 10-15 animals per 100 km.

*Rare and endangered species. Flora.* Valuable meadow communities, in terms of geobotanics and floristics, were detected in the Baranovka river floodplain between the villages of Leshchatka and Yashkovichi in Volozhin district of Minsk oblast (road section km 57.20 – km 91.07). However, these communities are located in remote areas and the projected construction works will not have negative impact on them.

Among protective species there was only Eastern pasqueflower (*Pulsatilla patens*) detected in the sphagnous-ericaceous pine forest in the vicinity of Tsaiuny village not far from the existing road bed. This Red Book plant is rarely observed on the project site and within the territory of the “Naliboki” forest, in particular. This should be taken into consideration during construction works.

Within the road section km 91.07 – m 211.00 mountain arnica, requiring preventive protection was detected in some locations of Rassolishki forestry (Ivye district). Arnica populations are sufficiently numerous and of good vitality. It is expected that the projected construction works would not produce substantial damage to this species and in future mountain arnica would actively reproduce itself.

*Rare and endangered species. Fauna.* There are no critical locations along the road section km 57.20 – km 91.07 in terms of availability of rare, endangered or Red Book insect species, while the road section km 91.07 – km 211.00 requires particular attention due to occurrence of the Red Book ground beetle species (*Carabus cancellatus*, *Carabus coriaceus*, *Calosoma inquisitor*) in several locations of Ivye, Lida, Shchuchin forestries.

Red Book bird species were not registered in Minsk oblast. However three bird species were identified as having the 2<sup>nd</sup> SPEC category and classified as endangered. These are northern lapwing (*Vanellus vanellus*), wood warbler (*Phylloscopus sibilatrix*) and crested tit (*Parus cristatus*). Also 11 species of the 3<sup>rd</sup> category and classified as endangered were registered, including Eurasian woodcock (*Scolopax rusticola*), European turtle dove (*Streptopelia turtur*), Eurasian skylark (*Alauda arvensis*), barn swallow (*Hirundo rustica*), common house martin (*Delichon urbica*), spotted flycatcher (*Muscicapa striata*) and others.

*Biological diversity.* Significance of the majority of forest communities in terms of maintaining of biological diversity is estimated as moderate and relatively low. During field surveys no plantations having exclusively high value for preservation of the biological diversity were detected in the project area.

Overall, the project will not affect critical habitats or important biodiversity. Potential influence of works on few specific localities will be mitigated by engineering solutions (p.)

#### **4.3 Socio-economic conditions**

The project section of the M-6 road from km 57.20 to km 91.07 goes through Volozhin district of Minsk oblast. It occupies the territory of 1,916.78 sq.km with 38 % covered with forests. The most forested part is located in the south-west of the district.

The leading sector of the Volozhin district economy is agriculture specializing in cattle breeding, cultivation of grain and forage crops, potatoes, vegetables. Local industrial enterprises produce bread and bakery, confectionery, sausages, dairy products, industrial wood, ceramics, flax fiber.

Transport infrastructure includes the republican roads Minsk-Grodno and Minsk-Lida as well as Minsk-Molodechno-Lida-Grodno railway going 20 km northwards from the district center, the town of Volozhin.

The project section from km 91.07 to km 211.00 goes through Ivye, Lida and Shchuchin districts of Grodno oblast.



The territory of Ivey district is 1,841 sq.km with 44.8% covered by forests and 43.2% occupied by agricultural lands, out of which 65.6% are arable lands and 34.4% are hayfields and pastures.

The district economy is diversified with agriculture and industry being priority sectors. Agricultural sector specialization is cattle breeding and plant cultivation. Industrial enterprises produce reinforced concrete items, bituminous mixtures and aggregate for road construction, agricultural machinery, industrial wood, furniture, synthetic materials, cosmetics. The goods are sold both on the local market and exported to Russia, Lithuania, Poland, Latvia, Germany, Denmark, France, Belgium.

The inland transport infrastructure includes Grodno-Molodechno railway crossing the district from the west to the east and a number of important republican roads: Minsk-Grodno, Baranovichi-Novogrudor-Ivye, Voronovo-Oshmyany-Yuratishki-Ivye, Ivye-Trokeli-Voronovo. Out of these Minsk-Grodno road is the most heavily traffic loaded and is characterized by the developed infrastructure of motorist services.

The territory of Lida district is 1,600 sq. km with 25% out of these covered by forests. The area of agricultural lands is 74,000 ha. The number of population is 134,565 people with 27,000 people living in the countryside.

The industry of Lida is represented by enterprises of various sectors: chemical, mechanical engineering, metalworking, woodworking, electrical and food business, etc. The agriculture of Lida district is represented by 6 producers cooperatives, 3 unitary agricultural enterprises and 41 farms. The sector specialization is cattle and pig breeding, cultivation of flax.

The town of Lida has a beneficial geographical position due to its location on the crossing of the Lida-Luninets-Baranovichi-Vilnius and Minsk-Molodechno-Grodno railways as well as of important roads going in the directions of Minsk, Grodno, Brest, Vilnius and Belostok.

Shchuchin district occupies the territory of 1900 sq.km, 32% of which is covered with forests, the rest being mostly agricultural lands. The economy of Shchuchin district is represented by 6 industrial enterprises, 11 agricultural organizations and 30 farms producing meat, dairy products, potatoes, cereals, drug plants. Inland transport infrastructure of Shchuchin district includes the Mosty-Lida railway and Grodno-Lida and Mosty-Shchuchin-Ostryna-Radun roads.

At present the roads of the above described districts in their existing condition are considered as places of high injury rates resulting from traffic accidents. The project would provide for splitting of counter flows onto separate lanes equipped with appropriate safety elements and also for installation of traffic lights within the boundaries of road shoulders, flexible delineator posts and traffic lights, application of road marking, arrangement of accumulation lanes for left-hand turn and "safety islands". New bus stops will be provided and the existing ones will be refurbished. When implemented the project would produce positive effect on traffic safety and would result in reduction of accident rates. Improvement of traffic condition and operational parameters of the road would result in growth of freight transportation, development of motorist services (cafes, fuel stations, rest areas, etc.). Thereby reconstruction of the M-6/E28 Minsk-Grodno-Polish border (Bruzgi) road will produce positive effect on social and economic indicators of the region and the living standards of the population.

*Present and projected population.* According to the official statistic data Belarus has the population of 9.8 million people which is highly concentrated in urban areas (about 70 % of people live in towns). The urbanization has also led to the ageing of the rural population as the younger people have moved to the urban centers. This general trend is observed in the Project area. The number of population in Volozhin district is 37,543 people with about 55% living in the countryside. The number of population in Ivye district is 30,900 people with 21,534 people living in the countryside. The number of population in Lida district is 134,565 people with 27,000 people living in the countryside. The number of population in Shchuchin district is 47,400 people, about 30,000 of people live in towns. According to the data provided by local administrations the trend for substantial increase of population is unlikely.

*Planned development activities.* Project implementation will lead to an increase of international transportation services resulted from increase of traffic flows between Belarus, Poland and other EC countries, Ukraine and the Russian federation. New jobs will be provided due to development of motorist services along the road, expansion of the road operational services, promotion of small and medium-size business in neighboring areas.

*Community structure, present and projected employment.* Local population is mainly engaged in agriculture, cattle-breeding, gardening with a small percentage of people involved in small private business. The level of unemployment is insignificant. Yet employment opportunities for people who live along the road due to the Project implementation will improve. Thus the Project will generate temporary employment during performance of civil works and permanent employment during the road maintenance phase. Road upgrading will lead to substantial increase of traffic and development of motorist services. This, in turn, will also result in generation of new jobs. Eco-tourism, which is becoming more and more popular in Belarus, may also give rise to local business opportunities and increase of both the incomes of population and revenues for local budgets.

*Significant natural, cultural or historic sites.* The territory of the project site was subjected to considerable ravages during the Second World War, as well as the entire territory of Belarus. The existed cultural and historic monuments were completely ruined and have not been restored. Significant natural, cultural or historic sites, as per the results of review and study of appropriate documents issued by the National Academy of Sciences and available with local ethnographic museums, are not present along the route. However, if any cultural or historic resource is encountered during civil works all operations will be temporary halted in the area of the feature and appropriate authorities will be immediately notified. The works will be recommenced only upon due resolution of the problem according to provisions of the contract conditions.

## **5. Potential resettlement issues and land acquisition**

*Resettlement issues. Land acquisition.* At the moment it is clear that the Project may involve relocation related to allocation of land for expansion of the carriageway. The allocated land is divided into the following categories:

- Land not subject to compensation: land in the jurisdiction of village councils, land of the reserve fund of village councils, agricultural land, public use land;
- Land subject to compensation for deforestation: forest land, land of state-owned forestry enterprises, forest fund;
- Land subject to purchasing/compensation with alternative land: privately owned land (land shares), privately owned land (farming enterprises), privately owned land (vegetable gardens), departmental property.

Potential land acquisition for the above component is likely to be limited to what will be needed for expansion of the road bed under the Project. It will affect not more than 50 land owners with only about 20% of them losing more than 20% of their land or having to relocate. The supposed real impacts upon the remaining plot and the principle of plots being economically viable will take precedence, even for land owners losing less than 20% of their land. Compensation will be governed by the following general principles:

- All possible steps will be taken to minimize acquisition of productive, privately owned land and to avoid acquisition of land that is used for residential and business purposes, through careful selection of the needed land lots.
- Related to the above, the project will use public land as much as possible for construction of the necessary facilities.
- In case land acquisition is necessary, the property and inheritance rights of affected persons will be respected and procedures specified in the RPF document and relevant RAP will be followed.

- Based on the annual Project work plan, RUE “Minskavtodor-Center” and RUE “Grodnoavtodor” will prepare an annual Resettlement Action Plan.
- The preparation and implementation of the annual land acquisition and compensation plan will be done in a transparent manner with the participation of affected persons and relevant institutions.
- The project envisages that the persons losing productive agricultural land will be provided with replacement land of equivalent value. Where land-for-land replacement is impossible, a cash compensation will be offered. Affected people will be provided replacement land or compensated at full replacement value, without deduction for depreciation or for any other purpose, prior to the commencement of construction works.
- Valuation of land, businesses, and other assets for which compensation is given will be based on full replacement cost.
- Any infrastructure facilities, such as roads, water supply pipes, and communication networks, disrupted in the course of the project during the construction of facilities intended to eliminate black spots, will be replaced. In addition to being replaced, the project will include mitigation measures to ensure project affected people retains access to these services during construction works.
- Preference shall be given for resolving issues outside of courts using the grievance redress mechanism in place. In cases where an affected person is not satisfied with the outcome of the grievance redress mechanism, he or she can as a last resort appeal to a court of competent jurisdiction.
- This policy applies to all affected persons regardless of their total number, severity of impact and whether or not they have legal title to land or assets. Particular attention shall be paid to the needs of vulnerable groups among those affected (elderly persons living alone, people with disability, households living below the poverty line, households with many children, female headed households).

Based on current assessments, it is not expected that leaseholders/users of public land will be significantly affected taking into account the following factors:

- part of the public land is, in effect, land strips along the road, where road reconstruction and expansion will take place;
- most of the leaseholders are big agricultural companies.

All lands temporarily occupied during construction period after the completion of the works will be re-cultivated with carrying out of all the required agricultural measures (fertilization, rehabilitation of land fertility, etc.) and transferred to original leaseholders/users.

## **6. Analysis of project alternatives**

It is known that various alignments of the road result in different levels of environmental risks, which may be critical in the EA of the project alternatives.

Two alternatives were considered: “With project” and “Zero” or “Do nothing”. Substantiation of priority alternative selection is given in Table 2 below.

Table 2. Description of project alternatives

	<b>“With project” alternative</b> Implementation of the M-6 Minsk- Grondo-Polish border (Bruzgi) road section km 57.2 – km 211.0 upgrading project		<b>“Zero” alternative</b> Without implementation of the of the M-6 Minsk- Grondo-Polish border (Bruzgi) road section km 57.2 – km 211.0 upgrading project	
	Benefits	Shortcomings	Benefits	Shortcomings
Environment: atmospheric air	Improvement of road operational and traffic conditions will result in reduction of air pollutant emissions generated by road transport	Temporary pollution of the environment with exhaust gases of construction machinery used during construction. Pollution due to operation of vehicle engines and generation of products resulting from tire and road pavement wearing during road traffic and transportation of road construction materials.	Absence of shortcomings of “With project” alternative implementation.	Large amounts of air pollutant emissions resulting out of vehicle braking and acceleration, low speed of traffic due to poor quality of the existing road pavement.
Environment: soils, land resources, surface and underground waters, vegetation	Application of new construction methods will allow for maximum reduction of rates of road related chemical and mechanical pollutants penetrating into adjacent lands and water bodies.	Partial withdrawal of lands. Considerable impact on soils and water bodies during construction. Deforestation.	Absence of shortcomings of “With project” <sup>t</sup> alternative implementation.	Further considerable increase of pollutant emissions rates due to road traffic.
Socio-economic factors	Reduction of accident rates. Development of tourist business, motorist services, perspectives for business activities. Generation of new jobs in road maintenance sector. Increase of socio-economic parameters of the region.			Missing benefits due to refuse of the project implementation.
Traffic conditions	Increase of freight. Reduction of transport costs (fuel, lubricants, spare parts, maintenance, depreciation, drivers’ wages, overheads, etc.)	Worsening of traffic conditions during construction.	Absence of shortcomings of “With project” alternative implementation	Costs for implementation of rehabilitation works on the existing road.

While “Zero” alternative has no environmental and social impacts resulting from construction works, operating of the road in its current condition will have negative environmental impacts resulting from traffic jams, noise, low speed and high level of harmful emissions and traffic accidents. In the future, with regard to the increased traffic flow, the situation will aggravate. Under the “do nothing” scenario local communities would lose the opportunity of benefiting from all positive effects associated with the road upgrading, including profits due to increased cargo turnover, tourism, generation of new jobs, access of local

population to centers of business activities, etc. Therefore, as the potential positive impacts of the project exceed its potential negative impacts, “Do nothing” scenario was rejected.

## **7. Assessment of potential project environmental impacts**

The project implementation may cause a series of both adverse and positive environmental and social impacts. Potential project impacts on the environment are connected with:

- carrying out of construction works;
- road operation.

Impacts during construction, normally, are of temporary character. Operational impacts will appear during the entire period of the project operation.

The major source of direct road impact on the human being and environment is road traffic. It results in:

- pollution caused by exhaust gases of vehicle engines travelling along the road;
- pollution caused by dust and products emitted due to road pavement wearing vehicle tyres during road traffic;
- soil and vegetation pollution due to surface flows from road carriageway;
- noise pollution;
- impacts on flora and fauna due to reduction of “quality” of habitat;
- pollution of the right-of-way with construction and household waste.

The criterion of substantial importance of such impacts is the human life and health safety, conservation of natural ecosystems.

Amounts of adverse impacts and area of their spreading may vary depending on traffic volumes and composition of traffic flows.

The territory subject to changes caused by road construction or operation is called the road influence zone. There may be occasional excesses of background environment polluting components yet not attaining maximum permissible values. Living or staying of people on such territory is practically safe and do not require any limitations. At the same time some changes of the environment produce effects on flora and fauna and result in gradual transformation of the landscape.

The territory where the adverse impacts may exceed the safe level (as per Belarus sanitary norms and hygienic standards) is called the protective belt. Inadmissible transport pollutions periodically occur in the protective belt, soil contamination gradually accumulates and, if no mitigation measures are undertaken negative effects may be dangerous resulting in irreversable changes of flora and fauna. Location of dwellings (including homestead lands), recreation facilities and other structures with constant staying of people is not allowed on the protective belt territory. The protective belt includes the area where the level of pollution systematically exceeds maximum permissible sanitary norms. Such territory is called the reserve belt.

Dimensions of the project road impact area will be as follows: influence zone – 3000 m, protective belt – 300 m, reserve belt – 30 m, if natural obstacles are available in the format of relief forms or buildings as well as forest cover on the major part of the road impact area then the influence zone shall be 1500 m and protective belt shall be 150 m

*Overview of potential adverse environmental impacts during the construction phase.* Using as a reference the guidelines provided in World Bank’s Handbook on the Roads and Environment, the existing practice of road construction in Belarus as well as the results of the previously implemented projects in the country, a list of potential impacts during construction has been prepared (see Annex 5). Major environment impacts during construction phase include: (a) pollution due to exhaust gases of engines of road vehicles and construction machinery used during construction works; (b) noise, vibration, electromagnetic, radiation and technologic pollution during construction works; (c) pollution due to dust and products of road pavement, as well as produced during transportation of construction materials; (d) environment contamination due to production activities (borrow pits and sites for temporary storage of

construction materials); (e) contamination due to parking and maintenance of construction plant and machinery; (f) contamination due to surface water run-off from carriageway of roads and bridges, as well as on sites for storage of construction materials; (g) contamination of soils, surface and ground waters, roadside vegetation and territories adjacent to storage sites due to application of de-dusting and de-icing materials; (h) contamination due to water and air erosion; and (j) contamination of road way with domestic and production waste; (i) use of hazardous materials, such as combustive-lubricating ones, bitumen, etc; and, (k) traffic of construction vehicles/hauling of road-building materials, building materials stockpiling and use of waste disposals.

Most environmental impacts will be temporary and local, mainly during the construction phase and will cause only minor, localized and short-term negative effects. These impacts are common in road construction works and can be managed through supervision of environmental aspects and use of adequate technical construction standards.

*Of-site adverse impacts.* A series of negative environmental impacts triggered under this project will be seen off-site where road-building material would be sourced. If not managed properly, borrow sites can have substantial impacts on the surrounding environment as well as intrusion on the aesthetic quality of the sites. Considering this it was decided that the design documents would specify sources of construction materials (e.g. stone, sand, etc.) with approved licenses, permits, and/or approvals for environmental and labor safety. ~~Considering this it was decided that the project will specify contract provisions governing the sources of construction materials (e.g. asphalt, stone, sand, etc.) would be supplied only from sources with approved licenses, permits, and/or approvals for environment and labor safety.~~ Environmental requirements for operation of the borrow pits of Belarus “Uniform regulations of earth protection during operation of deposits of solid mineral resources of the Republic of Belarus”, according to which the following measures are to be observed: (a) constant monitoring of mineral resource excavation depth; (b) avoidance of superloss of mineral resources during excavation; (c) provision of full removal of fertile soil lift and its proper stockpiling for future use for the purposes of borrow pit re-cultivation. Upon completion of the operation period borrow pits are to be re-cultivated in conformity with provisions of “Regulations on re-cultivation of lands infringed during development of mineral deposits, carrying out of geological surveys, construction and other works” and RD 0219.1.26-2002 “Manual for re-cultivation of lands infringed during road construction”. In case quality of material from existing borrow pits does not meet the required quality standard, the contractors will be required to obtain relevant licenses for new borrow pits where construction material will be excavated. Operation of these new borrow pits and their re-cultivation will be in compliance with environmental performance requirements, as per documents mentioned above.

Impacts originated from use of asphalt-concrete mixtures, bitumen and other hazardous materials, and their hauling from sites where they are produced to the sites where they are applied had been considered, as well. All these impacts are also common for such kind of works and can be easily mitigated through application of existing techniques and measures.

Existing stationary asphalt plants are supposed to be used for the purposes of road construction. All of them currently have relevant environmental permits for their operation.

*Potentail impacts on air quality.* Ingredient transport pollution is of key importance in terms of environmental safety at the stage of road design and maintenance. Emissions of pollutants contained in discharge gases has been calculated taking into account the growth of traffic in the reviewed period in accordance with TCP 17.08.-03-2006 (02120), endorsed by Resolution of the Ministry of Natural Resources and Environmental Protection of the Republic of Belarus No.3-T dated 28 June 2006. The calculation has covered four groups of pollutants: (a) Group 1: pollutant emissions which depend on different movement of mechanical transport vehicles; (b) Group 2: pollutant emissions which depend on fuel consumption by mechanical transport vehicles and are estimated as a share of fuel consumption; (d) Group 3: pollutant emissions which are estimated based on kilometrage of a mechanical transport vehicle; and, (e)

Group 4: detailed non-methane volatile organic compounds estimated as a share in the aggregate emission of non-methane volatile organic compounds.

To evaluate the project impact on the ambient air calculation of pollutant dispersion in the surface layer of the atmosphere was made including determination of attainable concentrations on the boundary of resident areas located in the road affected zone. The calculation was based on the estimated values of such emissions and performed with application of the standardized software “Ekolog” (version 3.00) developed by local company “Integral”. Analysis of the obtained results showed that there would not be any excess of maximum permissible concentrations (MPC) of all the considered pollutants and summation groups on the boundary of resident areas located within the road affected zone. The project input into the atmosphere pollution is minor (0.26 MPC maximum). Thus the project would not produce significant impact on the ambient air, condition of this natural component would not be considerably changed and would remain within the permissible limits.

*Potential noise impacts.* In addition to air pollution, noise resulting from traffic, particularly of heavy commercial trucks, becomes a negative factor affecting the environment and livelihoods. As the project section is located in the vicinity of resident areas, estimation of acoustic loads was performed by computer simulation of the expected noise impact level during day time (from 7.00 to 23.00) and night time (from 23.00 to 7.00) was carried out with application of “Ekolog-Shum” software taking into account forecasted traffic volumes and composition of traffic flows.

Results of model calculations of noise levels showed that on the territories directly adjacent to dwelling houses exceeding of permissible levels of noise pressure would be observed in case appropriate mitigation measures were not implemented.

*Potential impact on flora and fauna.* Considerable impact on vegetation may be produced due to direct changes of the environment caused by road construction which is accompanied with changes of environmental in the right-of-way and the adjacent areas.

Littering of shoulders with household and construction debris should be avoided and potential accumulation of new synanthropic plants in the area of new forest skirts should be taken into consideration.

During the subsequent road operation plants growing in the vicinity of the road will be subjected to direct or indirect impacts of road transport. Road impacts on forest communities is of multifactor road influence including emission of the wide range of toxic substances and exhaust gases produced by vehicle engines.

The most adverse impacts are produced on the natural vegetation communities due to direct impacts of preparatory and construction works.

Removal of the vegetation will be minimum, as per stipulated by the design, for the purposes to reduce negative impact in vegetation communities of the project site.

The route of the project road section is laid with maximum use of the existing road in within the permanent right-of-way with partial withdrawal of lands. Forests located in the permanent right-of-way are quite representative to plantations along the project section.

Stocking of timber on the withdrawn forest sections and its sale will be carried out according to the existing legislation.

Compensations for losses of land owners due to withdrawal of agricultural and forest lands are stipulated.

It should be noted that in general the project will not produce adverse impacts on rare flora components of the project site. In terms of impacts on flora of the road construction works are admissible and will not contradict to conservation of flora diversity.

During road operation there may be direct or indirect impacts on fauna of the project site.

Direct impacts on fauna may result in death or injury of animals involved in road traffic accidents. According to the reports of hunting farms dozens of animals are killed annually on various sections of Belarus roads due to road traffic accidents, but the percentage of irretional losses is insignificant. Notwithstanding this there is high risk of consequences of such accidents

for human life and health, as well as for traffic safety and material security. In view of this special measures are required to mitigate potential damage to property and health of road users.

According to the Hunting Regulations approved by the President of the Republic of Belarus Decree of 8 December 2005, the optimum number of hunting animals is the number of animals inhabiting the hunting areas during long time period, capable for natural reproduction and efficient use of feeding resources under which the largest output of qualitative hunting production is secured without any significant damage to natural environment components as well as human life and health and property of citizens and legal entities.

Increase of the number of wild hoofed animals is a factor promoting increase of their migration for the search of feeding and consequently impacting the number of road crossings by the animals on the M-6 road section.

Indirect impact may be represented by contamination of adjacent territories with exhaust gases and storm and snow melt water flows, as well as salting of the roadside territories resulting from application of de-icing materials during winter maintenance. Salt components (sodium and chlorine ions) of de-icing materials as well as the wide range of substances contained in emitted exhaust gases are capable for accumulation in soil and vegetation and in large concentration are toxic for all the biocenose components.

Forested road sections may attract wild hoofed animals as places suitable for nutrition. To reduce the attractiveness of forest belts inedible varieties of trees and shrubs are recommended for planting. Besides grass mowing in the right-of-way should be carried out with immediate removal of mowed grass upon completion of the works.

Noise impacts should be also taken into consideration as potential factor of discomfort and worry for local fauna.

*Potential social impacts.* The project will bring a series of positive social impacts, including increases in traffic, economic activities, better connectivity and further development along the road corridor. After completion, the project will also have positive indirect impacts on human health and safety through decreased number of accidents and reduced air pollution from more constant travel speeds on constructed road.

*Potential impact of waste management.* Waste management system should be built with due account to meeting the requirements of environmental legislation stated in the Article 17 of the Belarusian Law On waste management № 273-3 as well as the following base guidelines:

- priority of waste utilization against its neutralization or burial, subject to requirements of legislation on environmental protection and considering economic efficiency;
- priority of waste neutralization against its burial.

According to Article 17 of the Law of the Republic of Belarus “On Waste Management” legal entities and individual entrepreneurs that perform waste management should:

- control the collection of waste and its separation by types, excepting cases, when waste mixture are allowed according to technical regulatory legal act;
- appoint authorized persons responsible for waste management;
- ensure the neutralization and (or) utilization of waste or its transportation to sites of neutralization and utilization of waste and (or) sites of waste utilization as well as its storage in authorized landfill sites or burial in authorized burial sites;
- ensure preparation (training) of workers in the field of waste management as well as instruction, knowledge assessment and advanced training;
- maintain accounting of waste and its inventory following procedures specified by the existing legislation on waste management;
- duly provide true information on waste management at the request of notified republican bodies of government administration in the field of waste management or their territorial governmental bodies, local executive bodies and regulatory authorities, individuals;
- develop and take measures to reduce (prevent) of waste formation;



- fulfil other requirements, rules and guidelines as stipulated by the existing legislation.

The main sources of waste formation during road construction are: preparatory and major construction works, maintenance and repair of construction machinery, plant and equipment. Construction waste accumulated during construction works will be kept temporarily on specially allotted sites with the view of further transportation to waste utilization or burial (see Table 3 below). Planning of waste storage will be performed in accordance with provisions of Article 22 of the Law “On Waste Management” No. 271-Z and technical specifications.

Table 3 Classification of waste and methods of utilization

Waste description	Hazard category	Source of waste formation	Utilization method
Asphalt concrete from removal of asphalt pavement	Non hazardous waste	Milling and removal of the existing asphalt pavement of road and bridges	To be transferred for further utilization or processing
Scrap of asbestos concrete products (sheets, pipes)	4 <sup>th</sup> class	Removal of asbestos cement pipes	Subject to burial on waste landfills
Concrete waste	Non hazardous waste	Removal and crushing of curbs, leveling and protective layers of bridge deck, carriageway of bridges, concrete dampers	Subject to burial on waste landfills
Scrap of concrete items	Non hazardous waste	Removal of concrete gutters, stabilization of cones and dams, cast-in-situ concrete blocks and gutters	Subject to processing
Scrap of reinforced concrete items	Non hazardous waste	Removal of ribbed slabs, cast-in situ-reinforced concrete stairs, footway blocks, transition slabs and foundation slabs, concrete supports and reinforcing slabs, pulling out of piles, removal of reinforced concrete slabs and culverts sections	Subject to processing
Unsorted concrete structures and parts	Non hazardous waste	Removal of culvert sections, foundation blocks, fencing sections	Subject to recycling
Metal waste, waste of iron casting including pipes	Non hazardous waste	Removal of iron water drains and gutters	Subject to processing
Painted black metal	Non hazardous waste	Removal of metal pipes and drains, posts and ashbins on the existing bus stops, existing roads signs, metal safety barriers and parapets on metal posts, bridge expansion joints	Subject to recycling or processing
Mixed construction waste due to removal of buildings and structures	Non hazardous waste	Removal of existing pavilions, houses and outhouse structures	Subject to burial on waste landfills
Slate sheeting scrap	3 <sup>rd</sup> class	Disassembly of slate roofing of existing bus stop pavilions	Subject to burial on waste landfills
Stumping waste	Non hazardous waste	Cutting of trees in the road side, in bottom land and on dams	May be used during technical re-cultivation of pit-quarries
Boughs, sticks, crowns	Non hazardous waste		

Sediments of suspended matters originating from storm water treatment	4 <sup>th</sup> class	Maintenance of treatment facilities	According to the agreement for maintenance of treatment facilities
Oil-slimes of mechanical treatment of storm waters	4 <sup>th</sup> class		
Industrial waste similar to domestic biowaste	Non hazardous waste	Biowaste	Subject to burial on waste landfills

Waste classified as recycled resources and secondary material resources shall be recycled or handed over for reprocessing.

Waste, which cannot be utilized or neutralized, is subject to burial on waste landfills.

Responsibility for management of waste produced during preparatory and construction works (collection, accounting, removal and transportation for processing, usage and/or neutralization) shall be assigned to the contractor.

*Potential project impacts during operation phase.* Annex 6 outlines potential environment and socio-economic impacts during the road operation phase which are mostly linked with combustion gases emissions, contaminated surface run-off and at the same time, reduced vehicles operating costs and reduced emissions into air as compared to previous road conditions.

## 8. Environmental Management Plan

The EMP contains: (a) necessary mitigation measures; (b) a monitoring plan; (c) implementing arrangements. Proposed mitigation measures include actions to be undertaken for all project stages, - design, construction and operation.

### 8.1 Mitigation of environmental impacts

*Mitigation during designing/ planning phase.* The adequate planning and design of environmental protection activities and mitigation measures will be required to minimize potential environmental impacts. Contract documents for design will incorporate all requirements to minimize effects on environment that may result from planned activities, as well as to avoid social and health impacts. Furthermore, the design contractor will be required to use environmentally acceptable technical standards for design and comply with environmental, health and safety regulations stipulated by national legislation and World Bank requirements.

*Overview of mitigation measures during construction phase:* To minimize potential construction-related negative impacts during the construction phase a combination of preventive and mitigation actions will be implemented. The summary of the proposed measures to be applied during the road construction is presented in Annex 5. The following most important mitigation measures are planned: (a) composition and properties of road construction materials used during the project implementation should meet the requirements of national technical standard norms and specifications; (b) construction of anti-noise screens on road sections going through resident areas; (c) to avoid bogging in all depressed locations drainage of surface waters will be provided by culverts; (e) to avoid soil erosion ravine consolidation near culverts will be performed; (f) consolidation of slopes and shoulders will be performed for the purposes to avoid sub-grade washing out; (g) maximum use of the existing stationary asphalt plants and bitumen storages is planned by the project allowing to maintain permissible concentrations of emissions and to provide purification of run-off waters and waste; (j) location of temporary premises,

structures and storage sites for construction materials shall be within the limits of the allocated areas; (i) sites for temporary parking of road construction machinery shall be located outside protection zones of water basins and shall be contoured along the perimeter by soil; the implemented measures will provide for collection of oil containing products accidentally spilled on the ground with their subsequent burial after liquidation of the sites; and (k) construction equipment and machinery equipped with internal combustion engines should be adjusted and checked for toxicity of exhaust gases.

*Air pollution prevention.* The most unfavorable parameters for road transport are specific emissions of air pollutants (CO, CO<sub>2</sub>, NO<sub>x</sub>, hydrocarbons, sulphide gas). The level of pollution depends both on technical condition of vehicles and road conditions, i.e. technical parameters and operational condition of roads. In order to reduce emissions of air pollutants the following measures will be implemented during construction:

- systematic technical control of diesel engine fuel systems in order to reduce CO<sub>2</sub> emission;
- provision of proper condition of ignition and combustion systems of road machinery;
- maximum use of the existing stationary asphalt plants and bitumen storages is planned by the project allowing to maintain permissible concentrations of emissions.

Also to avoid and minimize concentrations of emissions preference should be given to electrically driven road construction equipment and machinery. Internal combustion engines of vehicles should be adjusted and checked for toxicity of exhaust gases.

*Noise prevention.* Road traffic and operating road machinery produce high level of noise. Especially high noise is produced by bulldozers, excavators, pneumatic hammers, vibrators, milling machines. Reduction of traffic noise levels during construction will be achieved due to the following measures: (a) application of fine graded asphalts and fine aggregate for wearing courses; (b) 60 km/h speed limit of traffic flow during construction, which will allow 7 dBA noise level reduction; (c) carrying out of construction works during day time; (d) sound protection of road machinery engines using protecting coverings made of rubber and other effective sound protecting materials as well as using multilayer cowlings; (e) location of compressors on sound absorbing sites or under sound absorbing covers allowing to reduce noise levels by 70%. By implementing these measures the noise level will be lower than permissible norm of 55 dBA. Site sections with noise level above 80 dBA should be marked with safety signs and personnel working on such sections should be provided with personal protection facilities.

*Measures to mitigate impacts on surface and ground waters.*

To mitigate negative impact on surface and ground waters during construction the following requirements should be strictly observed:

- it is necessary to install biotoilets for the workers near the construction sites, need a device composting toilets for the needs of workers;
- pits for domestic wastewaters with their subsequent sanitation are also required.

To eliminate the penetration of sewage into the groundwater the pit bottoms must be concreted. Length of sewage staying in the pit should not exceed 3-4 days. Waste waters are transported by special vehicles to the treatment plant.

Areas where water is used regularly to reduce dust, including warehouses, concrete, gravel and asphalt plants should be equipped with drainage systems draining into special containers for settling solids. After settling the water can be reused for de-dusting and cleaning.

It is forbidden to dump and pour any of the materials and substances produced in the result of works into the water sources and low relief places.

It is necessary to ensure continuous keeping of all permanent and temporary streams and spillway near the construction site clean and free of debris and waste.

All contaminated water and liquid waste from construction sites should be collected and transferred into special containers to avoid causing pollution and poisoning water and soil.

Location and work of road construction equipment in close proximity to water sources is prohibited. Construction sites should be located outside the river protection zone and should be outlined with drainage grooves with concrete septic tanks.

Most of the impact on natural water will be temporary and local, during the construction phase they will produce only minor, localized and short-term adverse effects. Such impacts are common in road construction and can be controlled by monitoring the environmental aspects and the following the appropriate building regulations.

Also negative impacts on the waters of adjacent territories are produced during the road operation. The main types of such effects are: anthropogenic emissions of cars, pollution of water areas with de-icing agents, disposable rash.

Water pollution prevention measures directed to water drainage from the surface of the carriageway outside the external drains, are included in the project design documents. Drainage of roadway and bridges will be carried out on sloping sites and slopes. Water from the roadway is led to the gutter located at the side along the roadway edge, and then to the transverse channel, located on the mound slopes with the height of greater than 4 m and a minimum grade of 30 ‰, as well as to concave curves.

Thus, getting of the water runoff and also chemical and mechanical contaminants from the road to the rivers is practically excluded, as well as of chemical and mechanical contaminants from the road.

Implementation of all design options and compliance with basic environmental standards both during the road construction and operation will allow to reduce anthropogenic impacts on water bodies to the level of their self-cleaning and self-restoration.

These mitigating measures would constitute integral part of the project implementation and will be included in the contracts binding the contractors to carry out the environmental obligations during road construction works. To ensure compliance with the contract, implementation of mitigation measures will be monitored by the construction supervision engineer, jointly with Belgiprodor environmental expert.

*Waste management.* Management of the construction wastes will be done in the following way: (a) milled asphalt will be stockpiled on the construction site and then used on the road, asphalt after removal of the existing pavement will be transported to the asphalt plant for recycling; (b) concrete and reinforced concrete waste arising out of removal of road facilities will be transported for temporary stockpiling with subsequent reclaiming. Before transportation of construction waste permission of the Ministry of Natural Resources and Environmental Protection will be obtained by the contractor for stockpiling of construction waste on the field (from 1<sup>st</sup> January 2005 this amount should be 10% maximum of the total amount of construction waste). Construction waste should be accounted by the contractor in the register accompanied with passports for waste transportation for reclamation or purification. With regard to communal waste, there will be installed waste containers for collecting domestic garbage on the construction site and transportation to dumping ground for solid waste will be organized. Also special contract agreements will be concluded with specialized transport depot for transportation of waste from the toilet cesspool on the construction site to purification stations. Industrial waste disposal and utilization measures include: (a) granulated asphalt resulting from milling of the existing pavement will be stockpiled at the construction site with subsequent use at the site, asphalt concrete resulting from removal of the existing pavement will be transported to the asphalt plant for recycling; (b) concrete and reinforced concrete waste resulting from dismantling of pavilions and culverts will be transported to an interim storage sites for subsequent utilization or transported to crushing plant for recycling; (c) root and wood cutting residues after removal of trees will be transported to a designated site for landfill disposal or recycling into wood chips for subsequent use as local fuel.

*Vibration reduction.* Civil works associated with excessive vibration levels, such as demolition, earth-moving, compaction, etc. will be phased so that to avoid occurrence in the same time period. The total vibration level produced could be significantly less when each

vibration source operates separately. As pile driving is one of the greatest sources of vibration associated with equipment during bridge construction the Contractor will be recommended to use such types of pile drivers which may provide substantial reduction of vibration levels, for example, sonic pile drivers. Appropriate demolition methods, in case of rehabilitation of the existing bridges, should be selected by the Contractor in such a way so that to avoid impact involvement. For example, sawing bridge deck into sections that can be loaded onto trucks results in lower vibration levels than excavation using clam shell or chisel drops. Besides all vibration producing plant, equipment and machinery operating on the construction site should be continuously checked and adjusted.

To reduce negative vibration effect produced by such machinery and equipment on personnel two breaks per shift during carrying out of civil works should be made as prescribed by the national norms of occupational safety. To increase protective properties of human beings, their working ability and labor activity special gymnastic exercises and vitamin prophylaxis will be recommended.

*Avoiding fuel spilling.* During construction fueling of construction equipment and machinery will be made from mobile fuel tanks. Fuel and lubricant residues will be collected to special containers with subsequent reclaiming. Spillage of fuel will be avoided. For that purpose the refuelling of machinery will be allowed only at a properly located and designated fuel truck equipped with a proper spill containment kit. All vehicles will have drip pans during storage to contain minor spills and drips. The refuelling will be done on specially designated locations with buffers around to reduce the risk of direct spills into the water courses and on the soil. These locations will have special decks to ensure fuel spill from overfilling can be properly collected and taken care of. Fuel deck plates and tank breather vents must be arranged to avoid spill when refuelling. Before starting any fuelling, defueling, or internal transfer operation, all machinery and piping systems will be checked for tightness and for signs of leaking glands, seals, and gaskets. Before preparatory works and mobilization for construction approvals of local sanitation services should be obtained for sites of construction waste collection and methods for further processing, as well for reclamation of sediments in accumulating tanks.

*Soil protection measures.* Soils and vegetation protection and efficient management measures include: (a) separation of topsoil at all land plots to be used for roadbed with stockpiling and subsequent use for reinforcing slopes, ditches, roadsides and dividing strip; (b) at plots covered by dumped roadbed it is expected to remove peat from boggy areas with subsequent use of peat for reinforcing slopes and improving fertility of adjacent lands; (c) restoration of waysides, exits, construction yards and waste soil sites. (d) provision of protective forest belts (e) installation of dust bins and plantation of decorative vegetation at lay-bys and bus stops.

Appropriate measures for using of fertile soil (peat) are planned by the design. Necessity of fertile soil lift removal is specified by GOST 17.5.3.06-85 and "Statements on fertile soil lift removal during the works connected with lands infringement" approved by the State Committee for Land Resources and Cartography of the Republic of Belarus No.01-4/78 dd. 24 May 1999. Earthworks would be carried out according to specifications for fertile soil lift protection as per GOST 17.4.3.02-85. The project includes measures for preservation of fertile soil during earthworks and its future usage for rehabilitation of land fertility in the process of re-cultivation. Locations for stockpiling of fertile soil and procedure for fertile land spreading on the land section under re-cultivation are specified by the design. Measures excluding fertile soil damage (i.e. mixing with lower soil lifts, fuel, lubricants, etc.) will be undertaken. Fertile soil, which is not used immediately during construction, will be stockpiled in pills and handed-over to the responsible administrative officer under the appropriate certificate. To avoid washing out and blowing-off of the stockpiled soil the surface of a pill and its slopes should be stabilized by grass sowing, in case the storage period exceeds two years.

Fertile soil from infringed lands will be removed and preserved according with recommendations of the mentioned above document approved by the State Committee for Land

Resources and. The site for fertile soil stockpiling normally is located on lands unsuitable for agriculture; measures to exclude under flooding, salinization and contamination with production and domestic waste will be provided.

Lands allocated for temporary use for construction of water pipelines, communication lines, gas pipelines and other linear facilities will be rehabilitated upon completion of the construction works and returned to original land users. Lands temporarily withdrawn from agricultural turnover will be rehabilitated for arable lands, while lands withdrawn from the state forest fund will be re-cultivated for planting of forest cultures. Technical re-cultivation of land sections will be carried out during earthworks, excluding the period of soil freezing.

Fertility rehabilitation of re-cultivated lands would be performed by land users, to whom these lands are handed-over upon technical re-cultivation, at the expense of contractors carrying out the works connected with soil cover infringement during the time period set by the project.

*Borrow pits re-cultivation.* Newly opened borrow pits, upon completion of the construction works, are planned to be used for stockpiling of solid domestic waste. Bottoms of borrow pits earmarked for stockpiling of solid domestic waste should have the ground water level of at the depth of 2 m minimum and should be formed by soils with low filtering capacity to exclude high water flooding. The area of solid domestic waste stockpiling should be fenced along the perimeter either by an earth bank of 3 m height or a trench of 2 m minimum depth.

Methods of stockpiling and other measures for arrangement of dumps for solid domestic waste and vegetation residues in the borrow pit should be in accord with the “Standard specifications for selection and location of sites for temporary stockpiling and mini-fields for solid domestic waste” approved by the Ministry of Natural Resources and Environment Protection and the Ministry of Housing and Communal Services of the Republic of Belarus on 19<sup>th</sup> January 2001.

Re-cultivation plan will be prepared taking into account the requirements of RD 0219.1.26-2002 “Manual for re-cultivation of lands infringed during road construction” approved by the order of Department “Belavtodor” of the Ministry of Transport and Communications” (No 59 dd. 30<sup>th</sup> April 2002). The Project takes also into account “Statements on re-cultivation of lands infringed during exploitation of deposits of mineral resources and peat, carrying out of geologic investigations, construction and other works” approved by the State Committee for Land Resources and Cartography of the Republic of Belarus No 22 dd. 25<sup>th</sup> April 1997.

Handing-over of lands upon completion of the first stage of re-cultivation is made according to the “Statements on procedure of handing-over of re-cultivated lands to land owners and land users carrying out of exploitation of deposits of mineral resources and peat as well as geologic investigations, engineering survey, construction and other works connected with soil cover infringement” approved by the State Committee for Land Resources and Cartography of the Republic of Belarus order No 22 dd. 25<sup>th</sup> April 1997.

*Recommendations for minimization of impact on biodiversity elements.* The status and level of the project site biodiversity components shall require implementation of measures allowing maintaining their sustainability and functional effectiveness. Increase of the project site ecosystem sustainability can be achieved provided only that a set of administrative and engineering measures is applied with regard both to the existing condition of ecosystems and the most probable scenario of their development.

The following key recommendations for minimization of impact on biodiversity elements were taken into consideration when preparing the detailed project design. The objective of the design solutions presented below is to minimize impact on local landscape and selected flora species. With these solutions being implemented the project will not affect important habitats and/or biodiversity in the influence zone listed below.

Widening of the road subgrade from the left side at stretches: km 65.6 – km 65.8, km 82.1 – km 82.4, km 89.1 – km 89.2, km 92.9 – km 94.0, km 98.9 – km 99.05, km 198.5 – km 199.5 and from the right side at stretches: km 80.2 – km 80.9, km 104.1 – km 106.6, km 116.5 –

km 116.75, km 161.9 – km 162.0 so that to provide conservation of rare, endangered and valuable flora species identified in the area adjacent to/within the influence zone on the right side.

Conservation of the populations of greater butterfly-orchid *Platanthera chlorantha* occurring in locations adjacent to the road stretches from km 198.5 to km 199.5 would be provided due to special “buffer zone” arranged during construction works at 10 m distance minimum from the detected habitat. In case of impossibility to observe this recommendation replanting of greater butterfly-orchid to suitable ecotopes would be required.

Cutting and damage of large oaks (about 1 m diameter), classified as potential natural monuments, would be prohibited;

For the purposes of rare and the Red Book insect species conservation widening of the road in all critical points (km 208, km 198, km 173, km 141 and km 131) would be directed to the left side.

For the purposes of road users’ warning on potential danger road sections characterized by periodic exits of hoofed animals to the road carriageway the design documents provide for installation of special warning signs and boards at stretches from km 98 to km 104, km 147 to km 159, km 180 to km 189.

Also prevention of danger resulting from traffic accidents with hoofed animals would be eliminated due to construction of safe underground crossings of 4.5 m height in the form of small single span reinforced concrete bridges on pile piers with fence walls and in combination with guiding mesh elements. As per the design documents such structures would be provided at:

- km 141.5 with guiding mesh elements installed from km 130 to km 143 (on both sides of the road, i.e. left and right);
- km 199.2 with guiding mesh elements installed from km 195 – km 211 (left, right).

To ensure effective operation of such crossings attracting plantations, such as black chokeberry and viburnum, would be used as well installation of anti-noise screens on shoulders along both sides of the road from the crossing.

Functioning of migration corridors for amphibians would be provided due to arrangement of crossings under the road at stretches:

- km 196.66 – km 197.18 (5 crossings minimum in combination with guiding elements);
- km 143.12 – km 143.179 (3 crossings in combination with guiding elements);
- km 136.813 – km 137.177 (5 crossings minimum with guiding elements).

*Mitigation measures for bridge construction.* Bridge works may negatively affect fish habitats and disturb riparian vegetation and soils which are essential to support aquatic habitats. Construction activities in the riverbed or in the immediate vicinity to it on aquatic ecosystems of rivers and stream close to the project road section will cause such impacts as water pollution and increase of water turbidity. Spilled fuel/oil, poorly managed waste or contaminated wastewater can be a potential problem. To avoid negative effects appropriate environment mitigation measures to be implemented during construction of bridges have been envisaged by the design documents as summarized below.

- *Site preparation* – Clearing debris, if necessary, before commencement of construction activities according to local regulations.
- *Covered material storage areas* will be organized on the site. Appropriate measures should be undertaken by the contractor to assure that construction materials may not enter into the river. The construction area should be effectively protected against spill.
- *Traffic disruption during construction works* – Traffic management will be prescribed and performed in accordance with local regulations with appropriate measures and signaling systems (lighting, traffic safety signals, barriers, etc.) that are easily seen or easy to follow.

- *Bored piling, soil excavation* – Wastewater will be properly treated before reuse and should not be discharged into the storm drainage system. The excavated material will be properly stored on the site. To minimize degradation of water quality due to increased turbidity foundations of bridge piers will be erected on islands stabilized with sand bags. In case of erection in pits soil excavation will be made by grabs.
- *Backfilling* - Water spraying of the fill material before operation. Backfilled area will be protected by hydroseeding.
- *Subgrade and slopes on approaches to bridge* - Soil should be properly stabilized in order to exclude erosion and wash-out.
- *Bridge deck* – Storm water and thawing water will be removed from the bridge deck due to properly designed cross-fall and gradient and will be discharged to water receipt facilities on bridge approaches.

To assure maximum reduction of air polluting emissions and to avoid cumulative noise impact electric driven and “silent” construction machinery and equipment will be used. To avoid damage to fish resources construction works within the river water area during spawning period (starting from April 1, until the end of June) will not be carried out. Upon completion of the bridge construction works the construction site will be re-cultivated.

*Mitigation measures during the road operation.* Operational impacts will be addressed in order to avoid deterioration of road conditions and associated safety problems. Among major issues to be addressed during operation are: proper functioning of drainage facilities, erosion control ( the summary of mitigation measures during the road operation is presented in Annex 6). During this phase, the potential negative impacts will result also from civil works to be executed as part of the regular maintenance of the road. To minimize potential operation-related negative environmental impacts, some preventive measures should be taken during the design phase, and then a combination of sound operational activities and monitoring should be carried out. This has also to be a part of the bidding documents.

The following key measures will favor the reduction of air pollution during the road operation:

- maintaining of proper quality of road pavement;
- appropriate road traffic control measures allowing to reduce frequent braking and speed acceleration of traffic flow;
- provision of proper condition of ignition and combustion systems of vehicles and road machinery during operation;
- quality control of fuel used for vehicles.

Reduction of traffic noise during the road operation will be achieved due to:

- construction of anti-noise screens in resident areas, as defined by detailed design documents, with application of effective sound reflecting and absorbing materials: concrete, reinforced concrete, glass, aluminium, wood, plastic;
- planting of specific plants in the roadside which will allow to reduce noise levels by 10–12 dBA.

Design documents provide for construction of anti-noise screens in the vicinity of the villages of Tsaiuny, Pershai, Dubovtsy, Gunbovshchina, Mikhalovo, Sharai, Yashkovichi, Dovbeni, Kapustino, Perelesanka, Masurka, Rum in Mink oblast (road section km 57.20 – km 91.07) and in their vicinity of the villages of Patsevichi, Ostrovtsy, Borisivka, Lezhnevichi, Lugomovichi, Starcheniaty, Zaleiki, Biskuptsy, Filonovtsy, Poddubno, Tsybory, Kosilovtsy, Radivonishki, Dmitrovtsy, Gostilovtsy, Shpilki, Plianty in Grodno oblast (road section km 91.07 – km 211.00). Appropriate effectiveness of anti-noise screens shall be provided due to variation of their height, length and distance to the road carriageway. Calculations of screen length and height with regard to Belarus sanitary norms for equivalent noise level on the territory adjacent to the resident area (55 dBA) were performed on the stage of the detailed design.

*Traffic safety.* Major injuries and death are today result from head-on collisions along the existing two-lane road. The project will split the opposing traffic flows onto separate lanes,



divided by several meters of space and also crash barriers. It is expected that this will entirely eliminate head-on collisions which are the major cause of traffic injuries and deaths on that road section. The project will thus have a positive impact on human health and road safety through decreased number of accidents.

The following design options will be applied to ensure the traffic safety:

- road geometry (alignment elements, longitudinal and cross section profiles will allow for 120 km/h design speed and sufficient capacity for continuous and fluent traffic of at least 10,000 vehicles per day;
- the existing road will be upgraded to the level of separated dual carriageway (4 traffic lanes), which will allow to increase the capacity and to avoid traffic jams;
- construction of interchanges to allow separation of transit and local traffic and prevention of crossing of traffic flows;
- application of stone-mastic asphalt for the road pavement wearing course which provides the required roughness and friction coefficient;
- construction of 2.5 m width hard shoulder highlighted by road marking;
- installation of flexible delineator posts equipped with high grade reflective strips;
- installation of traffic signs and application of road marking;
- installation of cable barriers along the central reserve to prevent its crossing and head-on vehicle collisions;
- application of special strips producing noise effect when driven over on sections with adjacent local roads;
- installation of road lighting within the boundaries of residential areas;
- arrangement of rest areas, bus stops, pedestrian lanes and crossings, safety islands;
- installation of traffic lights in locations of pedestrian crossings;
- provision of grade-separated passages for animals etc.

The detailed design includes the Plan for construction site temporary safety measures, which is agreed with the institution responsible for the road maintenance and operation and with the State Transport Inspectorate. This Plan includes, where necessary, provision of access roads and detours, installation of signs and fences, as well as application of temporary road marking of yellow color.

The civil works will be first performed on the right (new) carriageway and upon completion of this rehabilitation of the existing carriageway will be performed. Appropriate drawings have been made for safety elements and schemes for traffic control and management during the civil works.

*Provision of environmental requirements into the construction contracts.* Contract documents for construction will incorporate all requirements to minimize potential environmental impacts resulting from construction activities, including: (a) provisions on spill prevention and cleanup, dust and noise control, traffic management during construction, safety enhancement, construction site cleanup and rehabilitation; and, (b) provisions governing the sources of construction materials. Materials (e.g., asphalt, stone, sand, etc.) would be supplied only from sources with approved licenses, permits, and/or approvals for environment and worker safety; any equipment used during construction would meet internationally recognized standards for environment and worker health and safety, and rehabilitation of areas under construction camp, asphalt-concrete plants and temporarily storage of building materials once the project is completed. The necessary mitigating measures would constitute integral part of the project implementation including the contracts binding the contractors to carry out the environmental obligations during the road construction works. If contractors decided to include in their submitted proposals the construction of permanently or temporary supporting facilities (e.g. warehouses, asphalt-concrete plants, etc.) the costs for their design, mitigation procedures should be clearly presented, and this should be a full responsibility of contractors.

Thus, all contractors will be required to use environmentally acceptable technical standards and procedures during carrying out of the works. Additionally, contract clauses shall include requirements towards compliance with all national construction, health protection, safeguard laws and rules as well as on environmental protection as well as penalties for non-compliance. A sample of the environmental clauses for contract documents in road construction is presented in Annex 7.

Furthermore, each contractor will identify officers responsible for implementation of environmental protection activities in conformity with instructions specified in the design documents and provided by Belgiprodor environmental expert or local environmental protection agency. Most important mitigation measures will be included as separate items in the contracts' breakdown cost as unit price contracts will be awarded.

Elucidating of all potential effects and mitigation measures should also be included in all training courses, or general guidelines prepared for contracts supervisors. Contract specifications concerning contractors' responsibilities during carrying out of civil works and taking mitigation measures should be reflected in bid documents for each contract. The Bank will review the initial contracts for road construction works to ensure that these clauses and measures are incorporated, as indicated.

To ensure that contractors understand the actions to be taken and the cost implications of environmental management, and that required actions and measures are priced in bid proposals, short-listed contractors will be informed about environmental protection requirements and EMP in the course of the pre-bid meeting. During construction the contractors' compliance with the provisions specified in the bid documents will be supervised by the Belgiprodor environmental expert, construction supervision engineer and local environmental inspectors.

## **8.2 Monitoring Plan**

*Monitoring and reporting activities.* Environment monitoring is the important tool for enforcement of environmental regulations and mitigation and prevention of adverse impacts produced in the process of business activities on the environment and human health, thus maintaining environmental safety.

Monitoring of environmental indicators and mitigation measures performance will be a part of the overall project monitoring. Monitoring of implementation of environmental mitigation measures will be the responsibility of: (a) construction contractors; (b) Belgiprodor environmental specialists (with assistance with a construction supervision engineer), biodiversity experts of the National Academy of Sciences and environmental experts from the Belarussian Road Research Institute, and (c) local ecological inspectors.

During complex monitoring it is planned to carry out on-site studies of the most significant anthropogenic impacts on the environment (rates of air pollutant emissions, noise levels on the boundary of the road adjacent residential areas, etc.) and to control the environment quality standards using simple and inexpensive methods for assessment of regional trends in development of ecosystems in the road influence zone. The practical objective of environment monitoring is the regular collection of data describing noise levels and air quality, condition of surface and ground waters, components of flora and fauna, degree of damages to natural ecosystems caused by physical, biotic and anthropogenic factors as well as assessment of dynamics of such factors. Taking into account the need for control of major environmental components and biodiversity complex monitoring of ecosystems is required. Each of the nature components and habitats is characterized by specific features and development patterns and consequently requires individual study approach and monitoring method.

Objectives and targets of the proposed monitoring plan include:

- formation of representative local monitoring network in the road influence zone;
- air quality assessment;
- noise assessment;

- assessment of the rate of the roadside lane contamination with de-icing agents and anthropogenic emissions, accounting of the quantities of pollutants accumulated on the carriageway and within the area of their subsequent spreading within the roadside lane;
- assessment of road traffic accident rates and locations of accidents with animals involved (based on reports of road police and wildlife services);
- assessment of the status and inventory of the Red Book plant species;
- assessment of condition of forest ecosystems in the roadside lane;
- assessment of effectiveness of environmental impact mitigation and preventive measures;
- forecast of the dynamic status of valuable flora and fauna species based on the monitoring results;
- preparation of recommendations for decision-making process in terms of institutional and design aspects relating to the road operation and its impacts on the adjacent territories.

The monitoring would include physical, chemical and sanitary-hygienic parameters of the environment as specified by the existing legislation.

Terms of monitoring:

- air quality in resident areas – twice per annum;
- noise levels in the roadside lane and adjacent territories – twice per annum;
- rate of contamination of the roadside lane with de-icing agents and anthropogenic emission – annually in snow (February-March), in soil – semi-annually (April-May, October-November) and in plants (June-August);
- status of rare and endangered animals – annually during the first 5 years upon completion of the construction works, and later once per 2 years;
- status of populations of ground invertebrates – annually during the first 5 years upon completion of the construction works, and later once per 2 years;
- status of populations of amphibian – annually during the first 5 years upon completion of the construction works, and later once per 2 years;
- accounting of road traffic accidents with wild animals involved – annually during the first 5 years upon completion of the construction works, and later once per 2 yerars;
- status of rare and endangered flora species – annually during the first 5 years upon completion of the construction works, and later once per 2 years;
- status of forest ecosystems – annually during the first 5 years upon completion of the construction works, and later once per 3-5 years;
- status of marsh and natural meadow ecosystems – annually during the first 5 years upon completion of the construction works, and later once per 3-5;
- status of protective plantations – annually during the first 5 years upon completion of the construction works, and later once per 5 years (Institute of Experimental Botany of the National Academy of Sciences).

The findings of the relevant monitoring activities will be reflected in progress reports. The progress reports will cover the implementation of proposed by EMP activities, as well as extent of environmental impacts. The site supervisors will inspect construction sites, borrowing and dumping areas, and other potentially affected areas.

*Proposed monitoring indicators.* Monitoring indicators developed for both the construction and operation phases are presented in Annex 8. Monitoring of construction activities will have to ensure that mitigation measures of construction impacts are being implemented properly, while the monitoring of operation is to ensure that no unforeseen negative impacts are arising. Periodic monitoring of roads will be conducted by Belgiprodor environmental expert to ensure compliance with submitted monitoring plan. The functions of the environmental expert will

include: (i) monitoring of compliance with EMP by the various parties involved in the implementation of the project; and (ii) collection of data to document that the environmental and social procedures are being followed.

*Supervision.* Belgiprodor environmental specialists in cooperation with biodiversity experts of the National Academy of Sciences will supervise and monitor the overall activities and condition of flora and fauna. Semi-annual reports on the application of the EMP provisions during the construction phase will be prepared. They will also develop the reporting requirements and procedures to ensure compliance of the contractors, conduct public consultation and implement public awareness programs, and hold periodic training for field engineers and contractors, as appropriate.

The site supervisors will inspect, along with the construction sites, borrowing and dumping, and other potentially affected areas. During the construction phase, Belgiprodor environmental expert and environmental inspectors will ensure that measures specified in the EMP are followed by the contractors who have contractual responsibility towards these actions. In case of non-compliance, project management will take the necessary actions in accordance with contract agreement and national environmental legislation. During the road operation phase the main responsibility concerning monitoring activities will be borne by RUE “MA-C” and RUE “Grodnoavtodor”.

### **8.3 Implementing arrangements**

*Main project beneficiary.* The Ministry of Transport and Communications (MoTC) and its Road Department as the national authority in charge of road construction and maintenance will have the overall responsibility for implementation of the proposed project.

Road Department, in consultation with the MoTC will have the decision making responsibilities with regards to the proposed investments under the project. Assigned officials will participate in the procurement process, approve terms of reference for consultants, participate in discussions with the consultants responsible for design and supervision of the project, and participate in evaluations of proposals and bids. Road Department has assigned a senior staff with the necessary technical expertise to lead these discussions on behalf of MoTC, through the senior staff, will review consultants’ reports, payments and invoices to ensure that the work is up to required standards.

*Implementing agency.* The RUE “Minskavtodor-Center” (MA-C) will have the primary responsibility for coordinating the implementation of the proposed project during the construction period, including the technical management, procurement, supervision of works, financial management and environmental safeguard management. MA-C was established by Ministry of Transport in 2005 by merging two existing sector enterprises. MA-C reports to MoTC and is responsible for rehabilitation and maintenance of major and republican roads in Minsk oblast. The institution has experienced staff in the areas of engineering, procurement, project management and financial management.

MA-C will be responsible for coordinating the project amongst the MoTC, consultants, contractors and with the Bank. Its main responsibility will be to ensure that Bank fiduciary requirements are well known to participants and adhered to throughout the project. MA-C will be responsible for preparing standard bidding documents and carrying out the procurement process. It will also be responsible for record keeping, disbursement, financial management and financial flows of the project, including managing the special account. MA-C will prepare the project interim financial reports and the progress reports and facilitate Bank visiting missions. MA-C has prepared a Project Operations Manual detailing the processes of project implementation.

*Project implementation team.* MA-C has nominated a specific team of specialists who will work on the preparation and implementation of the project in close interaction with the World Bank. The team is headed by a senior manager and will be augmented as needed during the

implementation stage by hiring additional specialists to cover the increasing work load. The team includes procurement and financial management specialists, a lawyer, and an environmental specialist. In addition, financial management of project resources will be carried out by specific staff members of MA-C assigned to work on the project.

*Beneficiary's capacity to implement the EMP.* The actual institutional capacity of borrower was evaluated during the project preparation stage. It was concluded the State Enterprise "Belgiprodor" has adequate capacities to perform duties concerning enforcing EMP provisions. The institution employ highly qualified staff and is equipped with analytical equipment to perform the required analyses of environmental quality. Furthermore, this institution has previous experience in dealing with environmental safeguards while implementing other similar projects in the country.

## **9. EIA disclosure and consultation**

Public consultations on the draft of the EIA&EMP document (in Russian) prepared for the road section located in Grodno oblast were held in three districts: Ivye, Lida and Shchuchin. Prior to that the document was disclosed on the web-sites of RUE "Grodnoavtodor" ([www.Grodnoavtodor.com](http://www.Grodnoavtodor.com)) and web-sites of Ivye, Lida, and Shchuchin local administrations so that all the interested parties could get knowledge of the project, its environmental and social impacts and benefits, environmental mitigation measures and plans for their implementation and monitoring. Public consultations on the draft EIA&EMP document (in Russian) prepared for the road section located in Minsk oblast were held in Volozhin district. Prior to that the document was disclosed on the web-sites of RUE "Minskavtodor-Center" ([www.Minskavtodor.com](http://www.Minskavtodor.com)) and Volozhin district administration. Special notifications about the time and venue of the meetings to finalize the consultations in districts of Grodno oblast were published on 28 November 2013 on the web-site of RUE "Grodnoavtodor" and in local press. Notifications about the time and venue of the meeting to finalize the consultations in Minsk oblast were published on the web-site of "Minskavtodor-Center" and in Voloshin district newspaper "Pratsounaya Slava" (No. 49) on 27 June 2014. Besides, individual invitations were sent to prospective attendees. The meetings were attended by representatives from local administrations, village councils, environmental and traffic police authorities, medicians, NGO, media, road maintenance units. Brief project description, its goal and objectives, technical issues, potential impacts and benefits were presented to the participants by specialists of RUE "Grodnoavtodor" and RUE "Minskavtodor-Center". The biodiversity experts from the National Academy of Sciences presented results of the recently performed field studies of the project site and proposed measures relating to conservation of flora and fauna. The environmental expert from Belgiprodor presented results of noise and air polluting emissions measurements. Participants raised questions on potential environmental impacts during performance of civil works, operation of construction plant, machinery and equipment, development and maintenance of pit quarries located along the road, safety measures. Detailed responses on raised questions were given. The project itself and the EIA&EMP document were accepted by all participants. Minutes on the EIA&EMP public consultations held in Ivye. Lida and Shchuchin district of Grodno oblast and Volozhin district of Minsk oblast are presented in Annexes 9-12.

The final draft EIA and EMP report will be sent to the World Bank for consideration and disclosure in the WB Infoshop prior to appraisal.

## Annex 1. Project road section layout

### M-6 Minsk-Grodno road project section km57.2 - km 211.0 layout



## Annex 2. Overview of WB safeguards policies and their relevance to the project activities

There are key Environmental and Social World Bank Safeguard Policies which are intended to ensure that potentially adverse environmental and social consequences of projects financed by Bank are identified, minimized and mitigated. World Bank Safeguard Policies have a three-part format: Operational Policies (OP) - statement of policy objectives and operational principles including the roles and obligations of the Borrower and the Bank, Bank Procedures (BP) - mandatory procedures to be followed by the Borrower and the Bank, and Good Practice (GP) - non-mandatory advisory material. World Bank's Safeguard Policies and their relevance to the project to be funded under the Competitiveness Enhancement Project's New Credit Line Component are indicated below.

Safeguard Policies	Relevance to the project
<i>Environmental Assessment (OP/BP 4.01)</i> This Policy aims to ensure that projects proposed for Bank financing are environmentally and socially sound and sustainable; to inform decision makers of the nature of environmental and social risks; to increase transparency and participation of stakeholders in the decision-making process.	Yes (refer to the description below)
<i>Natural Habitats (OP/BP 4.04)</i> This Policy aims to safeguard natural habitats and their biodiversity; avoid significant conversion or degradation of critical natural habitats, and ensure sustainability of services and products which natural habitats provide to human society	Not triggered (based on the EIA study there are no important wildlife and wildlife habitats in the vicinity of the proposed for construction road).
<i>Forestry (OP/BP 4.36)</i> This Policy is to ensure that forests are managed in a sustainable manner; significant areas of forest are not encroached upon; the rights of communities to use their traditional forest areas in a sustainable manner are not compromised	No (the project will not support any investments related to wood harvesting)
<i>Pest Management (OP 4.09)</i> This policy is to ensure pest management activities follow an Integrated Pest Management (IPM) approach, to minimize environmental and health hazards due to pesticide use, and to contribute to developing national capacity to implement IPM, and to regulate and monitor the distribution and use of pesticides	No (the project will not involve pesticide use or purchasing).
<i>Physical Cultural Resources (OP/BP 4.11)</i> This policy is to ensure that: Physical Cultural Resources (PCR) are identified and protected in World Bank financed projects; national laws governing the protection of physical cultural property are complied with; PCR includes archaeological and historical sites, historic urban areas, sacred sites, graveyards, burial sites, unique natural values; implemented as an element of the Environmental Assessment	No (based on the EIA study there are no any physical cultural resources in the vicinity of the road).

<p><i>Indigenous Peoples (OP/BP 4.10)</i> IP – distinct, vulnerable, social and cultural group attached to geographically distinct habitats or historical territories, with separate culture than the project area, and usually different language. The Policy aims to foster full respect for human rights, economies, and cultures of IP, and to avoid adverse effects on IP during the project development.</p>	<p>No (this Policy is not applicable for Belarus).</p>
<p><i>Involuntary Resettlement (OP/BP 4.12)</i> This policy aims to minimize displacement; treat resettlement as a development program; provide affected people with opportunities for participation; assist displaced persons in their efforts to improve their incomes and standards of living, or at least to restore them; assist displaced people regardless of legality of tenure; pay compensation for affected assets at replacement cost; the OP Annexes include descriptions of Resettlement Plans and Resettlement Policy Frameworks</p>	<p>Yes (the upgrading of the road from two to four traffic lanes will require acquisition of appropriate land plots. However, physical resettlement is on a very limited scale and concerns only a few households. It was projected that due to widening of the road some houses will appear close to the road and it would not be possible to ensure adequate noise protection by installing anti-noise screens. Such houses would have to be resettled. Consultations were held by the Client with the households which are likely to be affected by the project. The specific number and exact location of the mentioned houses were identified on the stage of detailed design. RPF and RAPs were prepared once the road alignment had been set.</p>
<p><i>Safety of Dams (OP/BP 4.37)</i> This Policy is to ensure due consideration is given to the safety of dams in projects involving construction of new dams, or that may be affected by the safety or performance of an existing dam or dams under construction; important considerations are dam height &amp; reservoir capacity</p>	<p>No (the project will not support any activities related to usage of water reservoirs)</p>
<p><i>Projects on International Waterways (OP/BP 7.50)</i> The Policy aims to ensure that projects will neither affect the efficient utilization and protection of international waterways, nor adversely affect relations between the Bank and its Borrowers and between riparian states</p>	<p>No (the project will not support any activities which may affect international waterways and/or might discharge waste waters directly in the international waterways).</p>



<i>Disputed Areas (OP/BP 7.60)</i> The Bank may support a project in a disputed area if governments concerned agree that, pending the settlement of the dispute, the project proposed for one country should go forward without prejudice to the claims of the other country	No (the project will not support any activities in disputed areas)
<i>Disclosure Policy (BP 17.50)</i> Supports decision making by the borrower and Bank by allowing the public access to information on environmental and social aspects of projects and has specific requirements for disclosure	Yes (the EIA&EMP was disclosed and consulted in the country before appraisal and also will be disclosed in the WB Infoshop)

*Environmental Assessment.* Per the WB safeguards policies Environmental Assessment (EA) is a process of the pre-implementation stage which evaluates a project's potential environmental risks and impacts in its area of influence; examines project alternatives; identifies ways of improving project selection, siting, planning, design, and implementation by preventing, minimizing, mitigating, or compensating for adverse environmental impacts and enhancing positive impacts; and includes the process of mitigating and managing adverse environmental impacts throughout project implementation.

EA is mandatory for projects, which may potentially have negative impacts. Furthermore, a well-organized public participation is mandatory in all the stages of the process. Depending on the project, a range of instruments can be used to satisfy the Bank's EA requirements: Strategic Environmental Assessment (SEA), Environmental Impact Assessment (EIA), regional or sectorial EA, environmental audit, hazard or risk assessment and/or Environmental Management Plan (EMP). The Bank prefers preventive measures rather than mitigation or compensatory ones, whenever feasible.

EA takes into consideration the natural (air, water and ground), social (human health and safety, and such social aspects as involuntary resettlement, indigenous peoples) and cultural environments, as well as trans-boundary and global environmental aspects. It also takes into account the variations in project and country conditions, findings of country environmental studies, national environmental action plans, the country's overall policy framework, national legislation, and institutional capabilities related to the environmental and social aspects, and obligations of the country to be met under relevant international environmental conventions and agreements. The Bank does not finance projects that would not comply with these obligations, if identified during EIA.

*Environmental screening.* The Bank undertakes environmental screening of each proposed project to determine the appropriate extent and type of EA. The Bank classifies the proposed project into one of four categories, depending on the type, location, sensitivity, and scale of the project and the nature and magnitude of its potential environmental impacts. The Bank's OP/BP/GP 4.01 provides for the following environmental categories of projects:

*Category A:* A proposed project is classified as Category A if it is likely to have significant adverse environmental impacts that are sensitive, diverse, or unprecedented. EA for a Category A project requires a full EIA Assessment.

*Category B:* A proposed project is classified as Category B if its potential adverse environmental impacts on human populations or environmentally important areas - including wetlands, forests, grasslands, and other natural habitats - are less adverse than those of Category A projects. These impacts are site-specific; few if any of them are irreversible; and in most cases mitigation measures can be designed more readily than for Category A projects. The EA for a Category B projects examines the project's potential negative and positive environmental impacts and recommends specific measures needed to prevent, minimize, mitigate, or compensate for adverse impacts and improve environmental performance.

*Category C:* A proposed project is classified as Category C if it is likely to have minimal or no adverse environmental impacts. Beyond screening, no further EA action is required for a Category C project.

*FI Category:* Finally, there is a special case of Category FI, when investment of Bank funds is made through a financial intermediary (FI) of subprojects that may result in adverse environmental impacts.

*EA disclosure and Consultations.* For (i) A and B projects and (ii) sub-projects categorized as A and B, the borrower consults project-affected groups and local non-governmental organizations (NGO's) about the project's environmental and social aspects and takes their views into account. The borrower initiates such consultations as early as possible. For Category A projects, the borrower consults these groups at least twice: (a) shortly after environmental screening and before the terms of reference for the EA are finalized; and (b) once a draft EIA report is prepared. In addition, the borrower consults with such groups throughout project implementation as necessary to address EA-related issues that affect them. The Borrower provides relevant information in a timely manner prior to consultation and in a form and language accessible to the groups being consulted. The Borrower makes the draft EA (for category A projects) or any separate EA report (for category B projects) available in country in a local language and at a public place accessible to project-affected groups and local NGOs prior to appraisal. The final EA report should be sent to the World Bank Infoshop prior to appraisal of category A and category B projects. For category A projects, the task team sends a summary of the EA report to the Board of Directors as soon as it is received. Separate Resettlement Plans and Indigenous Peoples Plans are disclosed with the relevant EA report.

### **Annex 3. National requirements for EIA and SEE**

*EIA legal basis.* Reducing the burden of environmental impacts is necessary if development is to become sustainable. As resources become limited, environmental impacts become more complex, EIA has become of ever increasing importance as a tool for development and decision making.

Environmental impact assessment, as a national instrument, shall be undertaken for proposed activities that are likely to have significant adverse impact on the environment and are subject to a decision of a competent national authority. In practice, EIA is applied primarily to prevent or minimize the adverse effects of major development projects. It is also used as a planning tool to promote sustainable development by integrating environmental considerations into a wide range of proposed actions. Most notably, the use of policies and plans to focus on the highest levels of decision making and take care of the environment in considering development alternatives and options.

Belarus has a well established EIA process involving the performance of EIA and its review through staff of the State Environmental Expertise (SEE). This is part of the overall approval cycle for all investment projects. The Ministry of Natural Resources and Environmental Protection (MoNREP) is the main responsible institution for this area. It has maintained a high level of expertise related to environmental assessment and continues to further develop its methods using experience from the EU. The EIA rules and procedures for Belarus are described in detail in a series of regulatory documents: (a) Law on Environmental Protection; (b) Law on the State Environmental Expertise; (c) Instruction on the State Environmental Expertise; (d) Regulations on the EIA; and (e) Regulations on the State Environmental Expertise of the land planning documents. As per these documents, the proposed project is qualified as a project which does not have significant environmental impact. Nevertheless it is subject to the EIA assessment and review by the SEE.

SEE seeks to examine the compliance of proposed activities and investment projects with the requirements of environmental legislation and standards and environmental safety. The Law stipulates the mandatory cross-sectoral nature of the SEE, which shall be scientifically justified, comprehensive, and objective and which shall lead to conclusions in accordance with the law. SEE precedes decision-making on activities which may have a negative impact on the environment and is compulsory for all economic activities which may have a potential negative impact on the environment regardless of their destination, property, investments, placing, source of financing, etc. Financing of programs and projects is allowed provided only if the positive SEE decision is issued.

The 1994 Constitution of the Republic of Belarus (Articles 34, 46, 55) and the Law “On Environmental Protection” of 26 November 1992 No.982-XII are the fundamental laws establishing a legal basis for the environmental protection and management, conservation and restoration of biological diversity, natural resources and assets and are intended to ensure statutory rights of citizens for life and health-friendly environment. Among other laws which stipulate various aspects of environmental protection relevant to the project activities are the following: On Hazardous Cargo Transportation (passed in 2001); On Ambient Air Protection (passed in 1997); On Sanitary and Epidemiological Safety of Population (passed in 1993); On Drinking Water Supply (passed in 1999); On Quality and Safety of Raw Food and Food Products for Human Health (passed in 2003); On Waste Management (passed in 2007).

The Law “On Waste Management” established a legal basis for waste management. The Law is intended to reduce waste generation, to prevent harmful impact on the environment, public health, state-owned assets, corporate and individual property and to maximize reuse of recycled materials. As a follow-up to the Law “On Waste Management” the Ministry of Natural Resources and Environmental Protection, the Ministry of Housing and Utilities and the Council of Ministers of the Republic of Belarus have adopted a number of secondary regulatory acts.

These laws and regulations were followed in decision-making process aimed at design of the proposed project, selection of the site and waste processing technology.

*Requirements to the content of EIA.* The legislation of the Republic of Belarus in the field of the environment protection is based on the Constitution of the Republic of Belarus and contains the following legislative acts including norms and specifications regulating relations in the field of the environment protection and nature management:

- The Law of the Republic of Belarus “On the Environment”, 1992
- The Law of the Republic of Belarus “On the State Ecological Expertise”, 2009
- The Law of the Republic of Belarus “On Specially Protected Natural Territories”, 1994
- The Law of the Republic of Belarus “On Atmospheric Air Protection”, 2008
- The Law of the Republic of Belarus “On Sanitary-epidemical Welfare of the Population”, 2012
- The Law of the Republic of Belarus “On Ozone Layer Protection”, 2001
- The Law of the Republic of Belarus “On Flora”, 2003
- The Law of the Republic of Belarus “On Fauna”, 2007
- The Law of the Republic of Belarus “On Waste Management” 2007
- The Water Code of the Republic of Belarus, 1998
- The Land Code of the Republic of Belarus, 2008
- The Forest Code of the Republic of Belarus, 2000
- The Convention on Biological Diversity and the Cartagena Protocol on Biosafety
- Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters
- “Regulations on Procedure of the Ecological Expertise“ (approved by the Council of Ministers Resolution of 19.05.2010 No.755)
- “Regulations on Procedure of the Environment Impact Assessment“ (approved by the Council of Ministers Resolution of 19.05.2010 No.755)
- National Strategy and Action Plan for Preservation and Sustainable Use of Biological Diversity of the Republic of Belarus (approved by the Resolution of the Council of Ministers of the Republic of Belarus of 10.11.2010 No.1707)
- The Red Book of the Republic of Belarus (Fauna, 2005; Flora, 2006)

Environmental protection is the inherent condition to provide environmental security, sustainable economic and social development of the society.

Enforcement of compliance with environmental norms and specifications in the course of design of structures, which may produce adverse impacts on the environment, is provided through the SEE. The SEE is carried out for the purposes to determine compliance or incompliance of the design and any other documents on planned investment projects with provisions of the legislation of the Republic of Belarus relating to the environmental protection and efficient use of natural resources.

This EIA and EMP document is based on the following regulatory framework:

- The Espoo Convention on Environmental Impact Assessment in a Trans-boundary Context (Belarus acceded to the Espoo Convention in 2005)
- The Law of the Republic of Belarus “On the Environmental Protection”, 1992
- The Law of the Republic of Belarus “On the State Ecological Expertise”, 1993
- The Law “On Meetings, Rallies, Demonstrations and Picketing”, 1997
- The Instruction on the State Environmental Expertise Procedures in the Republic of Belarus (MoNREP Resolution dated 11 May 2001).
- The List of economic activities and sites subject to compulsory EIA (MoNREP Resolution dated 17 June 2005).
- The Technical Code of Routine Practice (TCP 17.02-08-2012) “Environment Protection and Environmental Management. Regulations on the Environmental Impact Assessment Procedure (EIA) and the Report Preparation”

- The Technical Code of Routine Practice (TCP 480-2013) “Environmental Impact Assessment for Road Construction and Upgrading Projects”
- The Construction Norms and Rules (SNiP 1.03.02-96) “Content and procedure for drafting of the “Environmental Mitigation Measures” section in design documents».

In accordance with the referred Instruction, EIA shall involve: (a) the project beneficiary, the client, the consultant and stakeholders interested in implementation of the planned investment; (b) the designated government environmental protection and natural resource management authorities and their territorial departments as well as other government and regional authorities responsible for issuing permits in accordance with the legislation.

The project beneficiary and the client (with regard to this project the beneficiary is the Ministry of Transport and Communications of the Republic of Belarus and the client is RUE “Minskavtodor-Center”) draft the Terms of Reference for the EIA, cover the EIA costs, ensure public participation, and obtain “no objections” from the government and control authorities. The consultant, upon instruction of the client, carries out the EIA. The EIA shall be carried out together with preparation of design documents and include the following stages: (a) issue of a Statement of Intent and Terms of Reference for EIA; (b) identification of types and scope of environmental impact and anticipated consequences; (c) issue of a Statement about potential environmental impacts; (d) public consultations; and (e) preparation and submission of the EIA report and other materials required for the consideration and approval of the SEE.

In accordance with the Instruction, the EIA materials shall include the following: (a) general overview of the intended activity, description of the main project parameters (activity types) and land use requirements at construction and operation stages, key specifications of technological processes; consistency of the intended activity with the endorsed scheme or plan of an enterprise or sector development, if available, and the current utilities networks (heat/gas/water supply, sanitation, drainage, general plans and etc.) in the project area; social and economic aspects of the intended economic and other activity (new jobs, personnel qualification upgrading, addressing social development and livelihoods concerns, development of engineering and any other infrastructure and etc.); (b) assessment of the current environmental condition including: (i) natural resource potential; (ii) socio-economic description of the project area; (iii) overview of the main sources of the intended activity’s impact on the environment given the existing impact sources such as air pollution sources, sources of impact on water resources, types of impact on lands and biological resources, waste generation sources, nuisances and other impacts; (c) forecast and assessment of the change of the environment and socio-economic conditions after the start of the intended economic and other activity; impact on the anthropogenic systems and their components; (d) comparison of alternative options such as location of the intended facility including “not having a facility option”; technical and technological designs, environmental protection measures, compensatory ecological and social measures; (e) public consultation documents; (f) description of activities for arrangement of the environmental monitoring system and post-project analysis; and (g) elaboration of the final document (report);

At the subsequent design stages the impact assessment findings shall be updated based on the information collected in the process of design and survey works and specifications of the equipment, technological processes, and etc.

*National requirements with regard to EIA disclosure and consultation.* Article 4 of the Law «On Environmental Protection» requires for the EIA of the intended economic and other activities which may entail the harmful impact on the environment and may threaten life, health and property of individuals and, also, provides for compulsory engagement of the government agencies, non-governmental organizations, other legal entities and individuals in environmental protection activities. Article 12 articulates the right of individuals to participate in elaboration and discussion of materials on the EIA of the intended economic and other activity; to make proposals on carrying out public ecological expert examination and to participate in it in

accordance with the procedure specified in the Belarusian legislation. Additionally, article 15 articulates the “Rights and duties of non-governmental organizations dealing with environmental protection” with regard to elaboration and discussion of materials on the EIA of the intended economic and other activity. Public consultations shall be arranged in accordance with the following regulations:

- The Constitution of the Republic of Belarus, 1996
- The Aarhus Convention (Presidential Decree dated 14 December 1999 No.26)
- The Convention on Environmental Impact Assessment in a Trans-boundary Context (Presidential Decree dated 20 October 2005 No.87)
- The Law on Republican and Local Assemblies, 2000
- The Law on Appeals of Citizens and Legal Entities, 2011
- The Law on Local Governance and Self-Governance, 2010
- The Law on Architectural, Urban Construction and Construction Activities in the Republic of Belarus, 2004

Based on these laws public consultations is a mandatory procedure for projects requiring a full EIA study. It should be done before presenting the project to the SEE for its review and approval.

*EIA administrative framework.* The Ministry of Environmental Protection and Natural Resources is the competent authority for the EIA and SEE through its special Inspectorate on Environmental Expertise. The Inspectorate has three divisions: the first one handles projects relating to land improvements and hydro-technical infrastructure; the second division is responsible for water supply and sanitation and air protection projects; and the third division specializes in industrial projects. Each Territorial Committee for Environmental Protection also has a unit involved in the SEE. Environmental expertise for complex and large-scale projects shall be carried out with involvement of specialized institutions, universities, non-governmental organizations, etc.

#### **Annex 4. National standards and guidelines relating to the environmental mitigation measures during road construction and operation**

*State Standard GOST 17.2.3.01-86. Nature protection. Atmosphere. Air quality control regulations for residential areas.* Provides rules for air quality monitoring in localities. The number of monitoring sides is defined in view of a population number, the area of locality and also a network of roads with intensive transport movement as well as their arrangement on territory of towns. The standard includes also the program and terms of supervision, a rule of sampling and the characteristic of pollution of an atmosphere.

*Technical Code of Routine Practice. TCP 45-3.03-19-2006. Roads. Design norms.* The document applies for designing of new and reconstruction of existent roads. The document includes: (i) general requirements, (ii) traffic management and safety, (iii) protection of the environment, (iv) basic technical norms and transport and exploitation parameters, (v) crossings and junctions, (vi) sub-grade, (vii) road pavement, (viii) pipe culverts and tunnels, (ix) arrangement of road protection constructions, (x) buildings and structures of road and motor transportation services. The section of environmental protection obliges to take into account during design a degree of impact from road on environment both during construction and operation, and also combination of road within landscape, preferring decisions which render minimum impact on environment. On roads within the limits of water protection zones it is necessary to provide organized water discharge from the roadway surface with its subsequent cleaning or removal in the places excluding pollution of sources of water supply. For places of unstable and especially sensitive ecological systems (inundated zones, landslide slopes, etc.) it is necessary to provide measures for maintaining of minimal ecological balance and prevent disruption. Special measures should be designed for provision of safe and free wildlife movement in areas where roads may cross wildlife migration corridors. In case of excessive transport noise in adjacent residential areas appropriate mitigation measures should be provided (anti-noise barriers, planting of special green trees, etc.).

*Technical Code of Routine Practice. TCP 059-2007 Roads. Construction norms.* The document is applying for physical construction works of new roads and reconstruction of existent roads. It describes requirements for all technical parameters of road pavement structure. The main items include: (i) organization of road-building works, (ii) cleanup activities, (iii) constructions of sub-grade, (iv) arrangement of additional layers of road bases, (v) arrangement of asphalt-concrete coverings and the bases, (vi) arrangement of conditions of roads, (viii) quality assurance and acceptance of executed works.

*Technical Code of Routine Practice. TCP 17.08-03-2006. Procedure for calculation of vehicle emissions in residential areas.* The document sets out the procedure for calculation of air polluting emissions. The results of such calculations shall be used for the following purposes:

- assessment of environmental impacts produced by road transport;
- preparation of design documents for construction, rehabilitation and upgrading of roads and parking lots;
- assessment of alternative design options for road traffic management and control;
- feasibility studies for road projects;
- preparation of environmental management plans.

This document has been drafted in line with the European Environment Agency methodology. Unit emission rates referred to in TCP 17.08-03-2006 are being updated and adjusted at least every three years, taking into account actual transport fleet condition, systems of traffic management and control in residential areas. The document contains classification of emissions, vehicle classes, estimation of road traffic parameters, methodology for calculation of air polluting emissions and green gases.

*Technical Code of Routine Practice TCP 480-2013. Environment Impact Assessment for Road Construction and Upgrading Projects.* The document sets out the procedure of the environmental impact assessment (EIA) of planned construction of roads (including assessment

of possible trans-boundary impact) or upgrading of existing roads and preparation of the EIA report. Provisions of TCP 480-2013 shall be obligatory for institutions and legal entities performing functions of a Client and a Consultant on the stage of designing new road construction and upgrading of existing roads.

*Guidelines on Waste Management in Road Sector. DMD 02191.3.004-2006.* This document sets forth the procedure of production waste management including planning and implementation of specific measures for storage, transportation, processing and regeneration of production waste accumulated at concrete and asphalt plants, plant depots of road maintenance units, job sites during construction, rehabilitation and maintenance of roads and bridges. The document contains classification lists of waste with regard to its sources, description of various facilities for waste processing, instructions on how collection, accounting, storage, transportation of waste should be arranged.

*Guidelines on Mitigation of Adverse Road Transport Infrastructure Relating Impacts on Flora. DMD 02191.3.012-2007.* The document includes recommendations on measures aimed at reduction of adverse impact on flora produced by road transport infrastructure. These measures should be planned and implemented during design, construction, rehabilitation and maintenance of roads and bridges. The document contains description of specific preventive and safeguarding measures allowing to avoid adverse impacts on flora and its habitat as well as to protect flora from impacts of chemical agents, waste, physical and other negative factors. Measures promoting reproduction of flora are also described in the above recommendations.

Annexes to the document include data on permissible values of environmental impact on natural landscape with regard to its type; characteristics of various species in terms of resistance to impact of polluting agents, i.e. dust, salts, etc.; recommended practical mitigation measures to be implemented during earthworks, asphalt works, major bridge works.

*Guidelines on Mitigation of Adverse Road Transport Infrastructure Relating Impacts on Fauna. DMD 02191.3.016-2008.* The document includes recommendations on measures aimed at reduction of adverse impact produced by road transport infrastructure on fauna. These measures should be planned and implemented during design, construction, rehabilitation and maintenance of roads going through territories of special environmental protection, national parks, reserves, areas of natural relics.



## Annex 5. Potential environmental impacts and mitigation measures for road construction phase

Environmental and social components	Project activities	Potential Impacts	Scale of the impact	Mitigation Measures to be followed under the construction contract
Soils and land	<ul style="list-style-type: none"> <li>• Operation of statutory asphalt plant</li> <li>• Earthworks</li> <li>• Pavement / Carriageway surfacing (laying of asphalt-concrete mixtures, laying cement-concrete slabs, etc.)</li> <li>• Use of hazardous materials, such as combustive-lubricating ones, bitumen, etc./ heating and spraying of bitumen</li> <li>• Heavy machinery and equipment operation</li> <li>• Traffic of construction vehicles</li> <li>• Hauling of constructional materials such as bitumen, borrow materials, asphalt-</li> </ul>	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>• Damage to land due to:               <ul style="list-style-type: none"> <li>• site preparation works/ earthworks;</li> <li>• excavation of constructional materials;</li> <li>• haul roads</li> </ul> </li> <li>• Damage to soil structure due to traffic of vehicles and storage of constructional materials (cement-concrete slabs, gravel, et.) in the immediate vicinity of road rehabilitation works</li> <li>• Accident soil pollution by petroleum hydrocarbons and other hazardous and toxic materials in the area of mobile asphalt plant operation</li> <li>• Land damage/ soil pollution by bitumen, asphalt concrete mixtures during loading-unloading/ transportation and laying</li> <li>• Soil pollution due to leaks of lubricants</li> <li>• Temporary uncontrolled surface run-off due to construction / rehabilitation of drainage channels</li> <li>• Soil pollution by components of combustion gases emitted by construction vehicles (esp. heavy metals)</li> <li>• Soil contamination due to constructional materials/ construction wastes disposals</li> <li>• Soil pollution due to contaminated surface runoff from the road under construction</li> <li>• Soil erosion caused by re-channelization of</li> </ul>	Temporary/ local	<ul style="list-style-type: none"> <li>• To plan carefully construction works to minimize land affected and ensure soil pollution prevention</li> <li>• To minimize construction site's size/ to minimize land affected/ to ensure soil pollution prevention</li> <li>• To ensure accuracy of road rehabilitation works/ to avoid spills, leaks, etc.</li> <li>• To provide proper haul roads to minimize impact on soils</li> <li>• To avoid loss of vegetation along the road</li> <li>• To rehabilitate borrow pits, quarries and temporary haul /access roads by planting grass and trees and other measures</li> <li>• Proper design and installation of drainage and retaining structures/ civil engineering structures/ clean up drainage channels/ culverts to minimize the risk of erosion on downlands</li> <li>• To avoid road construction works during heavy rains/ to mitigate velocity and volume of polluted surface run-off</li> <li>• To provide proper construction waste</li> </ul>

	<p>concrete mixtures, concrete, cement-concrete slabs, gravel, etc.)</p> <ul style="list-style-type: none"> <li>• Construction of road drainage system (drainage channels, chutes, etc.)</li> <li>• Quarrying</li> <li>• Constructional materials stockpiling</li> <li>• Construction waste disposals</li> <li>• Construction/ rehabilitation of sidewalks in settlements</li> <li>• Establishment of construction camp/ accommodation facilities (sewage facilities, waste disposals, etc.)</li> </ul>	<p>waterways</p> <ul style="list-style-type: none"> <li>• Formation of gullies along drainage channels</li> <li>• Soil contamination due to improperly arranged temporary accommodation facilitates</li> </ul> <p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• Decreased risk of soil pollution and soil erosion resulting from construction/rehabilitation of drainage system</li> <li>• Decreased risk of land degradation potentials/ gullies formation</li> </ul>		<p>disposals</p> <ul style="list-style-type: none"> <li>• To provide proper stockpiling of constructional materials</li> <li>• Planting / re-habilitation of vegetation (buffer strips) along the roads to minimize spreading of combustion gases/ particulates/ dust, if appropriate</li> <li>• Backfilling and restoration of eroded channels to natural conditions/ re-vegetation, if appropriate</li> <li>• Organize properly temporary sewage facilities</li> <li>• Clean up of the work site/ restoration of damaged areas after rehabilitation works are finished</li> </ul>
Water Resources	<p>• Operation of asphalt plant</p>	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>• Groundwater pollution due to surface runoff</li> </ul>	Temporary/ Local	<ul style="list-style-type: none"> <li>• To plan carefully construction works to minimize impact on water resources</li> </ul>

	<ul style="list-style-type: none"> <li>• Earthworks</li> <li>• Road leveling</li> <li>• Pavement / Carriageway surfacing (laying of asphalt-concrete mixtures, laying cement-concrete slabs, etc.)</li> <li>• Use of hazardous materials, such as combustive-lubricating ones, bitumen, etc./ spraying of bitumen</li> <li>• Heavy machinery and equipment operation</li> <li>• Traffic of construction vehicles, machinery, etc./ hauling of constructional materials such as bitumen, borrow materials, asphalt-concrete mixtures, concrete, cement-concrete slabs, gravel, etc.)</li> <li>• Construction/Rehabilitation of road drainage system</li> </ul>	<p>from operating asphalt plant ground</p> <ul style="list-style-type: none"> <li>• Groundwater pollution due to contaminated surface runoff/ migration of spills/leaks from improperly stored lubricants and construction wastes</li> <li>• Groundwater pollution due to leaks from hauling vehicles during transportation/ loading-unloading</li> <li>• Groundwater pollution by bitumen spills</li> <li>• Increased siltation potential/ sediment runoff into downland waterways (if any) due to modifications of drainage patterns</li> <li>• Groundwater pollution by spills from road accidents of vehicles used for construction works</li> <li>• Disturbance to underground water table due to use of heavy machinery</li> <li>• Increased pressure on water resources due to additional water use for road maintenance works</li> <li>• Groundwater pollution by compounds of wastes produced by infrastructure connected with accommodation facilities during road rehabilitation/ improper sewage facilitates</li> </ul>	<ul style="list-style-type: none"> <li>• Minimize collection of water and mud, where possible, to execute road rehabilitation works during dry season</li> <li>• Mitigate run-off velocities and volumes/ design outfalls properly</li> <li>• To prevent leaks/spills during transportation/ loading-unloading of constructional materials</li> <li>• Stockpiles of constructional materials should be covered with fabric or other materials to prevent/ mitigate contaminated runoff</li> <li>• To provide proper stockpiling of constructional materials and disposals of hazardous wastes/ avoid stockpiling on the slopes or near waterways, if any/ contaminated run-off from stockpiles should be drained into ditches with oil traps facilities</li> <li>• Ideally, excavate cutoff ditches around stockpiles to prevent materials from being washed away by surface runoff/ arrange interception ditches to prevent muddy water to reach waterways (if any)</li> <li>• All lubricants and engine oils should be collected and recycled or disposed off site</li> <li>• To avoid loss of vegetation during road rehabilitation works</li> <li>• To clean up the area after the construction work is completed</li> </ul>
--	---	---	--

	<p>(drainage channels, chutes, etc.)</p> <ul style="list-style-type: none"> <li>• Quarrying/ removal and placing borrow materials</li> <li>• Heating and spraying of bitumen</li> <li>• Constructional materials stockpiling</li> <li>• Construction waste disposals</li> <li>• Establishment of temporary camps for construction equipment</li> </ul>	<p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• Decreased risk of water pollution resulting from construction/rehabilitation of drainage systems as compared to previous road condition</li> <li>• Decreased risk of under-flooding resulting from construction/rehabilitation of drainage system as compared to previous road condition</li> <li>• Decreased risk of sedimentation/ turbidity of waterways (if any) resulting from expected lower erosion potential</li> </ul>	<p>Permanent/ local</p>	
<p>Air/ Acoustic</p>	<ul style="list-style-type: none"> <li>• Asphalt plant operation</li> <li>• Traffic of vehicles used for road/ hauling of</li> </ul>	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>• Emission from statutory operating asphalt plant</li> <li>• Air pollution by components of combustion gases (CO<sub>2</sub>, NO<sub>x</sub>).</li> </ul>	<p>Temporary/ Local</p>	<ul style="list-style-type: none"> <li>• To plan carefully construction works to minimize air and acoustic pollution</li> <li>• Control construction methods and used machinery and equipment</li> <li>• Careful timing of works in residential</li> </ul>

	<p>constructional materials and construction wastes</p> <ul style="list-style-type: none"> <li>• Heating of bitumen</li> <li>• Crushing of materials</li> </ul>	<ul style="list-style-type: none"> <li>• Air pollution by volatile hydrocarbons aggravated by unfavorable weather conditions (wind, hot, etc)</li> <li>• Local impairment of air quality during crushing and mixing of raw materials</li> <li>• Noise pollution and vibrations from hauling vehicles, operating machinery and equipment</li> </ul> <p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• Decreased risk of air pollution due to reduction of combustion gases emissions into the air</li> </ul>	<p>Permanent/ Local</p>	<p>areas)/ restrict construction to certain hours</p> <ul style="list-style-type: none"> <li>• To avoid loud beep signals in settlements/ to minimize disturbance to residents</li> <li>• Restrictions speed of construction vehicles, especially in residential areas</li> <li>• Using of sprinkling-machines “inhaling” dust or control by water or other means/ water spraying twice a day during construction to avoid dust</li> <li>• Watering of access roads to minimize dust formation, if applicable</li> <li>• Vehicles delivering materials should be well maintained and covered to prevent/ reduce spills, emissions and dispersion</li> <li>• Construction of noise barriers</li> </ul>
<p>Fauna and flora/ habitats</p>	<ul style="list-style-type: none"> <li>• Operation of asphalt plant</li> <li>• Earthworks</li> <li>• Use of hazardous materials, such as combustive-lubricating ones, bitumen/ heating and spraying of bitumen</li> <li>• Heavy machinery and equipment</li> </ul>	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>• Soil and water pollution due to operation of asphalt plant</li> <li>• Soil and water pollution by hazardous and toxic substances</li> <li>• Impact on biota due to contaminated environmental media (air, water, soil)</li> <li>• Destruction of afforested areas</li> <li>• Noise pollution/ vibration due to operation machinery/ equipment</li> <li>• Noise pollution due to traffic of construction</li> </ul>	<p>Temporary/ local</p>	<ul style="list-style-type: none"> <li>• To plan carefully construction works to minimize impact on flora, fauna, habitats/ careful siting, alignment, design of associated infrastructure to minimize impacts</li> <li>• Careful timing of works and work seasonally, as appropriate/ no construction during breeding season</li> <li>• Trees and other vegetation should be protected during bitumen spraying</li> <li>• To avoid excessive/ to minimize loss</li> </ul>

	<p>operation</p> <ul style="list-style-type: none"> <li>• Traffic of construction vehicles, machinery, etc.</li> <li>• Hauling of constructional materials</li> <li>• Construction/rehabilitation of road drainage system (drainage channels, chutes, etc.)</li> <li>• Constructional materials stockpiling</li> <li>• Construction waste disposals</li> </ul>	<p>vehicles</p> <ul style="list-style-type: none"> <li>• Disturbance to habitats/ loss of fauna and flora species during road rehabilitation works</li> <li>• Disruption of wildlife passages, local migration routes and patterns causing increased road kills, etc.</li> <li>• Changes to aquatic eco-systems due to increased sediment runoff into waterways due to construction/ modification of drainage patterns</li> </ul>		<p>of vegetation during road rehabilitation works</p> <ul style="list-style-type: none"> <li>• To avoid loud beep signals from vehicles and machinery in the areas where wild animals inhabit</li> <li>• Provide passages through the road for animals</li> <li>• Careful selection of sites to be used for constructional materials stockpiles/ construction wastes disposals</li> <li>• Use of appropriate construction methods</li> <li>• Clean-up of construction sites</li> <li>• Rehabilitate work sites/ quarries/ borrow areas, access roads by planting grass and trees and other relevant measures</li> <li>• Installation of special traffic signs in locations of potential wildlife migration</li> <li>• Construction of underpasses for amphibian</li> </ul>
Landscape/ Aesthetic	<ul style="list-style-type: none"> <li>• Construction of detours/ access routes/ haul roads</li> <li>• Earthworks/ quarrying/ removal and</li> </ul>	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>• Local visual impacts/ marred landscape</li> <li>• Damage to vegetation along the roads</li> <li>• Damage to or degradation to some natural and manmade landscape valuable sites, if any, due to</li> </ul>	Temporary/ Local	<ul style="list-style-type: none"> <li>• To minimize construction site's size to minimize impact on landscape/ careful planning, siting and design of works</li> <li>• Screening/ fencing of intrusive</li> </ul>

	placing borrow materials <ul style="list-style-type: none"> <li>• Traffic of construction vehicles/ heavy machinery and equipment operation</li> <li>• Construction/ rehabilitation of road drainage system</li> <li>• Constructional materials stockpiling</li> <li>• Construction waste disposals</li> <li>• Establishment of temporary camps for construction equipment</li> </ul>	easier access <ul style="list-style-type: none"> <li>• Loss of trees and other vegetation</li> <li>• Dust, waste, debris etc. during road rehabilitation works</li> </ul> <p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• Improved manmade landscape</li> </ul>	Permanent/Local	items <ul style="list-style-type: none"> <li>• Careful de-commissioning of construction areas/ waste disposal sites// clean up construction sites after road construction works are finished/ re-vegetation of work area, etc.</li> <li>• Excavated materials, if any, should be used for backfilling of borrows and gravel pits</li> </ul>
Human health / settlements	<ul style="list-style-type: none"> <li>• Road construction works:             <ul style="list-style-type: none"> <li>○ excavations and other earthworks</li> <li>○ leveling/ patching/priming</li> <li>○ pavement</li> <li>○ crushing and screening of aggregate</li> <li>○ heating of bitumen</li> <li>○ repair of aggregates</li> </ul> </li> </ul>	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>• Road accidents due to disruption of traffic flows due to road construction works</li> <li>• Health impact on construction workers due to work with toxic and hazardous materials (damage to respiration system, skin, eyes, etc) aggravated by unfavorable weather conditions (strong wind, rain, etc.)</li> <li>• Impact on human health due to:             <ul style="list-style-type: none"> <li>○ Polluted by combustion gases and dust air along the road</li> <li>○ Polluted surface run-off into adjacent agricultural lands and agricultural plants contamination</li> </ul> </li> </ul>	Temporary/Local	<ul style="list-style-type: none"> <li>• To train personnel on occupational safety and measures towards compliance with occupational safety requirements</li> <li>• Appropriately experienced contractor, good supervision, careful planning and scheduling of work activities</li> <li>• Incorporation of safety and environmental requirements in contract documents/ providing of workers with uniform, glasses, gloves, etc.</li> <li>• Foreseeing compensations in case of health damage</li> <li>• Fencing of dangerous areas (stockpiling of hazardous materials)</li> </ul>

	<ul style="list-style-type: none"> <li>○ construction &amp; reconstruction of drainage channels; etc.</li> <li>● Hazardous, toxic and inflammable materials loading-unloading, transportation and disposal</li> <li>● asphalt plant operation</li> <li>● traffic of construction vehicles</li> <li>● Constructional materials stockpiling</li> <li>● Construction waste disposals</li> </ul>	<ul style="list-style-type: none"> <li>○ Noise pollution and vibrations from construction works, traffic of vehicles and operating machinery/ equipment</li> <li>● Fire and explosion hazards due to accidents during road construction works</li> <li>● Construction vehicles road accidents</li> <li>● Accidents during road construction works (spills, blasts, etc.)</li> <li>● Accidents due to disruption of traffic flows due to road construction works</li> <li>● Pressure on local water supply sources</li> </ul>	<ul style="list-style-type: none"> <li>● Avoid work during unfavorable weather conditions to minimize risk of accidents/ bitumen should be not applied during strong winds or heavy rains</li> <li>● Proper establishment of temporary camps for construction equipment</li> <li>● To ensure accident prevention for population in residential areas/ to plan carefully construction works to minimize impact on local residents</li> <li>● Restrict transportation of hazardous/ explosive materials in residential areas/ comply with regulation on transportation of hazardous materials</li> <li>● Restrict construction vehicle speed limits, especially in residential areas</li> <li>● Careful timing of works to minimize disturbance especially during night time</li> <li>● Ideally, to design acoustic barriers along the roads in residential areas</li> <li>● To construct/ rehabilitate sidewalks in residential areas/ the required width of the sidewalk corresponds to the intensity of pedestrian's traffic (final determination of the location shall be arranged with local stakeholders)</li> <li>● Road warning signs posting to warn road users about rehabilitation works/ warn road users about traffic diversion</li> <li>● Provide advice to the public on</li> </ul>
--	--	--	--



		<p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• Decreased risk of car and local residents accidents due to improved road conditions</li> <li>• Decreased risk to health damage due to reduction of air pollution by combustion gases</li> </ul>	<p>Permanent/ Local</p>	<p>shorter alternative routes/bypasses</p> <ul style="list-style-type: none"> <li>• To ensure proper constructional materials stockpiling/ construction waste disposals</li> <li>• Stone crushing plants; asphalt plants should be fitted with approved dust control devices and operate in accordance with environmental protection requirements and manufacturer' specifications</li> <li>• To ensure regular watering of roads under rehabilitation to minimize formation of dust</li> <li>• To install speed calming devices, e.g. humps, in residential areas</li> <li>• To ensure emergency medical service/ to provide telephone communication</li> <li>• To ensure proper sanitary-hygienic facilities (sewage disposal)/ appropriate waste disposal</li> <li>• Water for road construction works should be obtained from such sources and such amount that would not affect appropriate domestic water supply in the area of concern</li> </ul>
--	--	--	-----------------------------	--

		<ul style="list-style-type: none"> <li>• Decreased risk to health damage due to lessening of polluted surface runoff to agricultural lands</li> </ul>		
Social/ Economic	Road construction	<p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• generation of new jobs/ recruitment of the labor force among local population/ temporary decrease of unemployment in residential areas along the road</li> <li>• development of relevant work skills at local residents</li> <li>• reduction of vehicles operating cost;</li> <li>• reduction of fuel consumption,</li> <li>• improvement of traffic safety;</li> <li>• improvement of transportation conditions/ less time for transportation of passengers, goods, livestock, etc.</li> <li>• opportunity to create new work places along the road: filling stations, shops, bars, parking facilities</li> </ul> <p>improved communication opportunities between settlements/ local residents etc.</p>	Permanent / local	



Water Resources	Existence of the road Traffic of vehicles Surface runoff from the road Passenger/ goods transportation Road associated infrastructure	<p><b>Negative:</b></p> <p>Pollution of groundwater by contaminated surface runoff from the road:</p> <ul style="list-style-type: none"> <li>○ compounds of fuel (esp. heavy metals)</li> <li>○ petroleum hydrocarbons</li> </ul> <p>Accidental pollution of groundwater by spills during road accidents</p> <p>Reduction in groundwater recharge due to installed road drainage system</p> <p>Potential for interrupting or lasting lowering of underground water table due to road operation</p> <p>Groundwater pollution by wastes produced by road associated infrastructure associated (parking, food, sanitary facilities, filling stations, shops, bars, etc.).</p> <p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• Reduced water pollution resulted from constructed/rehabilitated drainage systems as compared to previous road condition</li> <li>• Decrease risk of under-flooding due to rehabilitated drainage system as compared to previous road condition</li> </ul>	Permanent/ Local	<ul style="list-style-type: none"> <li>• Road police and ecological authorities to check regularly vehicles quality and their compliance with technical standards</li> <li>• Road police to properly control vehicles conditions to minimize risk of accidents/accidental spills</li> <li>• To control properly road drainage system to avoid soil erosion/ sedimentation of waterways/direct runoff to waterways/ turbidity of waterways</li> <li>• To plant trees and bushes to prevent surface erosion and landslides</li> <li>• To control properly development and operation of road associated infrastructure along the roads (food and parking facilities, filling stations, recreation stops, etc.)</li> </ul>
			Permanent/ Local	

		<ul style="list-style-type: none"> <li>• Decreased siltation of waterways (if any) due to lower erosion potential as compared to previous road condition</li> <li>• Decreased turbidity of waterways (if any)/ decreased fine-grained sediment run-off to surface waters as compared to previous road condition</li> </ul>		
Air/ Acoustic	Traffic of vehicles Emission from vehicles	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>• Air pollution by components of combustion gases (CO<sub>2</sub>, NO<sub>x</sub>).</li> <li>• Noise pollution/ vibration from traffic of vehicles (esp. trucks) in residential areas</li> </ul> <p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• Reduction of emissions into the air / reduction of air pollution by combustion gases as compared to previous road conditions</li> </ul>	Permanent/ Local	<ul style="list-style-type: none"> <li>• Designing and planting vegetation (buffer strips) along the roads to minimize spreading of combustion gases</li> <li>• To avoid loud beep signals in settlements/ to minimize disturbance to residents</li> <li>• To construct noise prevention barriers in residential areas</li> <li>• Restrictions on vehicles speed, especially along residential areas</li> <li>• Vehicles to comply with engine brake norms, especially in residential areas</li> </ul>
Fauna and flora/ habitats	Existence of the road Traffic of vehicles Road associated infrastructure	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>• Continuous damage to biodiversity</li> <li>• Continuous damage/ disturbance to habitats</li> <li>• Death of wild animals due to road accidents</li> <li>• Disturbance to wild animal passages/ local migration routes and patterns</li> </ul>	Permanent/ Local	<ul style="list-style-type: none"> <li>• Traffic signs posting along the roads (indication of speed limits, warning about valuable habitats and animals inhabited in the area, etc)</li> </ul>

		<ul style="list-style-type: none"> <li>• Changes of aquatic eco-systems due to sedimentation potential in waterways</li> <li>• Secondary contamination of biota due to pollution potential of soil and water in the area of road operation/ pollution of vegetation along the roads by emitted combustion gases and their compounds (esp. heavy metals)</li> </ul>		<ul style="list-style-type: none"> <li>• To ensure stricter control to conserve biodiversity/ poaching and illegal cutting prevention</li> <li>• To provide appropriately designed rest stops to minimize impact on environment</li> <li>• To undertake continuous measures towards prevention and minimization of erosion</li> <li>• Continuous vegetation/ re-vegetation along the roads</li> <li>• To ensure compliance of vehicles conditions with technical standards to minimize risk of environmental pollution (air, soil, water)</li> <li>• To provide tunnels for wildlife to cross the road</li> <li>• To ensure protection measures to avoid danger to animal species due to road accidents (fences along the roads)</li> </ul>
Landscape/ Aesthetic	Existence of the road Road associated infrastructure	<b>Negative:</b> <ul style="list-style-type: none"> <li>• Loss of vegetation/ poor vegetation</li> <li>• Impaired lands/ loss of some land uses along the roads</li> <li>• Garbage/ waste disposals along the roads</li> </ul>	Permanent/ Local	<ul style="list-style-type: none"> <li>• Planting of trees (at allowed distance) and bushes to improve the landscape</li> <li>• Planting of trees to stabilize the slopes/ prevent soil erosion</li> <li>• To control properly</li> </ul>

		<p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>Improved visual effects/ improved conditions of surroundings/ manmade landscape</li> </ul>	Permanent/ Local	development and operation of road associated infrastructure
Human health / settlements	<p>Existence of the road</p> <p>Traffic of vehicles</p> <p>Road crossing by humans and domestic animals</p> <p>Road crossing by cars from secondary roads</p> <p>Passenger/ goods transportation</p>	<p><b>Negative:</b></p> <ul style="list-style-type: none"> <li>Car accidents</li> <li>Killed and injured humans due to road accidents</li> <li>Domestic animals accidents</li> <li>Damage to health due air pollution by combustion gases and dust (esp. in settlements)</li> <li>Damage to health due to consumption of agricultural products grown up on adjacent agricultural lands affected by contaminated surface run-off</li> <li>Noise pollution/ vibrations from vehicles traffic (esp. trucks)</li> <li>Disturbance to overnight sleep in settlements</li> </ul>	Permanent/ Local	<ul style="list-style-type: none"> <li>To provide regular road quality control and maintenance</li> <li>To provide highway stripping</li> <li>To provide emergency strips along the road, where appropriate</li> <li>To provide outside stone, wire or other suitable types of barriers in dangerous sites on the road, if any, to minimize risk of road accidents</li> <li>To provide parking facilities for accidental drive in and drive out along the road, where appropriate</li> <li>Road police and ecological authorities to check regularly vehicles quality and their compliance with air, noise and technical standards</li> <li>Restrict vehicle speed</li> </ul>

			<p>limits, esp. at the entrance and in the residential areas in order to minimize the risk of pedestrian's injury</p> <ul style="list-style-type: none"> <li>• The passage through the village shall be speed controlled in combination with measures for the improvement of visibility: 30 km/h, 50 km/h</li> <li>• Provide pedestrian's sidewalk in the residential areas (esp. in village centers, schools, outside of curves, etc.)</li> <li>• Road police to properly control vehicles traffic to minimize risk of road accidents</li> <li>• Road signs posting with indication of speed limits along the road out of settlements in dependence of type of landscape - flat, hilly; road geometry (curved turnings), etc.</li> <li>• To plant trees along the roads (at allowed distance) to prevent excessive air pollution especially along residential areas</li> <li>• To provide telephone and other communication facilities along the road to immediately inform about accident, if any</li> <li>• To provide road traffic signs with indication of distance to</li> </ul>
--	--	--	--



		<p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• Decreased number of car accidents due to improved road conditions/ safe driving and riding</li> <li>• Decrease number of killed and injured people due to improved road conditions</li> <li>• Lower damage to health due to reduction of air pollution by combustion gases as compared to previous road conditions</li> <li>• Lower damage to health due to decreased polluted surface runoff to agricultural lands as compared to previous road conditions</li> <li>• Improved communication opportunities between settlements/ local residents</li> </ul>	<p>Permanent/ Local</p>	<p>medical centers/ rest facilities/ name of settlements</p> <ul style="list-style-type: none"> <li>• To organize properly public transport stops to exclude risk of human accidents. Asphalted bus station shall be organized offside the main road, probably at a side road</li> <li>• Install warning for drivers about pedestrians on the road/ provide facilitates (road traffic signs, regulated traffic lights) for pedestrians to cross the road</li> <li>• Install speed control devices along the road, especially at the entrance to settlements, near rural school, schools, if any</li> </ul>
--	--	--	-----------------------------	--

Social/ Economic		<p><b>Positive:</b></p> <ul style="list-style-type: none"> <li>• Reduced vehicles operating cost as compared to previous road conditions</li> <li>• Improved access to settlements</li> <li>• Improved access to labor, goods, livestock and other markets</li> <li>• Reduced transportation cost to markets</li> <li>• Improved opportunities for business activities</li> <li>• Development of employment and business opportunities associated with road operation (road associated infrastructure - shops, bars, restaurants; selling of homemade articles and household agricultural products, etc.)</li> <li>• Increase of household income</li> <li>• Reduced time needed to reach destination point</li> <li>• Improved access to hospitals/ health centers and educational institutions for rural population</li> <li>• Improved access to recreation sites in rural area</li> <li>• More opportunities for tourism business development (easier access to cultural, natural and other heritage sites), etc.</li> </ul>	Permanent/ Local	
---------------------	--	--	---------------------	--

## **Annex 7. Example of the environmental clauses for contract documents**

### **General**

- Notwithstanding other obligations, if, in the opinion of the Engineer, damage is being done to the environment by the Works under construction the Belavtodor environmental specialist or supervising engineer may instruct the Contractor to cease work immediately, or change the approach or method of work.
- The Provisional sum, Item 110.20.7 in the Bill of Quantities, is for any work deemed to be required by the Engineer to remedy any unexpected environmental problems, or potential environmental problems, which may arise as a result of the Works. The Engineer may instruct either the Contractor, or a nominated Subcontractor, to carry out the work.
- The Contractor shall ensure that full consideration is given to the control of environmental aspects, and that all provisions of the design and specification requirements relating to pollution of the environment, and protection of adjacent land and waterways, are complied with.

### **Road works**

- Mobilization of heavy equipment to and from the site shall be carried out at time of lowest traffic on the routes used.
- The Contractor shall use selected routes, as advised by the Engineer, and appropriately sized vehicles suitable to the class of road, and shall restrict loads to prevent damage to roads and bridges used for transportation purposes to the project site. The Contractor shall be held responsible for any damage caused to the roads and bridges due to the transportation of excessive loads, and shall be required to eliminate such damage to the approval of the engineer.
- The Contractor shall not use any vehicles, either on or off road, the exhaust or noise emissions of which are grossly excessive, and in any built up areas noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor.
- The Contractor shall limit construction works to between 6am and 10pm if it is to be carried out in or near residential areas. The Contractor shall also avoid the use of heavy or noisy equipment in specified areas late at night, or in sensitive areas.
- To prevent dust pollution during dry periods the Contractor shall carry out regular watering of earth and gravel haul roads and shall cover soil haulage trucks with tarpaulins if the soil is dry.
- Adequate traffic control measures shall be maintained by the Contractor throughout the duration of the Contract, and prior to any restriction being applied to two way traffic movement written permission must be obtained from the Engineer for the proposed traffic control measures to be used and for the length of time the restriction is proposed to be in place.
- The Contractor shall install and maintain a temporary septic tank system for any camp established and ensure that this does not cause any pollution of nearby watercourses. The contractor shall also make the system in operative and safe on completion of the contract and the removal of the camp.
- The Contractor shall establish a method and system for storing and disposing of all solid wastes generated by the labor camp and/or the base camp.
- The Contractor shall not allow the use of fuel wood for heating or cooking in any labor or base camp but shall provide alternate facilities using other fuels.

- The Contractor shall also ensure that storage areas for diesel fuel and bitumen, and asphalt plants, are not located within 500 metres of watercourses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of heavy rain. This will require lubricants to be recycled and a ditch to be constructed around the area with an approved settling pond/oil trap at the outlet.
- The contractor shall not use fuelwood as a means of heating during the processing or preparation of any materials forming part of the Works.

### **Earthworks-General**

- The Contractor shall not carry out any earthworks during the rainy season unless specific permission is obtained in writing from the Engineer or his representative for properly controlled earthworks at specific locations.
- The Contractor shall maintain stable cut and fill slopes at all times and shall cause the minimum possible disturbance to areas outside the prescribed limits of the work.
- The Contractor shall complete cut and fill operations to final cross-sections at any one location as soon as possible and preferably in one continuous operation and not leave partly completed earthworks, especially during the rainy season.
- The Contractor shall ensure that any cut or fill slopes are planted in grass or other plant cover as soon as possible to protect them from erosion.
- To prevent erosion cut off drains and toe-drains shall be provided at the top and bottom of slopes as shown on the drawings or as directed by the Engineer.

### **Earthworks - Disposal of Surplus Material**

- Any spoil cut to waste, or material removed from drains, shall be disposed of to designated stable tipping areas as directed by the Engineer, and separate items are included in the Bill of Quantities to allow for this.
- Side tipping of surplus excavated material shall only be permitted where specifically allowed by the Engineer.
- Before starting any earth-moving operation at any location the Contractor shall obtain the Engineer's approval of the areas he proposes to use as waste dumps.
- Locations for waste dumps are not to be sites where they will cause future slides, interfere with agricultural land or any other properties or cause soil from the dump to be wasted into any watercourse. During may need to be dug within and around the waste dumps as directed by the Engineer and this, together with the proper placement of the spoil, should be allowed for in the cut to waste item in the Schedule of Quantities. The only item in the Schedule of Quantities paid for separately is the haul distance ( $m^3$  times kms) to the waste dump directed by the Engineer.

### **Bridge Works**

- During construction works, the Contractor should carry the full administrative and legal responsibility for any pollution of waters according to the existing legislation.
- The Contractor will ensure that no oil products, fuel, paint or other harmful substances are introduced into the bridge drainage facilities.
- The storage of wastes or production waste as well as the discharge of paint and other materials (mortar, corrosion inhibitors, and polymeric coating substance) onto open soils is prohibited. The Contractor will make all necessary arrangements to ensure that pollution of soils and groundwater will be avoided as far as possible.
- The Contractor should follow all the existing laws and regulations concerning the noise control in bridge construction works, asphalt surfacing and drilling activities. The Contractor

shall elaborate and adopt effective measures both in management and technology to minimize noise if necessary.

- The contractor will specify and follow mitigation measures to control any dust from the operation of equipment and/or bridge construction works. The Contractor will submit a plan indicating the proposed routes for material transport and make statements on the proposed method of dust control where transport through settlements or on the sea cannot be avoided.
- Solid waste generated during the construction phase should be systematically collected, stored and disposed of in suitable locations identified and approved by the Project Manager and Supervisory Engineer. The Contractor should ensure that these sites (i) are not located within designated forest areas; (ii) do not impact the river or other natural drainage courses; and (iii) do not impact flora/fauna.
- Construction debris should be removed from the site in an orderly manner and disposed off in accordance with the existing regulations.
- Domestic waste from temporary construction camps shall be systematically collected and hauled to the designated areas in accordance with the relevant regulations.

## Annex 8. Monitoring plan

Stage	Indicators to be monitored	Site of monitoring	Method of monitoring	Time of monitoring	Purposes of monitoring
<b>Construction</b>					
<ul style="list-style-type: none"> <li>• <b>Supply of materials</b></li> </ul>					
<i>a) Asphalt Plant</i>	Availability of an official permit or valid license for operation	Asphalt plant	On-site inspection	Prior to commencement of works	a)–b) compliance of the plant to the requirements of environmental protection, health protection and occupational safety
<i>b) Sand and gravel pits</i>	Availability of the carrier’s official permit or valid license for operation	Sand and gravel pits or place of purchase	On-site inspection	Prior to commencement of works	
<ul style="list-style-type: none"> <li>• <b>Transportation of construction materials</b></li> </ul>					
<i>a) asphalt</i>	Cargo should be covered	Construction site	Supervision	Periodic checks during the work progress	a)–d) for ensuring compliance of works to the requirements of environmental protection, health protection and occupational safety, and for minimal traffic violation
<i>b) crushed stone</i>	Cargo should be covered	Construction site	Supervision	Periodic checks during the work progress	
<i>c) sand and gravel</i>	Cargo should be covered and moistened	Construction site	Supervision	Periodic checks during the work progress	
<i>d) traffic</i>	Hours and routes	Construction site	Supervision	Periodic checks during the work progress	
<ul style="list-style-type: none"> <li>• <b>Civil works</b></li> </ul>					
<i>a) noise impact on local population, workers and fauna</i>	Noise levels; equivalent and maximum noise levels, equipment	Construction site; neighbouring houses	Sound-level meter and noise analyzer, inspection	Non recurrent for each piece of equipment at commencement of works and at the request	a)–k) to ensure compliance of works with the requirements of environmental protection, health protection and occupational safety
<i>b) atmospheric air pollution</i>	Concentrations of polluting emissions: NO <sub>2</sub> , CO, formaldehyde	Construction site and neighbouring territories	Measuring	Monthly	
<i>c) impact on fauna</i>	i) rates and direction of migrations, number of fatalities during accounting period, number of migration corridors	Areas neighboring the road	Visually	Annually in April-May and in September	

<i>d) impact on flora</i>	ii) rates and direction of amphibian migrations, number of fatalities during accounting period, number of migration corridors, identification of locations of reproduction	Areas neighboring the road	Visually	Annually in April-May and in September
	i) status of rare and endangered species, area covered by the population, abundance of species, reproduction capacity, damages and types of damages, rate of vitality	Areas neighboring the road	Visually	Annually in June-August
	ii) status of forest vegetation, types of damages, average rate of defoliation	Areas neighboring the road	Visually	Annually in June-August
<i>e) normal traffic disturbance during construction works</i>	iii) status of aquatic and meadow vegetation: area covered by the population, abundance of species, reproduction capacity, damages and types of damages, rate of vitality	Areas neighboring the road	Visually	Annually in June-August
	Availability of the traffic control plan, route plans	Construction site and neighboring territories	Inspection; observation	Prior to commencement of works; once a week in rush and non-rush hours
<i>f) restricted access for carrying out other activities close to the road</i>	Availability of the alternative access	Construction site	Supervision	During construction
<i>g) safety of transport facilities and pedestrians when construction works are not carried out</i>	Traffic conditions	Construction site and neighboring territories	Inspection	Once a week in the evening


<i>h) water and soil pollution owing to improper storage, utilization and disposal of materials</i>	Water and soil quality (suspended solids, fuels and lubricants)	Drain from the site, areas for materials storage; places of equipment washing	Gravitation; observation; mobile laboratory with necessary equipment (water analyzer)	During supply of materials and carrying out construction works, especially during precipitation (rain, snow, etc.)	
<i>i) water and soil pollution owing to improper waste disposal</i>	Water and soil quality (suspended solids, fuels and lubricants)	Dump areas	Laboratory with necessary equipment (water analyzer); observation	In case of temporary waste disposal on the site, and at the request	
<i>j) water and soil pollution owing to improper technical maintenance and fuelling of machinery</i>	Water and soil quality (suspended solids, fuels and lubricants); work procedures	Construction site, areas of plant and machinery maintenance	Laboratory with necessary equipment (water analyzer); observation	In case of temporary waste disposal on the site, and at the request	
<i>k) occupational safety</i>	Use of protective equipment (eyeglasses, masks, helmets, safety boots, etc.); proper traffic management and control to bypass the construction site	Construction site	Inspection	Periodic checks during the work progress	
<b><u>Operation</u></b>					
<b>• Traffic impact</b>					
<i>a) noise</i>	Noise levels – dB(A)	Residential areas	Measurements	Periodically, combined with traffic counting	a)- e) to ensure compliance with standard norms
<i>b) pollutant emissions</i>	Emission concentrations	Residential areas, right-of-way	Measurements	Periodically, combined with traffic counting	
<i>c) water, soil and vegetation contamination</i>	Content of heavy metals, oil products and other pollutants, pH	Right-of-way	Laboratory analysis of samples and probes	Semi-annually	



<i>d) damage of forest belts</i>	Index of status, percentage of defoliation,	Road side areas	Visually	Annually	a)- e) to ensure compliance with standard norms
<i>e) traffic accidents with wildlife involved</i>	Number and locations of traffic accidents	Road	Study of statistics provided by the State Road Inspectorate and local hunting services	Annually	

## Annex 9. Minutes of public consultation in Ivye district of Grodno oblast

УТВЕРЖДАЮ  
Заместитель председателя Ивьевского  
районного  
исполнительного комитета  
14.01.2014 В.С. Кузьмич



### ПРОТОКОЛ

общественных обсуждений отчета об ОВОС  
по объекту «Автомобильная дорога М-6 Минск-Гродно-граница Республики  
Польша (Брузги), км 91,07 – км 211,0», (участок по Ивьевскому району).  
14 января 2014г. г. Ивье

Процедура проведения общественных обсуждений проводилась с 28  
ноября 2013 г. по 28 декабря 2013г.

Информация о проведении общественных обсуждений отчета об ОВОС  
публиковалась (размещалась): на официальном сайте Ивьевского районного  
исполнительного комитета ([//ivie.gov.by](http://ivie.gov.by)) 25.11.2013г. в периодическом  
издании Ивьевской районной газеты «Іўеўскі край» № 91 за 27.11.2013г., №  
92 за 30.11.2013, на сайте газеты «Іўеўскі край» [www.ivynews.by](http://www.ivynews.by) 27.11.2013, на  
официальном сайте РУП «Гродноавтодор» ([www.grodnoautodor.com](http://www.grodnoautodor.com))  
28.11.2013г.

В установленные законодательством сроки предложений от  
общественности о необходимости проведения собрания по обсуждению отчета  
об ОВОС не поступило.

Выводы и предложения комиссии по подготовке и проведению  
общественных обсуждений: Общественные обсуждения считать  
состоявшимися.

#### Члены комиссии:

Начальник отдела идеологической  
работы, культуры и по делам  
молодежи райисполкома

  
О.Ч. Борко

Главный врач ГУ «Ивьевский  
районный центр гигиены и  
эпидемиологии»  
Начальник технического отдела  
РУП «Гродноавтодор»

  
И.А. Выдронек

Главный инженер проектов  
ГП «Белгипродор»

  
А.В. Солоденников

Главный редактор учреждения  
«Редакция газеты «Іўеўскі край»

  
О.Н. Цепиков

Начальник Ивьевской районной  
инспекции природных ресурсов и  
охраны окружающей среды

  
Т.И. Бартош

  
Т.Я. Юруш

## Annex 10. Minutes of public consultation in Lida district of Grodno oblast

УТВЕРЖДАЮ  
Заместитель председателя Лидского  
районного исполнительного  
комитета

А.Т. Главницкий

20 февраля 2014г.

### ПРОТОКОЛ

общественных обсуждений отчета об ОВОС  
по объекту «Автомобильная дорога М-6 Минск-Гродно-граница  
Республики Польша (Брузги), км 91,07 –км 211,0»  
(участок по Лидскому району)

20 февраля 2014г.

г.Лида

Процедура проведения общественных обсуждений проводилась с 18 января 2014г. по 17 февраля 2014г.

Информация о проведении общественных обсуждений отчета об ОВОС публиковалась (размещалась): на официальном сайте Лидского районного исполнительного комитета ([WWW.lida.by](http://WWW.lida.by)) 17.01.2014г., в периодическом издании «Лидская газета» № 6 за 18 января 2014г. а также на официальном сайте РУП «Гродноавтодор» ([www.grodnoautodor.com](http://www.grodnoautodor.com)) 17.01.2014г.

В установленные законодательством сроки предложение от общественности о необходимости проведения собрания по обсуждению отчета об ОВОС поступило на электронный адрес Лидского райисполкома (входящий №15 от 24.01.2014г.).

Информация о проведении собрания по обсуждению отчета об ОВОС публиковалась (размещалась) на официальном сайте Лидского районного исполнительного комитета ([WWW.lida.by](http://WWW.lida.by)) 28 января.2014г., в периодическом издании «Лидская газета» №10 за январь 2014г на официальном сайте РУП «Гродноавтодор» ([www.grodnoautodor.com](http://www.grodnoautodor.com)) 28.01.2014г.

Собрание по обсуждению отчета об ОВОС проводилось в 11<sup>00</sup> 18.02.2014г. в Лидском райисполкоме.

Для участия в собрании зарегистрировалось 4 человека.

Обращений от общественности в период общественных обсуждений не поступило.

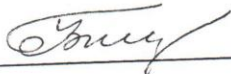
Выводы и предложения комиссии по подготовке и проведению общественных обсуждений:

Общественные обсуждения считать состоявшимися.

Вопросы, полученные в ходе проведения общественных обсуждений считать относящимися к объекту обсуждения и включить их в прилагаемую сводку отзывов по отчету об ОВОС.

Члены комиссии:

Начальник отдела  
идеологической работы,  
культуры и по делам  
молодежи райисполкома



И.Г. Белуш

Заместитель главного  
врача ГУ «Лидский  
зональный центр гигиены  
и эпидемиологии»



О.Э. Ясюкайт

Начальник технического  
отдела РУП  
«Гродноавтодор»



А.В. Солоденников

Главный инженер  
проектов ГП  
«Белгипродор»



А.И. Доревский

Главный редактор  
государственного  
учреждения «Редакция  
«Лідская газета»



Е.А. Серафинович


Начальник Лидской  
городской и районной  
инспекции природных  
ресурсов и охраны  
окружающей среды



А.Л. Гайко

## Annex 11. Minutes of public consultation in Schuchin district of Grodno oblast

УТВЕРЖДАЮ  
Заместитель председателя Щучинского  
районного исполнительного комитета  
Я.Б.Мойсей  
13 января 2014 г.



### ПРОТОКОЛ

Общественного обсуждения отчета об ОВОС по объекту  
«Автомобильная дорога М-6 Минск-Гродно-граница Республики Польша  
(Брузги) км91,07 – км211,0» (участок по Щучинскому району)

13 января 2014 г.

г.Щучин

Процедура проведения общественного обсуждения проводилась с 27 ноября 2013 г. по 27 декабря 2013 г.

Информация о проведении общественного обсуждения отчета об ОВОС публиковалась (размещалась): на официальном сайте Щучинского районного исполнительного комитета ([schuchin.grodno-region.by](http://schuchin.grodno-region.by)) 28.11.2013 г., в периодическом издании Щучинской районной газеты «Дзяніца» от 26 ноября 2013 г. № 91/8722, на официальном сайте РУП «Гродноавтодор» ([www.grodnoautodor.com](http://www.grodnoautodor.com)) 28.11.2013г.

В установленные законодательством сроки предложений от общественности о необходимости проведения собрания по обсуждению отчета об ОВОС не поступало.

За период общественного обсуждения поступило одно предложение (заявление от садового товарищества «Весна» о необходимости обустройства съезда с дороги М-6, 207-208 км, к участкам садоводческого товарищества)

Выводы и предложения комиссии по подготовке и проведению общественного обсуждения:

Общественное обсуждение считать состоявшимся.

Вопросы, полученные в ходе проведения общественных обсуждений считать относящимися к объекту обсуждения и включить их в прилагаемую сводку отзывов по отчету об ОВОС.

Члены комиссии:

заместитель начальника отдела  
идеологической работы, культуры и  
по делам молодежи райисполкома

А.Г.Амшей

главный врач государственного  
учреждения «Щучинский зональный  
центр гигиены и эпидемиологии»

П.С.Волчек

начальник технического отдела  
республиканского унитарного  
предприятия «Гродноавтодор»

А.В.Солоденников

главный инженер проекта  
государственного предприятия  
«Белгипродор»

Т.Г.Сташинская

главный редактор учреждения  
«Редакция Щучинской районной  
газеты «Дзяніца»

Т.В.Ступакевич

начальник Щучинской районной  
инспекции природных ресурсов и  
охраны окружающей среды

А.В.Сущевич

Annex 12. Minutes of public consultation in Volozhin district of Minsk oblast

УТВЕРЖДАЮ  
Заместитель председателя Воложинского  
районного исполнительного комитета –  
председатель комиссии  
  
И.И.Лепкевич  
КОНТРОЛЬ ФАКТОМ  
28 июля 2014г.

**ПРОТОКОЛ**

**общественных обсуждений отчета об оценке воздействия на  
окружающую среду (ОВОС) планируемой хозяйственной деятельности  
по объекту «Автомобильная дорога М-6/Е28 Минск-Гродно-граница  
Республики Польша (Брузги) км 42,00 – км 91,07»**

Процедура проведения общественных обсуждений проводилась с  
27.06.2014г. по 26.07.2014г.

Информация о проведении общественных обсуждений отчета об ОВОС  
публиковалась (размещалась):

- на сайте [www.volozhin.gov.by](http://www.volozhin.gov.by) ;
- в районной газете «Рабочая Слава» № 49 от 27 июня 2014г.

---

наименования печатного периодического издания, номер и дата публикации, адрес  
ресурса сети Интернет, ссылка на публикацию, дата выхода информации

В установленные законодательством сроки предложения от  
общественности о времени и месте проведения собрания по обсуждению  
отчета об ОВОС не поступали.

Сведения о поступлении обращений общественности в период  
общественных обсуждений: замечания и предложения по отчету об оценке  
воздействия на окружающую среду.

Выводы и предложения комиссии по подготовке и проведению  
общественных обсуждений: общественные обсуждения отчета об оценке

воздействия на окружающую среду (ОВОС) планируемой хозяйственной деятельности по объекту «Автомобильная дорога М-6/Е28 Минск-Гродно-граница Республики Польша (Брузги) км 42,00 – км 91,07» считать состоявшимися, проектное решение по реконструкции автомобильной дороги М-6/Е28 Минск-Гродно-граница Республики Польша (Брузги) км 42,00 – км 91,07 рекомендовать для дальнейшего проектирования и получения заключения органа государственной экспертизы в установленном порядке.

Начальник отдела идеологической  
работы, культуры и по делам молодежи  
Воложинского райисполкома

должность члена комиссии по подготовке  
и проведению общественных обсуждений




личная  
подпись

В.Н.Адамович.  
расшифровка  
подписи


Преседатель  
комиссии:

Члены комиссии:


Секретарь комиссии




И.И.Лешкевич




В.Н.Адамович




И.В.Великоселец




О.Е.Водянович




А.В.Дубовик




А.К.Пашковский



Д.М.Протас



Д.А.Середич



Д.А.Середич



