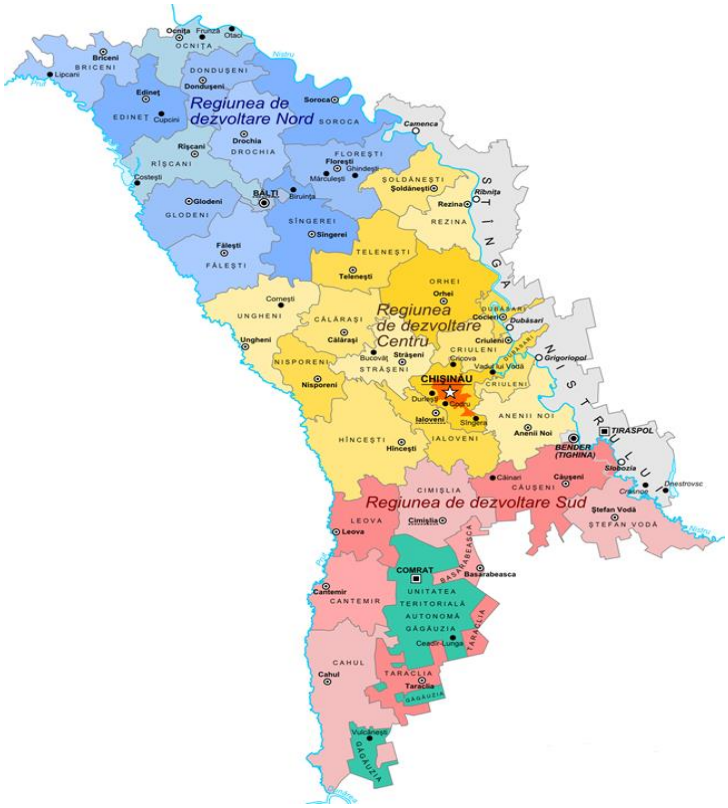
Modernization of local public services in Republic of Moldova



THE SECTORAL REGIONAL PROGRAM IN THE FIELD OF LOCAL AND REGIONAL ROAD INFRASTRUCTURE FOR UTA GĂGĂUZIA DEVELOPMENT REGION

(2018-2025)

C O R R I D O R # 5

Vulcănești – Alexandru Ion Cuza – Etulia – Etulia Noua – Cișmichioi – M3

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MINISTERUL AGRICULTURII, DEZVOLTĂRII REGIONALE ȘI MEDIULUI
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Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

Registered office:

Bonn and Eschborn, Germany

Friedrich-Ebert-Allee 40
53113 Bonn, Germany
T +49 228 44 60-0
F +49 228 44 60-17 66

Dag-Hammarskjöld-Weg 1-5
65760 Eschborn, Germany
T +49 61 96 79-0
F +49 61 96 79-11 15

E info@giz.de
www.giz.de

Authors:

Andrei Cuculescu, Sergiu Bejan, Genadie Ivascenco, Mihai Driga

Developed by:

Consortium **GFA – Consulting Group** – BCI Business Consulting Institute - MM Mott Macdonald

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Comrat - Chisinau, 2018

1. INTRODUCTION 4
2. DESCRIPTION OF THE PROJECT 5
3. THE EXISTING SITUATION 6
3.1 CLIMATE CONDITIONS. 6
3.2 PLAN OF THE ROUTE 6
3.3 LONGITUDINAL PROFILE 6
3.4 CROSS-SECTIONAL PROFILES 6
3.5 ROAD STRUCTURE 7
3.6 EMBANKMENT, ROADWAY VERGES AND WATER EVACUATION SYSTEMS 7
3.7 ART WORKS 7
3.8 ACCESSES, COURTYARDS' ENTRANCES, MEANS TO ENSURE ROAD SAFETY 7
3.9 ECOLOGICAL SITUATION 7
4. PROPOSALS FOR ROAD REHABILITATION 9
4.1 PLAN OF THE ROUTE 9
4.2 LONGITUDINAL PROFILE 9
4.3 CROSS-SECTIONAL PROFILES 9
4.4 ROAD STRUCTURE 9
4.5 EMBANKMENT, ROADWAY VERGES AND WATER EVACUATION SYSTEMS 10
4.6 ART WORKS 10
4.7 ACCESSES, COURTYARDS' ENTRANCES, MEANS TO ENSURE ROAD SAFETY 10
5. CONSIDERATIONS ON ENVIRONMENTAL PROTECTION AND SOCIAL ISSUES 11
5.1 ENVIRONMENTAL PROTECTION 11
5.2 IMPACT ON SOCIAL STATUS 12
5.3 ISSUES OF LAND EXPROPRIATION AND DEMOLITION OF BUILDINGS 13
5.4 GENDER ASPECTS 13
6. COSTS EVALUATION 14
7. FINAL STATEMENTS 15

1. INTRODUCTION

The purpose of this report is to assess the technical condition of the road **CORRIDOR V Vulcănești – Alexandru Ion Cuza – Etulia – Atulia Noua – Cișmichioi – M3** (and preliminary design works for its rehabilitation). The project was identified in accordance with the methodology established in the Sectoral Regional Program for the development of regional and local roads in ATU Gagauzia and approved by the Working Group at the second meeting that took place on 11.04.2018 in Comrat. This report is part of the modernization project for local services in the Republic of Moldova, implemented by GIZ. It presents the results of the technical inventory and road state assessment as well as preliminary project solutions for rehabilitation. An improved road condition will contribute to reduced transport costs, reduced traffic time for traffic participants, improving traffic safety and in-traffic convenience. In general, access to public and social centers will be facilitated, the social conditions of the inhabitants of Vulcănești town, Alexandru Ion Cuza, Etulia, Etulia Noua and Cișmichioi villages will be improved. The corridor also provides access to two border crossing points: Ukraine (Cişmichioi and Etulia) and Romania (Giurgiuleşti), Giurgiuleşti International Port and Vulcanesti Free Economic Zone. During 10.55 km (28%), the Corridor passes through Cahul district, and 25.275 km (72%) on the territory of ATU Gagauzia (Vulcanesti district).
The report contains the general description of the corridor, the technical solutions proposed for improving the road condition and considerations regarding environmental protection and social issues.

The technical condition of the road was visually determined. Particular attention has been paid to the condition of the road as a more important criterion, which influences the cost of transport, the safety and convenience of road traffic. Also, the elements of road arrangement (pavements, accesses and entrances to the yards), and rainwater capture and evacuation systems. For an objective approach, the traffic intensity, state and construction of the existing road system have been taken into account. At the selecting the road structure, has been considered the experience of implementing new technologies for the rehabilitation of local and regional roads.

Various rehabilitation technologies are provided for existing coverages from gravel and asphalt concrete. Within the limits of the localities are planned construction of pavements and the entrances to the courtyards, as well as the access to the main road. Recommendations are given for the repairs and maintenance of pluvial water capture and drainage constructions (cuvettes, bridges and culverts).

The ecological situation was assessed in the area of influence of the road before and after the rehabilitation of the corridor. Recommendations for environmental protection are made during the execution of the rehabilitation works.

Taking into account the necessary level of reliability depending on the intensity and structure of the traffic as well as the increase of the materials in relation to the higher transport distance in the southern regions of the Republic of Moldova and taking into consideration the specificity of Corridor V with five kilometers of new road with two new bridges the average cost of rehabilitation of one km of road was estimated at 260 000 Euro (excluding VAT).

The cost of rehabilitation works for the corridor is **6 119 881** Euro, the average cost per 1 km – **170,827** Euro.
At the current stage (preliminary project), the project is viable and can be implemented.

The cost assessment was calculate based on effective prices for materials, transport and works in the area of the corridor's location during the period of these studies.

2. DESCRIPTION OF THE PROJECT

Coridorr V Vulcănești – Alexandru Ion Cuza – Etulia – Etulia Noua – Cișmichioi – M3 includes the regional road G 142 M3 - Vulcanesti - Etulia – border of Ukraine and the local road L 638 M3 Cişmichioi - Etulia.

Corridor V is located in two districts: Vulcanesti (25.275 km) and Cahul (10.55 km) and connects some villages Alexandru Ion Cuza, Etulia, Etulia Noua and Cismichioi with Vulcanesti rayon center and expressway M3 Chisinau - Comrat - Giurgiulesti border of Romania. It provides the shortest link of the corridor localities with M3 expressway and exit to the industrial and commercial centers of the area: Vulcanesti, Cahul, Taraclia, Giurgiulesti International Free Port, etc. The beginning of Corridor V is at the intersection with M3 expressway Chisinau - Comrat - Giurgiulesti border of Romania.

The length of the Corridor is 35,825 km, the technical category of the road IV, the width of the carriageway 6,0 m outside the localities and 6,0 - 7,0 m through the localities. The road structure of 73% (26,195 km) is made of asphalt concrete and 27% (9,68 km) of gravel. During 14.05 km (39%) the road passes through the localities: Vulcăneşti, Alexandru Ion Cuza, Etulia, Etulia Nouă and Cişmichioşi and 21,825 km (61%) outside the localities. Six bridges and 24 culverts are located on the way.

Corridor V serves 25.9 thousand inhabitants, 46 social institutions, 470 economic agents, 20 industrial enterprises, 260 commercial enterprises and a free economic zone. The layout of Corridor V is shown in Figure 2.1.

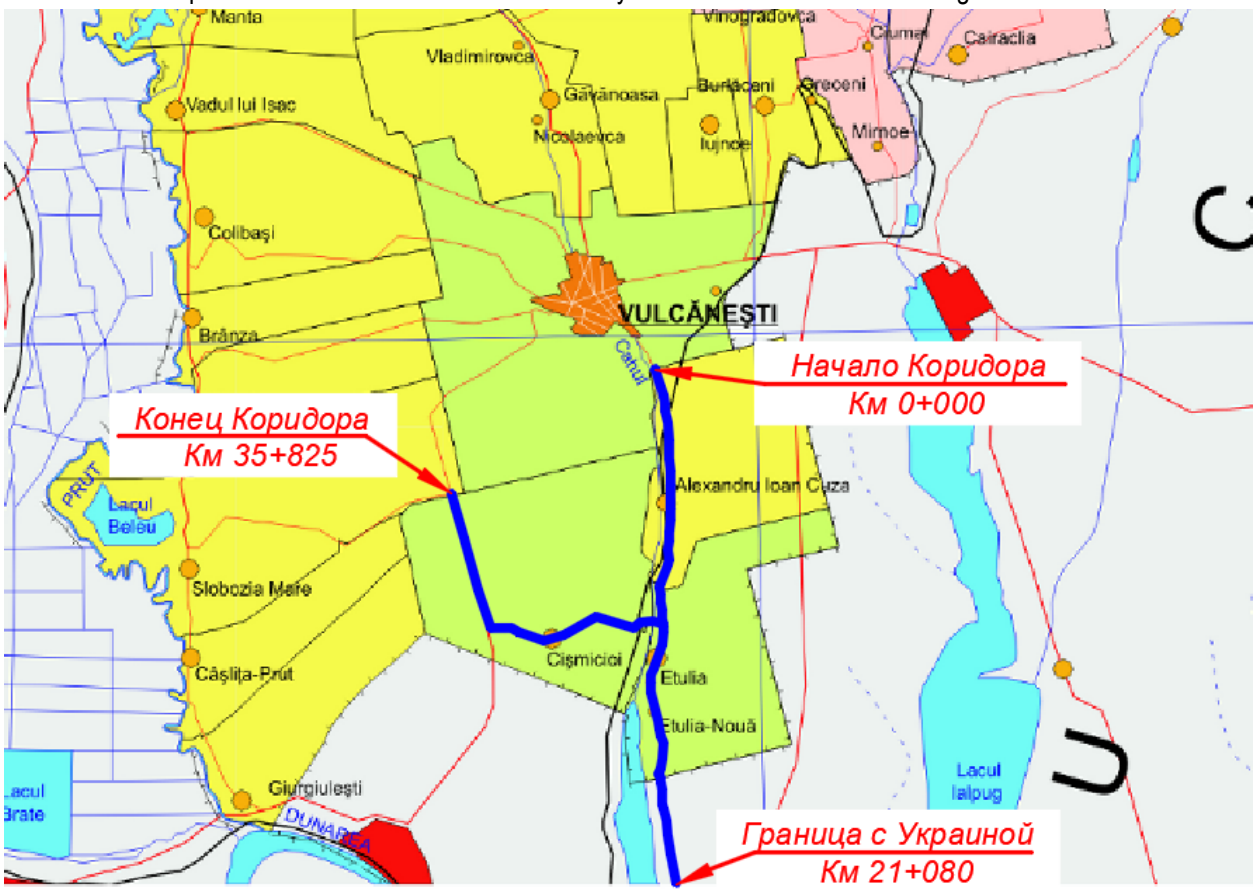

Figure 2.1 Scheme of Corridor V Vulcănești – Alexandru Ion Cuza – Etulia – Atulia Noua – Cișmichioi – M3.

3. THE EXISTING SITUATION

3.1 CLIMATE CONDITIONS.

The road is located in the climatic road zone - IV and has a seismicity of 8 degrees on the Richter scale.

The relief
The UTA Gagauzia territory is located in Stepa Bugeacului, which is a part of the Moldavian South Plain Plateau. Its surface is separated by wide valleys, and multiple ravines blunt the slopes. The relief of the region is steppe with insignificant heights. The maximum elevation is 84 m above sea level; the minimum height is 20 m.

Climate
The climate is warm, 10 degrees Celsius and more and it is kept for 179 - 187 days, which is much warmer than in other parts of Moldova. The maximum reached temperature was 42 ° C, the lowest temperatures between 27 - 29 ° C. The average annual temperature is 10 ° C, the maximum frost depth 60 - 65 cm, the average frost depth 30 - 35 cm.

Hydrology
The water resources of Gagauzia are generally presented by groundwater sources. Surface sources are limited. The main river of the location of the route is Cahul River. The Cahul River runs along Corridor V, takes its beginning near the village of Lebedenco and flows into Lake Cahul in front of Etulia Nouă. The Cahul River has a length of 30 km, the surface of the accumulation basin is 605 km2, the average flow rate is 0.3 m3 / sec. The small rivers Salcia, Albota and Alba also flows along the route. In the southern part of the corridor, near. Etulia Noua begins Lake Cahul. The lake is located mainly on the territory of Ukraine. The lake is fed from the river. Cahul. The area of the lake is 82 km2, the length is 18 km, the width is 7 km and the volume is 180 million m3.

Geology
On the territory of Gagauzia predominantly clayey sands and sandy clays are spread, as well as significant reserves of brown coal, which are in the form of thin and low-grade layers, the extraction of this ore is not profitable. The lands on the route generally consist of sandy clay and clayey sand.

3.2 PLAN OF THE ROUTE

Corridor V consists of two public roads: G 142 Vulcanesti - Etulia – border of Ukraine and L638 M3 - Cismichioi - Etulia. The length of the Corridor is 35,825 km, including the territory of UTA Gagauzia 25,275 km and the territory of the Cahul district 10,55 km. Beginning of the route, km 0,00 is located at the edge of the M3 expressway road Chişinău - Comrat – border of Ukraine, the route ends at km 35,825 at the connection of the L638 local road with the edge of the M3 roadway in the Cişmichioi village. The road passes through 5 localities (14,05 km), including Vulcăneşti (km 0,00 - 0,490), Alexandru Ion Cuza (km 5,24 - 11,41), Etulia village (km 12,90 - 16, 99), Etulia Noua (km 17.25 - 18.24) and Cişmichioi (km 21.08 - 26.638). In general, the route passes on a tranquil relief. The geometric elements in the plane correspond to NCM D. 02.01-2015 and SNIP 02.07.01 - 89.

3.3 LONGITUDINAL PROFILE

The route is located on a uniform relief. The elements of the longitudinal profile (longitudinal gradients, vertical curves) correspond to the requirements of NCM D. 02.01-2015 and SNIP 02.07.01 - 89 for the technical category IV of the road. Non-essential changes in the longitudinal profile are possible at the stage of the technical design.

3.4 CROSS-SECTIONAL PROFILES

The width of the embankment outside the settlements is 10 m, the width of the carriageway is 6-8 m (it is difficult to determine the width of the carriageway on the sectors with gravel coverage. In localities the width of the carriageway is 6 - 7 m, the total length of the sidewalks is only 6.283 km (60% out of necessary). Existing sidewalks are in bad condition and require repair works (tab.1 annex 1). In order to ensure the safety of pedestrians, in localities where they are missing, it is necessary to build new sidewalks. Existing cross-sections generally meet the requirements of NCM D. 02.01-2015 and SNIP 02.07.01 – 89.

3.5 ROAD STRUCTURE

The road structure of the corridor consists of two types: asphalt concrete (26,135 km (73%): km 0,00-1,670; km 5,140-9,340; km 13,600 – 19,110; km 21,08-35,825 and from gravel: 9.69 km (27%): km 1,670-5,140; km 9,340-13,600; km 19,110-21,08. The asphaltic concrete sector has the thickness of asphalt layer 7 -10 cm on a 15 to 25 cm crushed base layer. Sector with gravel cover has the thickness from 15 to 25cm.
The technical state of the road was determined by video footage. The result of the evaluation shows that 0.50 km (1%) is in very good condition (new layer of asphalt concrete), 2.80 km (8%) - in good condition, 15.00 km (42% average, 16.55 km (46%) - in bad condition and 1.00 km (3%) - in very bad condition. The road structure is generally in poor condition and very bad (60%), only 7% of the entire length of the road is in good and very good condition. Taking into account the ones exposed, the need to rehabilitate the road is argued. More detailed road state information is given in Table 2, Annex 1.

3.6 EMBANKMENT, ROADWAY VERGES AND WATER EVACUATION SYSTEMS

The width of the **embankment** is 10 m, which corresponds to the NCM requirements D.02.01-2015 for the technical category IV. In some places, deformations in the form of erosions and sediments are found near the culverts. The width of the **verges** is around 2.0 m, which also meets the normative requirements in force. There is an insufficient level of maintenance. In several sectors (km 2; km 3; km 4), the verges are agglomerated with shrubs; also, there are sectors with lower elevations (lower elevations as the edge of the road). The **water evacuation system** consists of 1,922 km of cuvettes that require cleaning and repair.

3.7 ART WORKS

There are 30 works of art on the way: 6 bridges, including 2 bridges with a stone vault and 24 culverts with an opening from 0.50 m to 2.0 m from one to three openings. Seven are silted from 20 to 100%. The bridge at km 7,400 and the culvert at km 16,400 are completely silted. Entrances and exits to some culverts are crowded with shrubs (km 8,600, 10,300, 10,800), which essentially reduces the capacity of the culverts by stationing waste at high intensity rains. Also, the erosion and degradation of the consolidations at the exit of the floors, which pose a threat to the integrity of the embankment, is also attested. More detailed information on the state of the culverts is given in Table 3, Annex 1 and Annex 2.

3.8 ACCESSES, COURTYARDS' ENTRANCES, MEANS TO ENSURE ROAD SAFETY

Over the route there are **184 accesses**, including: 27 with asphalt concrete, 44 with gravel, and 88 with land coverage. The state of access along the rest of the road is generally bad. Detailed access information is given in Table 4, Annex 1.
In the localities it is necessary to arrange **302 entrances in the courtyard**. At present, the built-in arranged entries are only on asphalted sectors and with curbs. It is evidenced the fitting of the entrances to the yards with different materials (pavements, cement concrete, etc.) by the inhabitants of the villages. Entrance to existing yards is mediocre and poor. This report provides for the arrangement of all entries into the courtyard. Detailed information about the entrances to the courtyard is given in Table 5, Annex 1.
Ensuring the corridor with means to ensure road traffic safety is insufficient, missing guide pillars in the area of the floors, missing warning signs on curves, gradients and intersections. Missing the horizontal mark

3.9 ECOLOGICAL SITUATION

The technical condition of the road essentially influences the environment. Road unevenness (pits, subsidence, etc.) stimulate noise and vibration increase as well as fuel consumption (up to 20%), which increases the amount of harmful emissions in the atmosphere. Roads with gravel coverage are sources of dust, which negatively affect the area around the road (50-100 m). In particular, this is evidenced during the summer, when the plantations are covered with dust, which essentially diminishes the photosynthesis process, thus reducing the harvest of the agricultural crops. It also negatively affects the localities, where dust clouds settle in the households of the inhabitants

Figure 3.9.1 Dust clouds formation on the gravel roads.

The unsatisfactory level of maintenance of art works has contributed to the erosion of downstream alluviums to some culverts, as well as the mudslide of an essential part of the culverts. This has contributed to the acceleration of the erosion process and the flooding of the neighboring territory.

Figure 3.9.2. Silting an essential part of the culvert on km 13,400.

4. PROPOSALS FOR ROAD REHABILITATION

4.1 PLAN OF THE ROUTE

As outlined in Chapter 3.1, the geometric elements of the route plan correspond to the requirements of NCM D.02.01-2015 and SNiP 2.07.01-89 for technical category IV and require changes. The scheme of the route plan is shown in figure 1, annex 3.

4.2 LONGITUDINAL PROFILE

Elements of the corridor longitudinal profile meet the requirements of NCM D.02.01-2015 and SNiP 2.07.01-89 for technical category IV roads and do not require special modifications. Changes are possible due to the equalization and increase of the road structure thickness

4.3 CROSS-SECTIONAL PROFILES

Outside the localities the cross-sections do not require any improvement, the width of the road section meets the normative requirements. Within the limits of localities, for the safety of pedestrians, it is proposed to build new sidewalks with a total length of 6,239 km. In some sectors, due to the unsatisfactory condition, 4,234 km of sidewalks are rearranged. In total, through the localities, 10,473 km of sidewalks are expected to install.Through the localities, the transverse profile with borders was established to ensure water evacuation. It is planned to demolish 3,25 km of existing borders and to install 10,733 km of new borders. Detailed information on the construction of new sidewalks, the demolition of existing borders and the installation of new ones is given in Tables 1, 2, 3, 4 of Annex 3.
The characteristic cross-sections profiles for each sector of road are shown in Figure 2, Annex 3.

4.4 ROAD STRUCTURE

Variants of rehabilitation have been selected as a result of the analysis (comparison) of traditional technologies and new technologies used in recent years for local and regional roads. Gravel roads are proposed to pass from temporary to light or capital coverage. Repairing gravel clothing by adding a broken stone layer is characterized by a lower service life (7-9 years depending on traffic and land-use), lower average speed, less comfort and safety. Gravel coverage has a negative impact on the environment due to dust, vibration and higher noise.

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The following project solutions are proposed for the rehabilitation of Corridor V:

For sectors with gravel cover km 1,670 – 5,140, km 9,340 – 13,590 and km 19,120 – 21,090 the next construction of the road structure was established:

Type 1

- Layer of crushed stone fr. 20 – 40 mm, 10 -20 mm and 5 -10 mm with an average thickness of 12.5 cm by the spin method;
- Vibro-cladded concrete layer with a thickness of 14 cm.

For sectors with asphalt concrete coverage in mediocre condition km 13,590 – 18,240, km 21,08 – 35,825 the next construction of the road structure was established:

Type 2

- Sealing the potholes;
- Equalization layer with average thickness of 2,5 cm;
- Asphalt concrete layer with a thickness of 4 cm.

For sectors with asphalt concrete coverage in bad and very bad condition km 18,240 – 19,120 the next construction of the road structure was established:

Type 3

- Milling of existing asphalt concrete coverage;
- Mixing of milling material with the bituminous emulsion with addition of crushed stone (if necessary) with a thickness of 12 cm;
- Asphalt concrete layer with a thickness of 4 cm

Detailed information on proposed road structures as well as work volumes is given in Table 5, Annex 3
The following sidewalk road structure has been established:

- Drainage layer made of sand – 5,0 cm;
- Base of broken stone - 10,0 cm;
- Asphalt concrete coverage – 3 cm.

4.5 EMBANKMENT, ROADWAY VERGES AND WATER EVACUATION SYSTEMS

In general, the parameters of the embankment correspond to the requirements of the technical regulations in force. When performing repair work in connection with the elevation of the edges of the carriageway, it is not necessary to fill and strengthen the axles. In some sectors, the geometric parameters of the cuvettes must be brought into line with the requirements of the normative and prolonged documents until the works of art. On some sectors it is necessary to repair the concrete cubes.

4.6 ART WORKS

There are 7 bridges on the route, which require mud and shrub cleaning, as well as local repair works and 22 culverts wich require reparation. Expenditures for the cleaning of works of art has been estimated and included in other expenses of the estimations. The proposed solution for art works is shown in Table 3 of Annex 1. The volumes of works for repairing the culvert are shown in Table 7, Annex 3 and forests in Table 8, Annex 3.

4.7 ACCESSES, COURTYARDS' ENTRANCES, MEANS TO ENSURE ROAD SAFETY.

It is planned **to arrange 184 accesses to the main road**. The access length is 15 m. The structure of the coverage accesses is analogical to the roadway of corridor. Structure of non-consolidated accesses (from the land) has additional sand drainage layer and crushed stone base layer. Detailed information on the road structure of accesses and work volumes are shown in Table 9, Annex 3.
In addition, it is foreseen improvement for 302 entrances to the courtyards. The road structure at the entrances to the yards is the following: sand drainage layer – 10 cm; base layer of broken stone – 15 cm; coverage of asphalt concrete – 5 cm. Detailed information on sidewalks is given in Table 8, Annex 3.
The installation of road signs and marking shall be carried out in accordance with the applicable regulatory requirements. For the rest of the sectors it is necessary to install the necessary means to guide the road traffic: signs, metallic parapets, the execution of the horizontal marking.
To ensure road traffic safety it is necessary to install road signs and carry out the marking in accordance with the normative requirements in force.

5. CONSIDERATIONS ON ENVIRONMENTAL PROTECTION AND SOCIAL ISSUES

5.1 ENVIRONMENTAL PROTECTION

In general, rehabilitation of the corridor will lead to a significant improvement in the roadside environment.

5.1.1 Dust reduction

Crossing the gravel road structure into a cement concrete road structure will significantly reduce the dust concentration in the 50 - 100 m area of the road. In particular, this will be accentuated in the localities, where the dust clouds were located in the households of the inhabitants.

Figure 5.1.1.1 Dust clouds formation on the gravel roads

5.1.2 Reduction of erosion and land flooding.

Due to defects in capture and evacuation systems of rainwater, there are cases of soil erosion with the tendency of forming the ravines, which in the future can lead to the destruction of the road embankment. In the place where are culverts with sludge, there is evidence of the flooding of the adjacent land with the subsequent formation of a sludge layer on the roadside and around it.

Figure 5.1.2.1. Silted culvert on km 6, 80

5.1.3 Reduction of vibration, noise and harmful emissions.

Improving the flatness of the tread surface will contribute to the reduction of vibration and noise in the area of influence of the road, especially when passing heavy trucks. Optimizing the operation of motor vehicles with improved traffic conditions will reduce fuel consumption and thus reduce harmful emissions to the atmosphere (in an average of 10 to 20%)

5.1.4 Environmental protection measures during the execution of the rehabilitation works.

The technological process of road rehabilitation is characterized by the use of large quantities of construction materials, special machines for loading, transporting, distributing and compacting the road structure materials. Lately, mechanisms and installations are used to move materials directly to the site.
During the execution of works, it is necessary to permanently monitoring the observance of the environmental protection requirements by limiting and excluding the negative effects on the environment until the admissible norms.
For the stationing of machines and mechanisms it is necessary to arrange special reinforced lands with waterproofing materials to exclude soil pollution. Carrying out the machines will be done in special places. During operation of the mechanisms, vibration and noise must not exceed the limits set by the rules in force.
When vibrating compacters work in localities, it must be borne in mind that the frequency of the oscillations of the foundations of the constructions is close to the frequency of vibration of the compactor. The distance to houses should not be less than 10m.
Storage of building materials need to be carried out on specially designed land. Keeping bituminous materials in open containers is forbidden.
Once the construction works have been completed, the land for storing materials and stationing the machinery must be re-cultivated.

5.2 IMPACT ON SOCIAL STATUS

Particular attention in the rehabilitation of the corridor are landscaping works of localities: construction of sidewalks, entrance to the courtyards, entrance design, organizing pluvial water evacuation by building of sinks and profile curbs.

Because of these measures, dust formation, noise and vibration in the road area will reduce substantially. All these complex measures will contribute to the improvement of the social conditions of the inhabitants of the Vulcănești town, Alexandru Ion Cuza, Etulia, Etulia Nouă and Cișmichioi villages. Landscaping will positively influence the attractiveness of investment in the region. Implementation of the project will have a positive impact on:

- The health of the inhabitants of the adjacent territory;
- Creating additional jobs;
- Improving the quality of transport services;
- Reduction of transportation costs.

In general, the project will contribute to improving the quality of life of the inhabitants of Vulcănești town, Alexandru Ion Cuza, Etulia, Etulia Nouă and Cișmichioi villages.

5.3 ISSUES OF LAND EXPROPRIATION AND DEMOLITION OF BUILDINGS

Throughout the corridor, the existing road area is sufficient to accommodate all road elements. There is no need for land expropriation and construction demolition.

5.4 GENDER ASPECTS

The corridor passes through three villages with a total population of 29.9 thousand inhabitants, including 49% men and 51% women, so women will have more opportunities. Road rehabilitation will help improve living conditions for residents and especially women. Pavement landscaping will allow children to ride in comfortable and safe conditions. Decreasing the concentration of dust will reduce the workload of women in sanitation and washing.

6. COSTS EVALUATION

In the report were determined the volumes of the basic works: the rehabilitation of the road structure, the landscaping of the sidewalks, the accesses and the entrances to the yards. The volume art repair works (culverts) was determined roughly, because a more detailed assessment, require additional studies. The costs were assessed based on the prices for works and materials in the road rehabilitation area at the time of this report. The volume of works and the indicative costs are shown in the table 6.1.

Table 6.1: The estimated cost of the rehabilitation of road corridor V: Vulcănești – Alexandru Ion Cuza, Etulia – Etulia Nouă – Cișmichioi – M3

№	Name of the works			Units cost			The volume		Sum, Euro	Sum, MDL
1.	Construction of the road structure:									
	- Type 1			396,73	MDL	/m²	67760,00	/m²	1355630,55	26882153,76
	- Type 2			290,73	MDL	/m²	156803,50	/m²	2298938,58	45587951,97
	- Type 3			471,08	MDL	/m²	17805,00	/m²	422974,25	8387579,40
	- Type 4			79,73	MDL	/m²	0,00	/m²	0,00	0,00
	TOTAL:						242368,50	m²	4077543,37	80857685,13
2.	Demolition of existing curbs БР100.30.15			20,00	MDL	/m	3250,00	m	3277,86	65000,00
3.	Installation of curbs БР100.30.15			245,00	MDL	/m	10733	m	103769,3	2629585
4.	Building access to the main road									
	- Type 1			396,73	MDL	/m²	177,00	/m²	4480,11	88840,50
	- Type 2			290,73	MDL	/m²	1728,00	/m²	26743,15	530316,62
	- Type 3			471,08	MDL	/m²	3963,00	/m²	103769,29	2057745,04
	- Type 4			79,73	MDL	/m²	288,00	/m²	1157,94	22961,95
	- Type 5			472,49	MDL	/m²	2832,00	/m²	69590,27	1379975,00
	- Type 6			437,83	MDL	/m²	7656,00	/m²	169038,34	3352030,37
	TOTAL:						16644,00	m²	510663,3	10126453,98
5.	Demolition of existing pavement			8,00	MDL	m²	4234,00	m²	1708,12	33872,00
6.	Building new sidewalk			250,00	MDL	m²	10473,00	m²	132034,80	2618250,00
7.	Arrangement of entries in the yards			300,00	MDL	m²	2172,50	m²	32866,87	651750,00
	Repair of artificial structures									
8.	Repair of culverts, m³ reinforced concrete	7	X Ø0,8m	4600,00	MDL	/m³	41,65	m³	9661,62	191590,00
		10	X Ø1,0m	4600,00	MDL	/m³	59,50	m³	13802,32	273700,00
		3	X Ø1,5m	4600,00	MDL	/m³	29,46	m³	6833,89	135516,00
		0	X Ø2,0m	4600,00	MDL	/m³	11,90	m³	2760,46	54740,00
		1	X 1x3,0 m	4600,00	MDL	/m³	11,90	m³	2760,46	54740,00
9.	Repairing of bridges			11898,00	MDL	/m²	MDL	m²	531000,00	10529730,00
TOTAL							35,780	km	5321635	105528027,1
Means of organization of road traffic, restoring the cuvettes, cleaning of man-made structures and filling up of roadside - 15%							35,825	Km	798245,3	15829204,07
GRAND TOTAL							35,825	km	6 119 881	121357231,2

Notes * The cost of the congresses, entrances to yards and sidewalks includes the cost of installing side stones and curbs.

* * The exchange rate in accordance with the data of the National Bank on 15.05.2018, 1 Euro=19.83 mdl

Table 6.2: Estimated cost excluding VAT

Details	Euro	MDL
Total costs	6 119 881	121 357 231.2
The cost of 1 km	170 827.1	3 387 501.22
Cost per 1 person	234	4 631

The calculation of the estimate cost did not include VAT, the expenses for the elaboration of the feasibility study, technical project, technical supervision and others.

7. FINAL STATEMENTS

The purpose of this report is to assess the technical condition of the road **CORRIDOR V Vulcănești – Alexandru Ion Cuza - Etulia – Etulia Nouă – Cișmichioi – M3** to determine the type of works required their volume, as well as evaluation of rehabilitation costs. These studies as well as the results of previous evaluations (in RSP) will facilitate decision-making process on the prioritization of the road corridor.

Field studies have highlighted the level of degradation of the road, works of art, collecting and drainage systems, as well as landscaping elements (entrances to courtyards, sidewalks, etc.).

The accumulated information has allowed the determination of the technical solutions for each type of existing road structure depending on its technical condition and traffic. It has also helped to determine the solutions for access, courtyard entry, sidewalks and repair of art works. As a result, the cost assessment was carried out on the basis of the technical solutions proposed by multiplying unit costs by their volume. As a result, the cost assessment was made based on the technical solutions proposed by multiplying unit costs to their volume.

Costs by types of works were determined according to the prices set at the time of the studies in the area of the road corridor. For cleaning and repairing drainage ditches, cleaning works, installing road signs, and so on. It was difficult to determine volumes at this stage. These expenses were included in the estimate with a weight of 15%.

It is necessary to mention that the cost estimates will be specified when the technical project will be elaborated.

The project's rehabilitation will allow: to reduce transport costs, to improve the social conditions for the inhabitants of Vulcănești town, Alexandru Ion Cuza, Etulia, Etulia Nouă and Cișmichioi villages, to improve the environmental status of the road, to increase traffic safety and in general to increase the living standards and the health of the inhabitants.

The cost of rehabilitation of the **35,825 km** long corridor constitutes **6 119 881 Euro, 170 827 Euro/km and 234 Euro/inhabitant.**