Republic of Macedonia
Municipality Krivogastani

PROJECT APPRAISAL DOCUMENT

"Construction of new streets and reconstruction of an existing street in Municipality Krivogastani"

World Bank
Municipal Services Improvement Project

Skopje, June 2015

The Project's Appraisal Document was prepared by the Center for Promotion of Sustainable Agricultural Practices and Rural Development – CeProSARD, with the exception of Environmental Impact section prepared by the MSIP consultant Slavjanka Pejcinovska-Andonova

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1.

INTRODUCTION

The project assumes construction of two streets and reconstruction of one street in different local communities in municipality Krivogastani. The total length of the streets, which are the subject of this evaluation, is 2,334.16m, or street "A" that connects local community Bela Crkva and local community Vogjani has a length of 764.48m, street in the local community Obrshani has length of 875.51m and street "Ilindenska" in municipality Krivogastani has a length of 694.17m. The project cost is lower than the credit capacity of the municipality, which provides the loan repayment. The relevance of the project comes from the fact that the biggest part of the municipal residents is directly influenced by negative implications of the inadequate surface of streets, in addition to storm water due to lack of storm water system. However, it should be also emphasized that the solution for construction of streets will be implemented in two phases. In the first phase only construction of streets will be made, by collecting the storm water in open channels on the both sides along the streets. The second phase of the construction of streets will include expansion of streets, construction of underground storm water system and construction of sidewalks. This phase will be implemented after the expropriation activities are finished in the future by the municipality own funds.

The importance of construction of the streets, as soon as possible, is due to the benefits that the municipality will have after the implementation of the project. Very important is to emphases that according to their functionality, the streets in the local communities subject to this appraisal represent an extension of the traffic connections of the municipality and connects with the regional roads P2335 (Vashareice-connection with P1101-Buchin-Obrshani-Krivogastani-Ropotovo-connection with P1303) and P2339 (Novo Lagovo-connection with P1101-Galichani-Obrsjani-Buchin-Graishte-connection with P1305).

At the same time, the streets lead to the agricultural plots and the livestock market, which is one of the most developed and visited markets in this region of the country. Considering that most of the municipality residents works in agriculture, the implementation of the project will ensure easier access to the agricultural fields and to the livestock market, easier transport of the agricultural products, easier crossing of the agricultural machinery and increased number of traders on the livestock market. All of this would additionally lead towards development of the economy in municipality Krivogastani.

The main purpose of the proposed technical solution is to provide a long range improvement of the streets by maximizing the technical life of the surface, thus meeting the needs of the community in municipality Krivogastani. At the same time, the purpose of the technical design is to provide convenience and safety for pedestrians and traffic by controlling storm water flows, within prescribed limits and to retain within each catchment as much storm water and run-off as possible given the planned use of the terrain and its civil engineering characteristics. Also, the technical design will satisfy the needs of the residents who live on the streets that are subject to this appraisal avoiding the mud and providing easier transport for all social groups especially for the school children, elderly people and people with special needs. The proposed technical solution is in-line with the existing standards and positive regulation for this kind of projects, which implies that the implementation of the project is technically feasible.

The project is in accordance with the strategic documentation of the municipality, i.e. Strategy for climate change of Municipality Krivogastani until 2020, prepared in May 2014 as an USAID project for municipal strategies on climate changes, and Plan of the Program for Development of Municipality Krivogastani 2015-2017, prepared in November 2014 by the sectors for Communal utilities and Local economic development.

The Mayor and the municipal administration strive to achieve full coverage of a transport, storm water, water supply and sewerage system and other communal (utility) infrastructure throughout the municipal territory. It can be inferred that the implementation of this project will undoubtedly contribute towards improvement of the quality of life and well-being of the residents of the municipality Krivogastani. Municipality has implemented various similar projects in the past, some of which in collaboration with international institutions, which implies that, is able to implement large construction projects such as this one.

The project is relevant to the development objective of the MSIP because it is considered both cost-efficient and cost-effective, over a long run and also useful for the health of the residents and the environmental protection. No adverse social or environmental impacts were identified.

The financial and cost-benefit analysis showed the project is acceptable and desirable for implementation according to the methods used. In addition, the project will cause significant unquantifiable benefits such as increasing the traffic safety and comfort, increasing the traffic capacity and communications, ensuring a feeling of security by pedestrians, enhancing the commercial activities, as well as extending the outdoor social and recreational activities for the residents living on the streets. The present condition of the streets causes frequent interruption of traffic and forces the residents and traders on the livestock markets to search for alternative routes, which ultimately results in fall of productivity. Additionally, the implementation of the project is expected to lead towards reduction of the municipal costs for constant repairs of the streets. Once the project is implemented, the municipality will spend less money for repairs and reallocate them to other municipal services. Flood control will not only reduce the municipal spending, but also private spending on repairs, thus enabling reallocation of the funds to other more beneficial, i.e. productive use. The implementation of the project is also expected to increase the property value for houses and other residential or commercial objects on the streets, thus increasing the growth of revenues.

Furthermore, it is very difficult to relate the benefits of projects of this kind with the economic development and poverty levels in a certain municipality in a short-term. However, taking into account that increasing the quality of the transport infrastructure and increasing the productivity are linked with decreasing poverty, the project will definitely have a wide positive impact on the economic growth and the poverty level, not only in a short term but also in the longer term perspective.

2.

PROJECT DESCRIPTION

2.1 General Information on municipality Krivogastani

Krivogastani is one of the smallest municipalities, located in the western part of the Republic of Macedonia, in the western part of Prilep's Field. On the west from Krivogastani is located Bushova Mountain, and on south, east and north is Pelagonia valley. According to its altitude, it is included in the group of municipalities with values insignificantly below the average. It extends from north to south with insignificant declination. It borders with municipality Dolneni on the north, municipality Prilep on the east, municipality Mogila on the south and municipality Krushevo on the west. The municipality lies on an absolute altitude of 615m above the sea level.

Considering the traffic connections and geographical location, the municipality and its biggest settlement Krivogastani represent a real intersection, due to the main roads that cross its territory and connect the municipality with the nearest cities. Namely, on the east from Krivogastani is the city of Prilep and on the west is the city of Krushevo. The central settlement of Krivogastani is 20km on a half way from Prilep and only 7km from Krushevo.

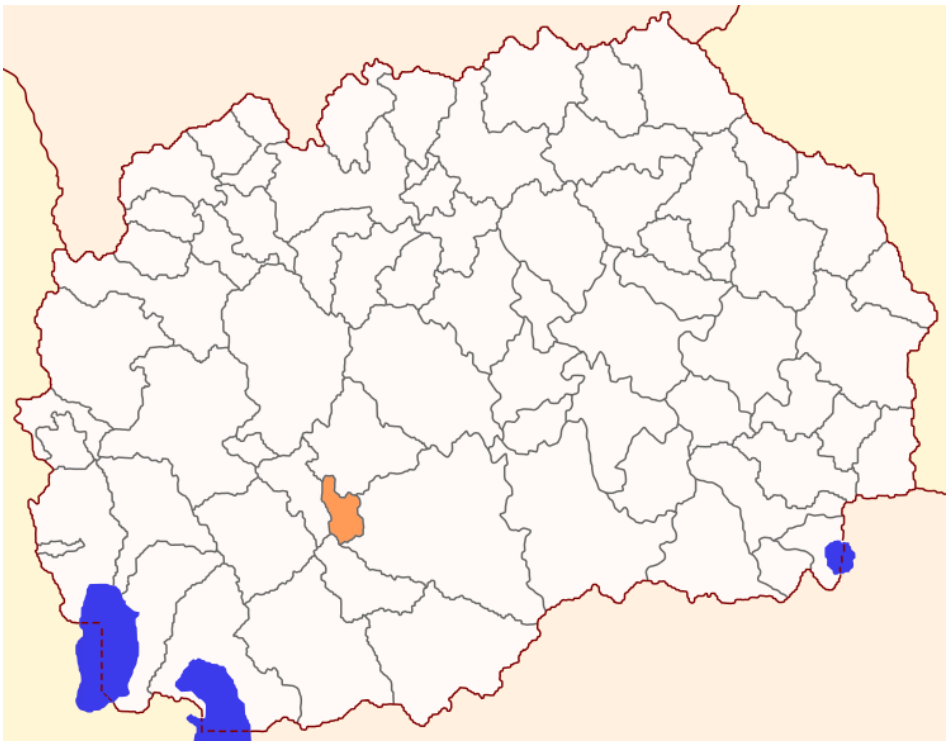


Figure 1 Location of Municipality Krivogastani
Source: State Statistical Office

On the south from the municipality, there is a paved street that crosses through its local communities and goes to the city of Bitola. On the north there is also a paved street that goes to the village Ropotovo, from where it goes to Makedonski Brod.

Climate in whole Pelagonia valley and in municipality Krivogastani is altered Mediterranean. The rainfalls have from 700 to 900mm water sludge during the year. They are the most intensive in spring and fall, while the first snow usually falls at the end of November or at the beginning of December. Winds blow through the whole year, but they are the most intensive during the spring and fall. Except a small part of the River Crna that crosses through the municipality, there are no other significant rivers, neither the lakes. Rivers that flow near Krivogastani are very small and mainly dry during the summer. The nearest river is the Krushevsko-Norovska River that has water from the Krushevsko Lake and is located on the west and southwest side from Krivogastani. This river flows into the River Blato, which is on the east of Krivogastani.

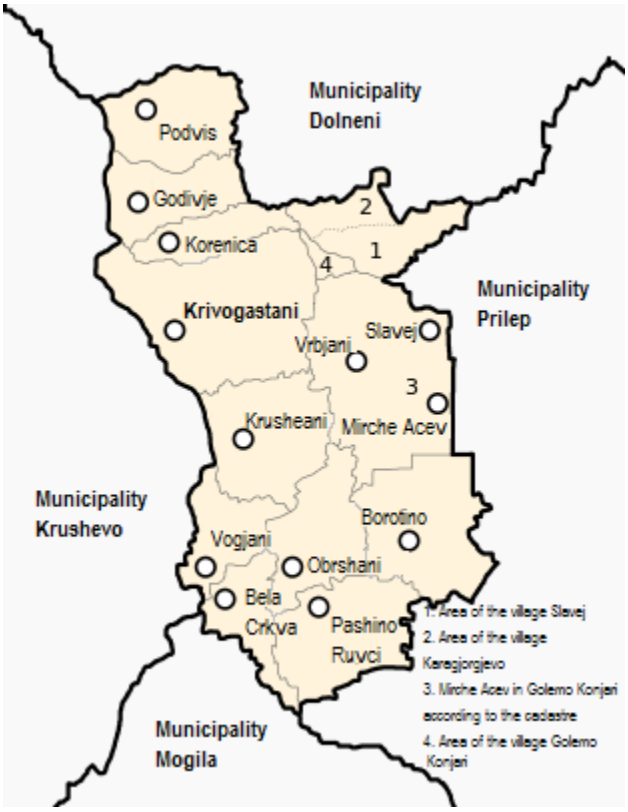


Figure 2 Local communities within municipality Krivogastani
Source: State Statistical Office

The municipality consists of 13 local communities, all of them are lowland.

Table 1 Local communities in municipality Krivogastani

#	Settlement	Absolute attitude	Area (km²)	Inhabitants (in 000)		Agrarian structure (ha)			
				1994	2002	Agrarian soil	Pastures	Forests	Total
Municipality Krivogastani		615	93.6	6,479	6,150	7,361	859	146	8,427
1	Bela Crkva	603	4.0	627	498	343	16	-	359
2	Borotino	590	9.2	262	277	807	35	3	845
3	Godivje	650	5.5	192	166	320	177	37	534
4	Korenica	623	3.4	86	62	254	61	9	324
5	Krivogastani	607	14.9	1,914	1,870	1,215	154	-	1,369
6	Krusheani	597	8.6	568	578	711	85		796
7	Mirche Acev	609	2.3	-	-	-	-	-	-
8	Obrshani	598	6.6	819	793	588	25	-	614
9	Pashino Ruvci	595	8.4	656	627	686	93	-	779
10	Podvis	607	7.9	152	143	466	90	74	630
11	Slavej	612	3.7	420	388	360	-	-	360
12	Vogjani	608	4.4	470	454	374	32	1	467
13	Vrbjani	690	14.7	313	294	1,237	91	22	1,350

Source: Popovski, V., Selmani, A. and Panov, N. (2006). Municipalities in the Republic of Macedonia, Local Government of the Republic of Macedonia and its Territory Division

The most prevalent in the agrarian structure is the cultivated agrarian soil (7,361ha), pastures (859ha) and forests (146ha). According to the surface of pastures and forests, Krivogastani is the third smallest municipality in the country. Wheat is the most common culture, while from the other farming cultures are grown: sugar beet, tobacco, gardening culture and others. The main economic branch in the municipality is agriculture, especially the production of peppers, tobacco and onion. Lately, trade has also developed.

2.2 Demographic and economic profile

2.2.1 Demographic profile

According to the last revised Census of population and households (2005) in 2002 the number of inhabitants in municipality Krivogastani was 6,150. The number of inhabitants has been decreased by 329 (5.1%) since 1994. The decreasing of population is due to the decreasing of live births and rate of natural increase per 1000 inhabitants. The total number of households was 1,943 (3.2 inhabitants per household), while the total number of dwellings was 2,191. In the central settlement of Krivogastani lived 1,870 inhabitants or 30.4% of the total population. A statistical data on the population and migration in municipality Krivogastani, Pelagonia Region and the Republic of Macedonia are shown in the table below.

Table 2 Main demographic indicators

Demography indicators	Municipality Krivogastani	Pelagonia Region	Republic of Macedonia
Demography - according to the last revised census data for 2002			
Total population	6,150	238,136	2,022,547
Natural increase per 1000 inhabitants	-1.2	-2.3	3.1
Live births per 1000 inhabitants	11.0	10.1	11.9
Total households	1,943	72,546	564,296
Average households members	3.2	3.3	3.6
Total dwellings	2,191	93,976	698,143
Total immigrated residents	30	1,022	11,861
Total emigrated residents	45	749	11,219
Demography - State Statistical Office estimates for 2013			
Total population	5,701	232,113	2,065,769
Natural increase per 1000 inhabitants	-6.1	-2.5	1.9
Live births per 1000 inhabitants	9.1	9.7	11.2
Total immigrated residents	16	922	8,405
Total emigrated residents	26	837	8,860

Source: State Statistical Office, MAKStat database, 2013; revised Census of population and households, 2005

The rates of population movement considering natural growth, births and migrations per year (from 2001 to 2013) of municipality Krivogastani are shown in the table below. Hence, the analysis shows negative average rates for all three indicators of population growth and movement through the years. In addition, an average natural growth rate is -0.3, average birth rate is -0.2 and average migration rate is -0.2. The average values of population movement in the municipality are quite similar with the overall trend of natural movement of population in the rural areas in the country.

Table 3 Decreasing of population in municipality Krivogastani

Year	Natural growth rate	Birth rate	Migration rate
2001	3.7	-0.1	-1.0
2002	-2.3	-0.1	-2.5
2003	-4.4	-2.0	-0.2
2004	2.9	2.1	4.8
2005	-0.3	-0.4	-3.9
2006	1.0	-0.5	2.8
2007	0.0	1.4	-1.8
2008	-0.5	-1.1	-0.7
2009	-0.9	-0.3	3.7
2010	-5.7	-0.4	-3.7
2011	-0.8	-4.0	1.9
2012	1.6	3.4	-1.6
2013	2.0	0.1	-0.5
Average	-0.3	-0.2	-0.2

Source: State Statistical Office, MAKStat database

Live births data for municipality Krivogastani, Pelagonia region and the Republic of Macedonia are shown in the table below.

Table 4 Live births according to gender

Year	Municipality Krivogastani			Pelagonia Region			Republic of Macedonia		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2009	32	28	60	1,352	1,275	2,627	12,340	11,344	23,684
2010	30	27	57	1,314	1,217	2,531	12,631	11,665	24,296
2011	17	16	33	1,181	1,128	2,309	11,752	11,018	22,770
2012	25	27	52	1,237	1,125	2,362	12,243	11,325	23,568
2013	27	25	52	1,174	1,072	2,246	12,093	11,045	23,138
Average	26	25	51	1,252	1,163	2,415	12,212	11,279	23,491

Source: State Statistical Office, MAKStat database

The analysis of live births through years in municipality Krivogastani shows bigger number of male babies than females, which is similar to the live births in the Pelagonia region and the overall country. In addition, according to the State Statistical data, there is fall of live births through years, which is also the same as in Pelagonia region and the Republic of Macedonia. This indicates aging of the population in the country, especially in the smaller local communities.

The next table gives an overview of a gender structure in municipality Krivogastani compared to the Pelagonia Region and the Republic of Macedonia. The data shows bigger number of male population in municipality Krivogastani, while Pelagonia region and the country have the same share of gender, representing an increased share of male population over the female population.

Table 5 Population according to the gender in 2013

Gender	Municipality Krivogastani		Pelagonia Region		Republic of Macedonia	
	Number	Share	Number	Share	Number	Share
Male	3,005	52.7	116,289	50.1	1,034,841	50.1
Female	2,696	47.3	115,824	49.9	1,030,928	49.9
Total	5,701	100	232,113	100	2,065,769	100

Source: State Statistical Office, MAKStat database 2013

The age distribution and its share in the total population in municipality Krivogastani, Pelagonia Region and the Republic of Macedonian in 2013 are shown in the following table.

Table 6 Population according to the age structure in 2013

Repartition	Municipality Krivogastani		Pelagonia Region		Republic of Macedonia	
	Number	Share	Number	Share	Number	Share
0	53	0.9	2,221	1.0	22,913	1.1
1-4	205	3.6	9,713	4.2	93,301	4.5
5-9	317	5.6	11,877	5.1	112,351	5.4
10-14	313	5.5	11,914	5.1	119,851	5.8
15-19	383	6.7	13,493	5.8	137,385	6.7
20-24	356	6.2	15,660	6.7	155,698	7.5
25-29	370	6.5	17,659	7.6	164,394	8.0
30-34	361	6.3	17,353	7.5	162,384	7.9
35-39	411	7.2	16,030	6.9	153,564	7.4
40-44	394	6.9	14,917	6.4	146,353	7.1
45-49	405	7.1	16,416	7.1	147,433	7.1
50-54	356	6.2	16,775	7.2	141,756	6.9
55-59	385	6.8	17,535	7.6	134,995	6.5
60-64	333	5.8	14,960	6.4	117,663	5.7
65-69	252	4.4	10,909	4.7	87,896	4.3

70-74	305	5.3	9,390	4.0	70,067	3.4
75-79	265	4.6	8,116	3.5	53,549	2.6
80 and more	235	4.1	7,151	3.1	43,857	2.1
unknown	2	-	24	-	359	-
Total	5,701	100	232,113	100	2,065,769	100

Source: State Statistical Office, MAKStat database 2013

Majority of population in the municipality are Macedonians (99.6%). From the other minorities there are: 0.1% Roma, 0.1% Serbs and 0.2% other. The minority repartition is shown in the table below. Macedonian population prevails in the Pelagonia region as well, while the Albanian population takes the second place.

Table 7 Population according to ethnic affiliation in 2002

Repartition	Municipality Krivogastani		Pelagonia Region		Republic of Macedonia	
	Number	Share	Number	Share	Number	Share
Macedonians	6,126	99.6	204,471	85.9	1,297,981	64.2
Albanians	-	-	11,689	4.9	509,083	25.2
Turks	-	-	7,527	3.2	77,959	3.9
Roma	8	0.1	7,268	3.1	53,879	2.7
Vlachos	-	-	2,341	1.0	9,695	0.5
Serb	6	0.1	869	0.4	35,939	1.8
Bosnians	-	-	2,627	1.1	17,018	0.8
Others	10	0.2	1,344	0.6	20,993	1.0
Total	6,150	100	238,136	100	2,022,547	100

Source: State Statistical Office, revised Census of population and households, 2005

2.2.2 Economic profile

Considering the State Statistical Office data for 2013, the following table presents infrastructure, education and economic data for municipality Krivogastani, Pelagonia Region and the Republic of Macedonia. In municipality Krivogastani there are 7 health and social institutions, 13 transport and storage institutions and only one water supply and sewage management institution. The transport in the municipality is organized through 20km local roads. There are 2 schools for elementary education. In 2013/2014 study year there were 574 children attending the elementary schools. From the total population of 6,150 inhabitants, 5,172 are literate. In the municipality operate 110 business subjects, while the GDP per capita is calculated on a regional level, since there are no available data on the municipality contribution.

Table 8 Main macroeconomic indicators

Macroeconomic indicators	Unit	Year	Municipality Krivogastani	Pelagonia Region	Republic of Macedonia
Infrastructure					
Local roads	km	2014	20	1,214	9,513
Health and social institutions	Number	2013	7	428	3,315
Transport and storage institutions	Number	2013	13	809	6,095
Water supply, sewage disposal and waste management institutions	Number	2013	1	29	306
Education					
Educational institutions	Number	2013	2	118	1,025
Children that attend primary school	Number	2013/2014	574	19,655	191,051
Children that attend secondary school	Number	2013/2014	-	9,379	86,418
Population literacy at age 10 and more	Number	2002	5,172	204,031	1,693,044
Women literacy at age 10 and more	Number	2002	2,356	100,081	829,755
Economy					
Active business subjects	Number	2013	110	8,268	71,290
GDP per capita	MKD	2012	-	218,463	226,440

Source: State Statistical Office, MAKStat database, 2013; revised Census of population and households, 2005

According to the last revised Census data for 2002 the total number of population in age of 15 and over is working age population. In municipality Krivogastani their number is 5,024; economically active people are 2,759, of whom 47.8% are employed, while 52.2% are still looking for a job. The municipality has 2,265 economically inactive persons. Considering gender, there are 61% women less employed than men.

Table 9 Activity of the population between 15 years and more in 2002

Population activity		Municipality Krivogastani		Pelagonia Region		Republic of Macedonia	
		Number	Share	Number	Share	Number	Share
Economically active	All	2,759	54.9	104,016	53.3	743,676	47.2
	Employed	1,320	47.8	62,551	60.1	460,544	61.9
	Employed women	251	19.0	23,803	38.1	174,974	38.0
	Unemployed	1,439	52.2	41,465	39.9	283,132	38.1
Economically inactive		2,265	45.1	91,078	46.7	833,325	52.8
Activity rate		54.9		53.3		47.2	
Employment rate		26.3		32.1		29.2	
Unemployment rate		52.2		39.9		38.1	

Source: State Statistical Office, revised Census of population and households, 2005

According to the last revised data from the Census of population and households in 2002, the activity rate in municipality Krivogastani is above than in Pelagonia Region and in the country. The employment rate is lower, while the unemployment is far above these rates compared to Pelagonia region and the Republic of Macedonia.

In the following table is given a distribution of the economic activities in the municipality considering the number of active business subjects by sectors in 2013.

Table 10 Active business subjects by sectors in 2013

Sector	Municipality Krivogastani		Pelagonia Region		Republic of Macedonia	
	Number	Share	Number	Share	Number	Share
Agriculture, forestry and fishing	20	18.2	628	7.6	2,866	4.0
Mining and quarrying	-	-	22	0.3	164	0.2
Manufacturing	14	12.7	848	10.3	7,918	11.1
Electricity, gas, steam and air conditioning supply	-	-	7	0.1	132	0.2
Water supply, sewerage, waste management and remediation activities	1	0.9	29	0.4	306	0.4
Construction	-	-	328	4.0	4,322	6.1
Wholesale and retail trade; repair of motor vehicles and motorcycles	46	41.8	3,153	38.1	25,429	35.7
Transportation and storage	13	11.8	809	9.8	6,095	8.5
Accommodation and food service activities	3	2.7	498	6.0	4,482	6.3
Information and communication	-	-	107	1.3	1,446	2.0
Financial and insurance activities	-	-	24	0.3	390	0.5
Real estate activities	-	-	42	0.5	485	0.7
Professional, scientific and technical activities	1	0.9	546	6.6	5,817	8.2
Administrative and support service activities	-	-	147	1.8	1,514	2.1
Public administration and defense; compulsory social security	1	0.9	23	0.3	258	0.4
Education	2	1.8	118	1.4	1,025	1.4
Human health and social work activities	7	6.4	428	5.2	3,315	4.7
Arts, entertainment and recreation	-	-	133	1.6	1,179	1.7
Other service activities	2	1.8	378	4.6	4,147	5.8
Total	110	100	8,268	100	71,290	100

Source: State Statistical Office, MAKStat database 2013

According to State Statistical Office there were 110 active business subjects in municipality Krivogastani in 2013. The most important and dominant sectors were the wholesale and retail trade; repair of motor vehicles and motorcycles with 41.8%. From the other sectors the most dominant are agriculture, forestry and fishing (18.2%), manufacturing (12.7%) and transportation and storage (11.8%).

2.3 General description of the Project

2.3.1. Current situation

The project assumes construction of two new streets and reconstruction of one existing street in the municipality Krivogastani:

- Construction of residential street "A" that connects settlement Bela Crkva and settlement Vogjani;
- Construction of street in the settlement Obrshani and;
- Reconstruction of an existing street Ilindenska in the settlement Krivogastani.

The existing streets do not meet the legal requirements as basis for smooth and quality performing of their function. Presently, the existing infrastructure is ruined or just adjusted unpaved streets are used.

Figure 3 Unpaved street from Bela Crkva to Vogjani

Figure 4 Unpaved street in Obrshani

Figure 5 Existing street "Ilindenska"

Source: CeProSARD archive[1]

By municipal data, approximately 50% of the total population in the municipality live and use the streets subject to this appraisal.

All three streets, in accordance with the country regulations, are classified as local residential streets. These are municipal streets that connect locations of an existing facilities with locations predicted for construction of residential, commercial and public sector facilities. The streets are part of the secondary road network and serve to connect local population with the municipal center. At the same time, they connect the municipality center with other local communities in the municipality and other regions and cities, such as the cities of Prilep and Krushevo through the regional roads (street in the settlement Obrshani crosses a regional road). This is of great importance for economic development of the municipality due to the existence of modern livestock market where purchase and sale of livestock from the whole region is performed.

[1] CeProSARD team made an insight of the existing situation on the location subject to planned activities on April 08, 2015.

Present condition of the proposed streets is very bad, so the unpaved streets need a whole new construction and the existing paved street need thorough reconstruction, in order to allow their use in the future. The bad condition of the streets causes many environmentally harmful impacts on human health and traffic problems for the residents who live on these streets. As a result, the residents constantly complain on the existing situation to the mayor and municipal administration. Therefore, the main objective of the proposed technical solution is to ensure long-term improvement for smooth use of the streets, which will meet the needs of residents in Krivogastani.

2.3.2. Future situation

The implementation of the proposed project will enable undisrupted use of 2,334.16m streets, so the residential street "A" that connects the settlement Bela Crkva with the settlement Vogjani will be constructed with total length of 764.48m, the street in the settlement Obrshani will be constructed with total length of 875.51m and the street "Ilindenska" will be completely reconstructed with total length of 694.17m.

The design solution envisages construction of the streets in two phases due to unsolved property issues, i.e. passage of the streets in private plots including construction of streets in the first phase with width 3.5m on all three streets and extension of streets and construction of sidewalks in accordance with the terrain conditions in the second phase of construction[2]. This project refers to phase 1 only. The selected approach is necessary to ensure minimal conditions needed for use of secondary traffic network in the municipality and normal communication of the residents in all weather conditions.

The realization of the 2nd phase will start after completion of the expropriation procedure of private land, because according to the detailed design, the sidewalks are to be partially constructed on private property. The expropriation of private property is foreseen in the municipal budget for 2016. For the implementation of the 2nd phase, small sectional parts of the private property have to be expropriated, located on streets: Ilindenska Street (49 plots), Street in Orshani (42 plots) and Street Bela Crkva – Vogjani (41 plots).

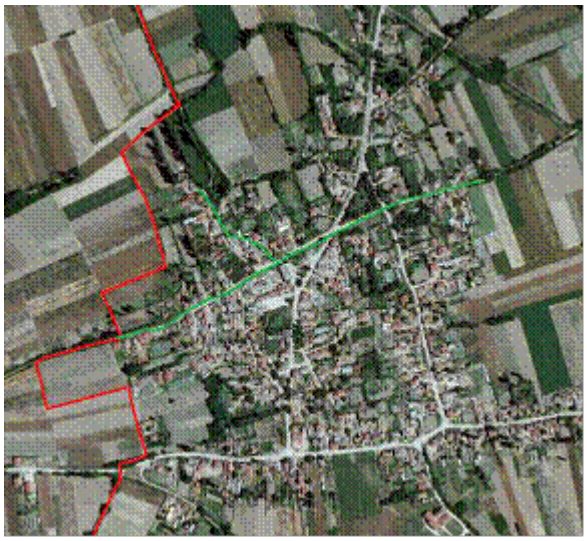


Figure 6 Alignment of the street between local communities Bela Crkva and Vogjani*
Source: Municipality Krivogastani

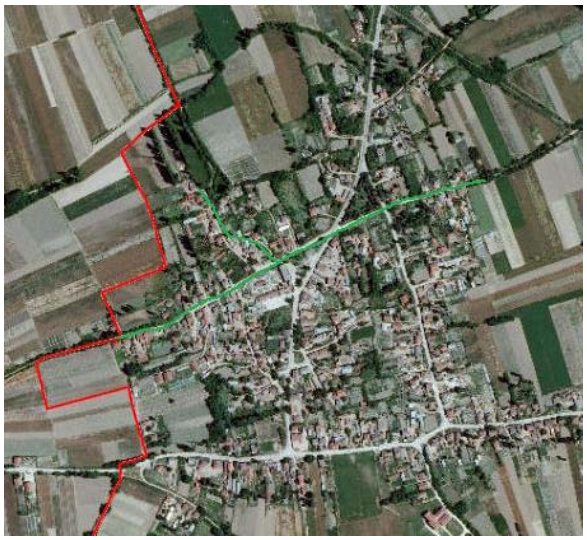


Figure 7 Alignment of the street in local community Obrshani*
Source: Municipality Krivogastani

[2] Main project for line infrastructure for street Ilindenska technical number 13/2014, pg.12

Figure 8 Alignment of the street "Ilindenska" in local community Krivogastani*

* Streets that are subject of construction are marked with green color.

Source: Municipality Krivogastani

One of the most significant benefits from the project is the opportunity of setting new traffic connections not only in the local communities within the municipality, but the construction of residential streets means that the traffic network in the municipality and the region will be significantly improved. The alignment of streets is made in accordance with Detail Urban Plans in respect to the Law on Physical and Urban Planning and follows the configuration of the terrain and spatial narrowness of the field, as well as the available data for the existing and planned infrastructural facilities. Figures number 6, 7 and 8 present the alignment of streets planned for construction in municipality Krivogastani.

Traffic-transportation system in municipality Krivogastani, with the realization of the proposed project activities for construction and reconstruction of three streets in different local communities in the municipality, will connect and allow communication of the residents of the existing facilities and newly constructed facilities, meeting the requirements for achieving functionality.

Entirely, regulation of traffic will contribute to increasing traffic safety and comfort, increasing the capacity of transport and communications, providing a sense of security by pedestrians, improving the commercial activities and the continuation of open social and recreational activities for residents of Krivogastani.

The implementation of Phase 1 envisages the construction of shoulders which will be for pedestrian use. In any case, the municipality will regulate traffic on the streets by limiting the speed. Also, if required, further measures and restrictions will be applied in accordance with the law on the overall safety of traffic.

Technical documentation is in accordance with the laws and regulations in the field of design and urban planning and the applicable standards for construction of streets. On the streets exist street lightening, which contributes to increased safety of the residents and visitors. Planned construction and reconstruction of the streets in the municipality should provide positive impulses and effects on the whole immediate environment from aspect of higher organization, infrastructure equipment and managing of the space, if based on the principles of sustainable development. At the same time, the property value of houses and other residential buildings on the streets is expected to increase by implementation of the project that will additionally influence revenues from property tax in the municipality. From here, extremely important is thorough and rapid implementation of infrastructure projects in every part of the municipality.

2.3.3. Strategic goals

In order to enable access to the local communities in the municipality, road infrastructure should be provided. This project assumes construction and reconstruction of the residential and service streets in the secondary road infrastructural network in the municipality Krivogastani. The project is in accordance with the strategic documentation of the municipality, i.e. Strategy for climate change of municipality Krivogastani until 2020, prepared in May 2014 as an USAID project for municipal strategies on climate changes, and Plan of the Program for Development of municipality Krivogastani 2015-2017, prepared in November 2014 by the sectors for Communal utilities and Local economic development.

According to the Strategy on climate changes of Municipality Krivogastani until 2020, in part 8 – Action plan for climate changes on adaptation measures that will influence mitigating climate changes under number 8.3 is stated "Adaptation on climate changes of local infrastructure" in part – transport is stated a measure of planned financial investments for construction and reconstruction of local streets (pg.50).

In the Report for Strategic Environmental Assessment for the planned document Strategy for climate changes of Municipality Krivogastani until 2020, a positive influence of construction and reconstruction of local streets is emphasized from social-economic aspect (better quality of life, improvement of traffic safety, decreasing migration, etc.) as well as from environmental quality aspect (better quality of water resources and soil, quality of ambient air, etc.), pg.99[3].

In Plan for the Development program of Municipality Krivogastani for the period 2015-2017, in par. III Development program for construction of local roads and streets in the local communities in Municipality Krivogastani, planned activities for 2015, as a priority project 3 (pg.10) is predicted construction of streets in Krivogastani, Pashino Ruvci, Vrbjani, Borotino, Vogjani, Bela Crkva, Obrshani and Korenica.

It should be stressed that according to their functionality the streets in the local communities subject to this appraisal represent an extension of the traffic connections of the municipality with the regional roads P2335 (Vashareice-connection with P1101-Buchin-Obrshani-Krivogastani-Ropotovo-connection with P1303) and P2339 (Novo Lagovo-connection with P1101-Galichani-Obrsjani-Buchin-Graishte-conection with P1305)[4].

Implementation of the project on construction and reconstruction of the streets in a few local communities in the municipality will ensure development of the location and local economy. The activities provided in the local communities will ensure activation and development of new small businesses and access to local markets, school, local church, regional road, livestock market, center of the municipality, join connection of the local communities, etc. Construction and functionality of the planned streets will allow for providing of economic, cultural, educational, health and other types of social functions with direct and indirect economic effects.

All of this will ensure improvement of the quality of life and welfare to all residents in municipality Krivogastani. Project implementation will influence traffic safety and comfort, increase capacity of the traffic and communication, safety of the pedestrians, better commercial activities, as well as open social and recreational activities of the residents that live on the streets subject to this appraisal.

2.3.4. Knowledge and experience of municipality Krivogastani

The following table illustrates the municipal experience in implementation of different types of projects mostly related to the municipal development including infrastructural activities, creation and implementation of programs for local development and purchase of equipment.

Table 11 Implemented infrastructure projects in the period of 2000-2014

#	Project name	Financing source	Year	Budget (Denar)
1	Construction of elevator for disabled people in the elementary school Jonce Smugreski v. Obrshani	USAID	2014	1,230,000
2	Construction of energy efficient phased and installation of central heating system in the elementary school Manchu Matak in Krivogastani	USAID	2014	5,500,000
3	Reconstruction of municipality school in v. Slavej	Philip Morris and Sokotab	2014	876,601
4	Construction of library in the elementary school Manchu Matak in Krivogastani	Alliance UAN	2014	250,000
5	Purchase of equipment for garden in the kindergarten	NGO - USA	2014	300,000
6	Construction of local road P. Ruvci - Monastery St. Georgy	World Bank	2013	6,150,000
7	Extension of the sewerage system Krivogastani	EIB	2013	4,571,700
8	Reconstruction of roof and windows of the municipality building Krivogastani	USAID	2013	1,200,000
9	Construction of local road Korenica - Godivje and Obrshani - P. Ruvci	EBOR	2012	6,600,000

[3] This document is available on http://www.krivogastani.gov.mk/attachments/article/299/2014.pdf
[4] Conditions for physical planning of Municipality Krivogastani technical number 10014 by the Agency for physical planning, May 2014.

10	Construction of street around the livestock market and stadium	USAID	2009	2,750,000
11	Construction of waste water treatment plant	Republic of Austria	2006	79,950,000
12	Program for support small enterprises	UNDP	2005	308,000
13	Reconstruction of municipality hall	PRO - World Bank	2005	1,250,000
14	Purchase of equipment for PE Pelagonia (tractor with trailer)	USAID - CSHI	2005	495,000
15	Program for support small enterprises MSP1	UNDP	2004	275,000
16	Program for support small enterprises MSP2	UNDP	2004	594,000
17	Construction of local road P. Ruvci - Cepigovo	CARDS	2004	12,300,000
18	Program for employment PEG	UNDP	2002	110,000
19	Program for environment	UNDP	2002	302,500
20	Construction of water supply system Krivogastani	Republic of Austria	2002	40,897,500
21	Construction of water supply system Krivogastani	Republic of Austria	2000	49,200,000
			Total	215,110,301

Source: Municipality Krivogastani

The knowledge and experience needed for successful implementation of the project are related to project management, technical knowledge and execution of procurement practices. Municipality Krivogastani has participated in a wide variety of large constructions or other type of projects with different investors, where the municipality allocated the land and provided the investors with technical services, and gained in return new businesses on its territory or improved municipal facilities, schooling facilities, water supply system, etc. The municipality has implemented several projects on improving municipal services supported by international donors, such as: USAID, World Bank, EBOR, etc. It can be inferred that the municipality is able to contribute with the necessary experience to large construction projects such as construction of new and reconstruction of the existing streets.

2.4 Conclusions

The project is in line with the strategic priorities of municipality Krivogastani and will contribute to achieving the vision of the municipal administration to ensure full coverage of transportation network in the municipality.

The relevance of the project results from the fact that most of the population is affected by the negative implications of inadequate local surface roads. The proposed technical solution is in accordance with existing standards and regulations for this kind of projects. For successful implementation of projects, knowledge and experience is required, especially on project management and technical knowledge. Municipality Krivogastani has implemented a variety of similar projects in the past, some in cooperation with international institutions, which means that the municipality is able to carry out large construction projects such as construction and reconstruction of local roads.

3.

SOCIAL IMPACT

3.1 Sociological study

3.1.1 Social analysis

This study is based upon the methodological concept of World Bank summarized as Five Entry Points, One Result. This concept requires exploration of five components: social diversity and gender, institutions, rules and behavior, stakeholders, participation and social risk. The assessment anticipated field research to get available information on interest and attitudes of stakeholders.

The research was based on meeting with a focus group and face to face interviews with the municipality representatives including the mayor, municipal advisors and representatives from the financial and communal utilities sectors. Meetings were performed in order to give a social assessment of the project on reconstruction/ construction of municipal streets.

The interviews were organized with 10 municipal officials: mayor, head of sector on communal utilities, 8 advisors from different political sides (3 from the political party in position and 5 from the political parties in opposition). All advisors were from different local communities in the municipality including settlement Obrshani and Krivogastani where the streets subject to this appraisal are located. Between the interviewers there were 3 women. They all presented their opinions about the role and influence of various stakeholders in the process of decision making relevant to the project, as well as the level of information, capacities and readiness of the residents to support the project.

Taking their delegation and duties into account, the above mentioned officials proved to be useful interpreters of the opinions of the residents since being their representatives and having frequent meetings with them, they are very familiar with the needs, attitudes and opinions of the local population and the project. The answers from the interviews are very indicative a very good insight in the local processes to the project.

The focus group consisted of municipal residents both direct and indirect users of the project. All participants were from different local communities within municipality Krivogastani. There were 6 participants in the focus group from whom one agricultural producer, one retired and only one women.

3.1.2 Social diversity and gender

In municipality Krivogastani, in the streets subject to this appraisal, there are residents from different social groups (minorities, gender, language, young couples, etc.) By age there are different groups both including children, youths and elderly people, some of them are people with special needs.

The prevailing nationality in municipality Krivogastani is Macedonians (99.6%). From the other nationalities that live on the streets there are Roma population and Serbs with approximately 14 people. Some of the young people are leaving the municipality, moving into the bigger cities or other countries, but most of them stay in the municipality creating their own families. Especially in the last year and the beginning of this year there is significant increase in the number of marriages and births. According to the mayor, at the beginning of this year there are born 15 new babies, which is the biggest number in last 10 years. There are a lot of young people who settle in the area at the streets which are subject to this appraisal. Approximately, 15% of the municipality population lives on the streets and makes them direct users of the project. On the other side, almost all population uses these streets due to their importance and connections with the regional roads. More than 50% of the municipality population is indirect users of the project. If we consider the population that comes from the other municipalities to the livestock market every Wednesday then the number of indirect users of the streets subject to this appraisal is much bigger. Residents who live at the streets are nearly equal considering male and female population. There is also young population that lives on the streets, especially school children and elderly people.

The main municipal priority is to improve the quality of life through economic development and employment of the local population, but also to improve the infrastructure, through construction of streets, sewerage network, storm water system and improving the efficiency of communal services. According to the female population, the most important issues are construction of paved streets with sidewalks contributing to the safety of pedestrians.

At the same time, the advisors of the community added the construction of the streets subject to this appraisal as a priority which was already emphasized by the overall population that lives nearby the streets. In last five years this was a priority according to the municipality development programs, but there were no financial resources available.

Asked about the number of beneficiaries of the project, the interviewees expressed their opinion that all of the residents in the municipality will be beneficiaries of the project because these are main streets that connect the local communities within the municipality, livestock market and the municipality center. The streets subject to this appraisal lead to the regional roads that connect the municipality with other municipalities in the country. Moreover, the streets are connected to other local streets, i.e. street "Ilindenska" connects to the street that leads to the local elementary school. A lot of people are crossing them every day to their work. This is because the streets subjected to this project are one of the most important communication local streets by which local population goes to the fields. This is very significant because one of the most important businesses in the municipality is the primary agricultural production and trade. At the same time, the streets lead to the local ambulance, post office, church, football stadium and administration for keeping registers.

Therefore, through the streets crosses mechanization for agricultural production, trucks and vehicles for transport of crop and other agricultural products. This additionally makes difficult walking on the unpaved streets without sidewalk. According to the population who live and use the location which is subject to this appraisal, the streets are in very bad condition with many halls and mud, there are no sidewalks and no storm water system. At this phase of the activities planned in this project, there is no opportunity for construction of sidewalks and storm water system. Because the residential houses and gardens are very close to the streets, the expropriation of the private land will be needed in order to construct sidewalks and storm water system. This is left for the future as second phase of the project.

Very important is the fact that the livestock market taking place every Wednesday in the municipality is one of the most important in the area and a lot of sellers and livestock breeders come from the other municipalities to sale their products. The construction of the streets is expected additionally to increase the interest of traders from the other municipalities and to develop the livestock market.

The reconstruction of the streets will be beneficial for the safety of women with children, school children, elderly people and residents with special needs, but also in making favorable conditions for the foreign investors to come and work in the municipality which additionally will improve the economic situation.

3.1.3 Institutions, rules and behavior

According to the interviewees' opinions the selected contractor must provide guarantees for the realization of the project. The municipal Council might request information from the mayor in reference to the project's realization at any time. In addition, based on experience with other similar projects and the overall existing streets in municipality Krivogastani, the municipal administration has the capacity to maintain the streets after the implementation of the project. In addition, the municipality has an administration which has experience to monitor the progress of the project.

The municipality will be responsible for maintenance of the streets, and the CSE "Pelagonia" will continue with maintaining the streets in summer cleaning the sand and grass and in the winter cleaning the snow. The local communities are not directly involved in the maintenance, but they can contribute by request of the residents and municipality. For filling holes that appear on the streets municipality provide public bidding procedures for selection of contractors.

According to the interviews the private companies will have great benefits from the reconstruction of the street. The construction will provide easy access to all consumers, which will increase the earnings and trade. This information was confirmed by the focus group participants, especially in the interest for opening new businesses from foreign investments.

3.1.4 Stakeholders

There are several important stakeholders of the project. The interviewees fully agree that the most influent participant in the process of decisions making at the municipal level are the mayor and the municipal council. Residents, as an organized group of stakeholders, articulate their opinions directly to the council and the mayor, trough the local communities present in the municipality, direct contact with the municipal advisors and forums organized by the mayor. The residents can influence the decisions making process, as their opinions are always taken into consideration by the mayor and the council.

The interviewees stated that the project is supported by all councilors representing different political parties in the municipal council, which means that a political consensus is achieved on this issue and that the councilors are considering the project as one of the top priorities of municipality Krivogastani. In respect to residents, the opinion of most interviewees is that all of them support or will support the project, because it is in the general interest at the municipal level. The project was already discussed at the council meetings, a SWOT analysis of the municipality priorities was made and the construction and reconstruction of streets was voted as priority. The focus group participants confirm the need of construction of the streets. Also a focus group with the local population was organized for the needs of the Swiss agency and Agency for development, as well as for the project on climate changes where the construction of new streets was stated as a municipality priority.

One very important question that was discussed is related to the potential *"feeling of inequality among the residents and possibility they could endanger the realization of the project in order to get some personal or group benefits"* The interviewees and focus group participants stated that there is not risk or problems that can appear during the implementation of this project because, like they stated it is for everyone's benefit and good and the project will contribute to live improvement of all the residents in the municipality.

3.1.5 Participation

The residents have submitted their complaints about the current situation in the streets that are subject to this appraisal, which again implies that the residents are fully in favor of the project. The residents are well informed about this project by direct interview and discussions with the councilors in each local community. They can influence the necessary changes if there is a need. Residents, through their local communities raise issues considering communal infrastructure, maintenance of public facilities (water supply network, streets, cultural houses, sport facilities, etc.) environmental protection, maintenance and regulation of cemeteries, they provide initiatives on landscaping of the area, public transport, education, health protection, social protection, cultural and sport manifestations, development of good inter-settlement relations, purchase of stocks and services, as well as protection of customers and other issues significant for everyday live and work of residents.

3.1.6 Social risks

High social risk for carrying out the project cannot be perceived. In municipality Krivogastani, the municipal council consists of 11 representatives from different political parties. Out of this number, 5 councilors support the mayor, while 4 are in opposition and 2 are independent. In spite of their political orientation, the councilors cannot endanger the realization of the project. As elaborated earlier, the councilors have already expressed their support for the project.

Interviewees presented a wide range of priorities in many fields that are within the local government competencies. They identified the infrastructure and increasing the employment rate as crucial for local economic development. Without exceptions, all of the interviewees said that the one of the highest priority is full coverage of transportation network, since there is often lack of paved streets and conditions for safely walking of the pedestrians especially of the children who go to elementary school.

Additionally, it was discussed in detail whether the residents are fully informed about the intended construction of the streets that are subject to this appraisal. In that way, there is no risk for resident not to be informed about the project activities.

It is very important to state that the municipality has the intention to improve the transportation network in all local communities and in the future to invest in storm water, sewerage and water supply system wherever deemed

necessary. It solves the problems that were persistent for many years. With the implementation of this strategically important project, the municipality is sending a strong signal that plans to solve this issue on the whole municipal area. Since the streets subject to this appraisal, it is set on municipal (state) land; no expropriation is expected to be raised.

3.2 Other fields of considerations

The construction/ reconstruction of the streets is expected to improve the overall living conditions in the municipality. The implementation of the project is expected to create savings in the municipal budget for the streets maintenances on the long term basis. The implementation of the project is also expected to improve local public finances and reallocate them to other municipal services. Moreover, increased property value as a result of the improved infrastructure will result in growth of revenues from property taxes.

For safe walking of children to school, there is an emergency need of sidewalks construction. For prevention of flooding of residential houses there is also a need for construction of storm water system. These activities will be realized in future, in the second phase of project. For now, storm water will be collected in open canals which are located along the streets.

3.3 Resettlement issues

The project is not a subject to resettlement issues because it involves construction of new streets in the municipality territory where already unpaved streets exist. The construction of the streets will improve the transport and will allow development of new small businesses. Constructed infrastructure network will bring investments, especially from the migrated population in the foreign countries. The increased number of businesses will open new jobs for the local population and contribute to the employment of young people. In that way, decreasing the emigration is expected.

3.4 Conclusion on the project potential success and recommendation

The project is expected to be socially successful for the following reason:

- The project is relevant because it is considered both cost-efficient and cost-effective over a long run and also useful for the improvement of the community living in municipality Krivogastani;
- The project is of a highest municipal priority for the public administration and for residents;
- The stakeholders are very motivated by the realization of the project;
- The project is not a subject to a resettlement issues;
- No expropriation issue is expected to be raised during the implementation of the project.

The main drivers of the change that will bring about prosperity are the municipal authorities (mayors, councilors, public enterprise managers) who have initiated and made the decision for seeking funding from the World Bank funded MSIP. Since the problem of bad infrastructure exists for many years it has been publicly declared and discussed on many occasions. Direct beneficiaries of the project are the residents in Krivogastani who live on the selected streets.

A part of the vulnerable and poor groups identified by the municipality (people with special needs, single mothers and elderly people), as well as kids and school children have special needs considering paved streets that will ease their movement. Gender balance needs to be incorporated in the strategic approach of the municipality and public communal enterprise towards all development efforts.

High socials risks for carrying out this project cannot be perceived. There are no issues connected with ethnic distribution of population or inter-local community rivalry: the action will allow benefits for all nationalities, it will cover the majority of residents in the municipality and there are no land ownership concerns that need to be resolved.

4.

ENVIRONMENTAL IMPACT

The Project contains activities for construction and reconstruction of local residential streets in the municipality Krivogastani. There are a few components:

a) Construction of new street which represents connection between settlement Bela Crkva and settlement Vogjani (length 764.48m);
b) Construction of new street in settlement Obrshani (length 875.51m) and;
c) Reconstruction of street “Ilindenska” in settlement Krivogastani (length 694.17m).

Implementation of this project will improve the living standards of the local population, the regulation of the traffic will contribute to increasing traffic safety, comfort and capacity of transport and communications and to the improving the commercial activities.

Current situation

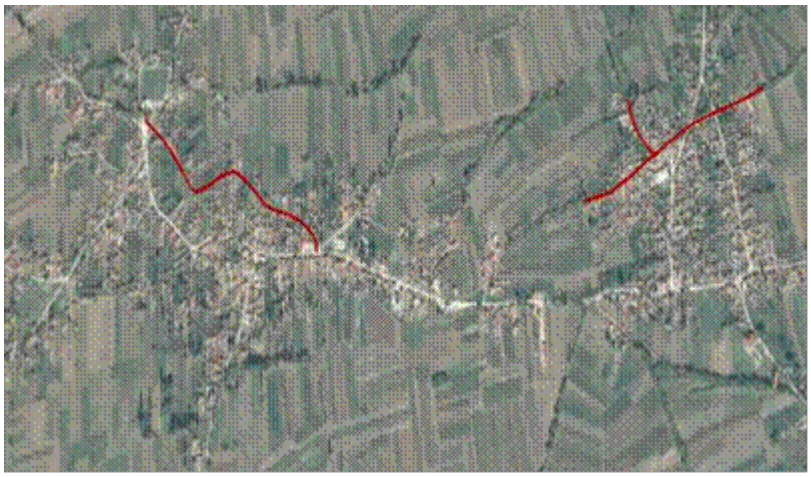
These three streets are part of secondary traffic network within the municipality Krivogastani used by the local population. The streets represent a link with the regional roads P2335 (Vashareice – connection with P1101 – Buchin – Obrshani – Krivogastani – Ropotovo – connection with P1303) and P2339 (Novo Lagovo – connection with P1101 – Galichani – Obrshani – Buchin – Graishte – connection with P1305).

The street which connect settlement Bela Crkva and settlement Voglani is with total length of 764.48m, the street in settlement Obrshani is with total length of 875.51m and the street “Ilindenska” in settlement Krivogastani is with total length of 694.17m.

The street between settlement Bela Crkva and settlement Voglani and the street in settlement Obrshani are unpaved, while the third one in settlement Krivogastani is paved but in very bad condition. These streets also are not with compliance with road legal requirements, so, the existing condition imposes construction of two streets and reconstruction of existing street. The current conditions of the streets are presented in Figure 3, Figure 4 and Figure 5 of PAD.

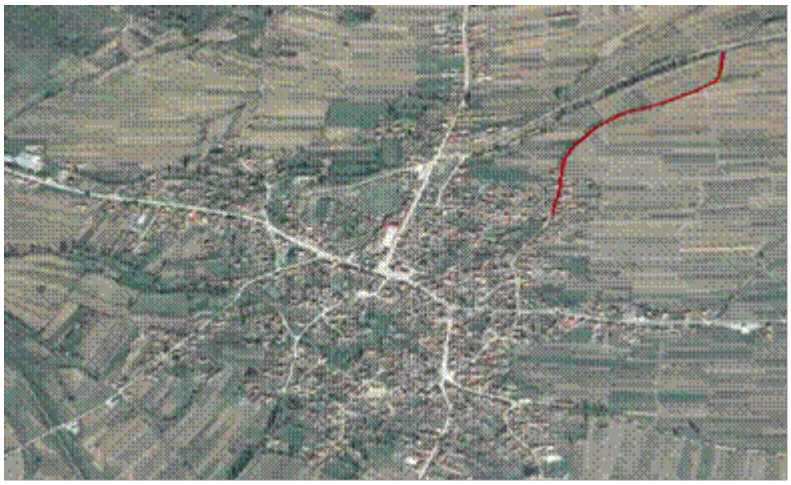
Location of the sub project

All project activities are located in three settlements in the municipality Krivogastani. The first two unpaved streets are passing through very populated area and only small part of existing street “Ilindenska”is surrounded by family houses.



Legend:

1. location of currently unpaved street which connect settlement Bela Crkva and settlement Voglani
2. location of currently unpaved street in settlement Obrshani, and



3. location of street "Ilindenska" in Krivogastani settlement

Main project activities with environmental impact

The main activities that might have adverse environmental impact during the sub-projects implementation are: a)increased level of noise and vibrations, b) dust emission, c) improper waste management and d) possible incompliance with OH&S and community safety requirements.

The project activities will take place in preparatory phase (clearing, marking and fencing of the construction and reconstruction sites, putting signs around them and implementation of OH&S and community safety standards - adequate containers for collection of different waste streams, proper signalization for "works on road", setting mobile toilets for the workers, protective personnel equipment and cloths, etc.), construction/reconstruction phase (excavation of soil, making compaction of the excavated layer of soil with construction mechanization, providing embankments, leveling and compaction of the base, placing crushed stone layer 20cm and final paving the streets) and operational phase (streets use by the vehicles and drivers).

Table 12: Type of project activities

No	Street	Length street (m)	Type of activities
Construction of local street			-removal of organic material, -digging of additional soil, -compaction, -embedding of crushed stone material, -compaction, -placement of concrete curbs, -placing one layer of bituminous asphalt.
1	Between settlement Bela Crkva and settlement Vogjani	764.48	
2	Street in settlement Obrshani	875.51	
Reconstruction of local street			-scraping of the existing asphalt layer, -placing of a new layer asphalt, -excavation of soil and plants, -placing improved bedding, road-base layer of crushed stone, -installation of bituminous base, -compaction of the sub base.
3	Street "Ilindenska" in Krivogastani settlement	694.17	
Total		2,334.16	

Main environmental impacts and sensitive receptors

The project activities are located in urban, inhabited area of settlements Bela Crkva, Vogjani, Obrshani and Krivogastani, in the municipality Krivogastani. Before the implementation and realization of the project activities the Contractor should take care about local communities and workers by preparation of OH&S Plan. The

OH&S Plan should contain guidelines for prevention of the possible injuries of local population and workers. They have an obligation to fulfill the requirements that are given in the OH&S Plan (prohibition for entrance of unemployed on the construction/reconstruction sites, using personal protective equipment, respecting the set signalization on the construction/reconstruction sites etc.). Also the Contractor should prepare and imply the Traffic Management Plan (TMP) before the start of the project activities. He should include directions for re-routing the traffic and works time schedule in order to provide proper transportation of goods and people across the municilality. The municipal staff in close cooperation with the Contractor need to release the Information note/Press about the project activities (start, timeframe and re-routes of traffic) and announce via web page, local radio and/or notice board within the municipality building.

During the construction/reconstruction phase of the streets the increased level of noise and vibration will be produced by the usage of heavy construction equipment and machinery for transportation of the raw material (crushed stone material and asphalt) and excavation of soil. To fulfill the national legislation for ambient noise and vibration the Contractor should respect the given requirements for area with II degree of noise protection for all sub project locations-settlements Bela Crkva, Vogjani, Obrshani and Krivogastani (the residential area of street "Ilindenska"), according to Official Gazette No.79/07, 124/10, 47/11 and 163/13. The noise limit values for area with II degree of noise protection should not exceed 45dBA for night and 55dBA for evening and day.

The proper waste management of the different waste streams that will be produced on the construction/ reconstruction sites (e.g., waste of excavated soil, small amount of solid municipal waste, construction and demolition waste) should be appropriately selected at the spot, transported and finaly disposed (according to national legislation Law on Waste and List of Waste codes – Official Gazette of RM No. 100/05) on proper location. The Contractor should asked the municipal officials for the location for final waste disposal.

The estimated quantities of possible generated waste from excavated soil during project activities (according the Project Main Design) and names of the locations for final waste disposal are presented below.

Table 13: Estimated quantities of waste from excavated soil during project activities and landfills for waste disposal

Project location settlement BelaCrkva and settlement Voglani	
Name of the landfill for waste disposal	Temporary landfill "Orlejca" (around 1km from settlement Vogjani)
Estimated values for excavated soil (m^3)	During this sub project activities there is no expected waste from soil excavation because the excavated amount will be used as filling material for excavated channel
Project location settlement Obrsani	
Name of the landfill for waste disposal	Landfill for communal waste "Livadski Pat" (near settlement Krivogastani) There is an ongoing procedure for determination of location for temporary landfill for waste disposal (around 1km northeast form settlement Obrsani)
Estimated values for excavated soil	567.44m^3
Project location settlement Krivogastani	
Name of the landfill for waste disposal	Landfill for communal waste "Livadski Pat" (around 1.5km from settlement Krivogastani)
Estimated values for excavated soil	520.6m^3

All requirements and guidelines for proper waste management (selection, transportation, final disposal and disposal records) should be described in the Waste Management Plan prepared and implemented by the Contractor. The main responsibility for final waste disposal in the municipality Krivogastani lays on CSE "Pelagonija", so, the Contractor needs to sign the Contract with the CSE. The type of expected waste streams is presented below.

Table 14: Possible waste streams generated on the construction sites

13 - Oil wastes and waste of liquid fuels (except edible oils, and those in chapters 05, 12 and 19)	
13 02	Waste engine, gear and lubricating oils
13 07 01*	Fuel oil and diesel
17 - Construction and demolition wastes	
17 03	Asphalt, tar and tarred products
17 05 04	Excavated soil
17 09 04	Mixed waste from construction site
20 - Municipal wastes and similar commercial, industrial and institutional wastes including separately collected fractions	
20 02	Garden and park waste (biodegradable, soil and stones)
20 03	Communal waste

The generated air emissions that may occur in the construction/ reconstruction phase will be produced by the operation of the heavy construction machinery (trucks and excavators). In operational phase air emissions will be generated from mobile sources of pollution – vehicles. To prevent and avoid adverse environmental impacts the Contractor should implement appropriate dust mitigation measures (e.g., cover of all vehcles carrying soil, washing the tyres of the heavy vehicles, etc.) that could reduce the PM (particulate matters – dust) emissions.

In the vicinity of settlements Vogjani and Bela Crkva, the river Crna passes (around 1km south from settlement Vogjani) and Krushevsko-Norovska river (around 1.5km southwest from settlement Krivogastani). The vicinity of the rivers should be taken into account due to potential adverse impacts of the project on the water quality (improper waste management – disposal of waste streams along the river banks).

According the EIA Report, near the project locations there are no registered endemic, protected and endangered animal or plant species or protected areas and habitats that will be negatively affected by the construction activities. The EIA Report states that there are no cultural heritage protected structures in the close vicinity or under the construction area.

In accordance with the national legislation, in November 2014, the EIA Reports for construction of new streets and reconstruction of an existing street were prepared by the municipality. The EIA Reports were adopted by the Mayor of the Krivogastani, Mr. Toni Zatkoski. The Reports contains photos of the project locations, description of the closer and wider surrounding of the project location, the main project goals, main project activities and environmental mitigation measures.

The preventive and mitigation measures are given in the Environmental Mitigation Plan. The proper implementation of the proposed measures could be monitor through several parameters presented in the enclosed Environmental Monitoring Plan. The main responsibility for proper and in time implementation of the measures goes to the Contractor and their implementation should be monitored by the Supervisor who is also responsible for reporting the status of implementation to the municipality Krivogastani and MSIP Unit.

Table 15: Environmental Mitigation Plan

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
Construction of two streets and reconstruction of one street in the municipality Krivogastani				
Preparation activities before construction works start Marking out the route and construction of two streets and reconstruction of one street in the Municipality of Krivogastani	Possible adverse social and health impacts on the population, drivers and workers due to: – Lack of ensured safety measures at the start of construction/ reconstruction works – Injury passing near by the construction/ reconstruction sites and open trench and manholes – Non-compliance with strict OH&S standards and work procedure – Inappropriate public access within the settlements: Bela Crkva, Vogljani, Obresani and Krivogastani	Local/ within the street between the settlements: Bela Crkva and Vogjani, street in Obrshani settlement and street Ilindenska in Krivogastani settlement Short term during the construction/ reconstruction period (different lengths – from 694.17m up to 875.51m) Significance - major	➢ Preparation of the Traffic Management Plan together with the municipal staff prior start up activities; ➢ Provision of the information via municipal web site, radio, local TV Station and municipality board about the construction/ reconstruction activities – start and finish of work for each day and location of activities, duration of work and traffic access on other streets; ➢ Application of good construction practice for marking out the construction/ reconstruction sites including: • Ensuring the appropriate marking out of the construction/ reconstruction sites along the streets; • Placement of attention signs (“works on road” signs especially for limitation of speed driving near the streets under construction/reconstruction; • Provision of warning tapes and signage; • Installation of Notice board with general information about the project, Contractor and Supervisor at each street/sub-project; • Forbiding entrance of unemployed persons within the warning tapes; • Application of community and worker’s OH&S measures (first aid, protective clothes for the workers, appropriate machines and tools); • Keeping the streets clean; • Placing a mobile toilet on the construction/ reconstruction sites; • Machines should be handled only by experienced and trained personnel, thus reducing the risk of accidents; • Ensuring constant presence of firefighting devices in case of fire or other damage; • All workers must be familiar with the fire hazards and fire protection measures and must be trained to handle fire extinguishers, hydrants and other devices used for extinguishing fires; • Larger quantities of flammable liquids should not be kept on the site along the streets under construction/ reconstruction; • Setting up vertical and horizontal signalization for safe traffic prior to the commissioning of the streets for operation.	• Contractor – Bidder • Supervisor • Municipality staff (Communal Inspector and Environmental Inspector)
	Possible impacts on landscape and visual aspects	Local/ within the street between the settlements: Bela Crkva and Vogjani, street in Obrshani	➢ Implementation of good construction practices – including fencing and protection of construction/ reconstruction sites according to national legislation; ➢ Minimization of the construction/ reconstruction area as much as possible (careful planning and designing of the project activities according to the Traffic Management Plan for a certain period of time);	• Contractor – Bidder • Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
		settlement and street Ilindenska in Krivogastani settlement short term /minor	➢ Full clean-up of the construction/ reconstruction sites immediately after accomplishment of construction /reconstruction activities (section by section); ➢ Collection of the generated waste on daily basis, selection of waste, transportation and final disposal on appropriate places (according the type of waste – more details under Waste management issue).	
	Possible emissions by transportation vehicles and impact on air quality in the municipality Krivogastani due to: – Gases emissions of dust-suspended particulates – Traffic congestion which will be caused as well causing changes in existing traffic circulation	Local/ within the settlements short term/ major	➢ Construction/ reconstruction sites, transportation routes and materials handling sites should be water-sprayed on dry and windy days; ➢ Construction materials should be stored in appropriate places covered to minimize dust; ➢ Vehicle loads likely to emit dust need to be covered; ➢ Protective masks should be used for the workers if dust appears; ➢ Vehicle speed should be restricted within the construction/ reconstruction locations; ➢ Perform regular maintenance of the vehicles and construction machinery in order to reduce leakages of motor oils, emissions and dispersion of pollution; ➢ Burning of debris from ground clearance is not permitted.	• Contractor –Bidder • Supervisor
	Possible noise disturbance as a result of outdoor equipment usage and transportation vehicles driving around the sites	Local/within the settlement short term /minor	➢ The whole noise protection area is residential and belongs to the area with second degree of noise protection and the maximum allowed noise level should be 45dBA for night and 55dBA for evening and day; ➢ Construction works should be not permitted during the nights; the operations on sites shall be restricted to the hours 7.00 -19.00.	• Contractor –Bidder • Supervisor
	Possible impact on water courses – river Crnareka and Krusevska-Norovska river near the project site in the municipality Krivogastani	Local/ short term/ minor due to the distance from the project sites	➢ Minimizing storage or disposal of substances harmful to water – river Crna Reka and river Krusevsko-Moravska (e.g. fuels for construction machinery) on the construction/ reconstruction sites; Organize proper handling and storage. ➢ Keeping the roads clean and tidy to prevent the build-up of oil and dirt that may be washed into a water course or drain during heavy rainfall.	• Contractor – Bidder • Supervisor
	Possible adverse environmental impact and health effects could occur as a result of generation of the different waste streams	Local within the settlements short term/ major	➢ Identification of the different waste types at the construction/ reconstruction sites (soil, sand, asphalt, bottles, food, etc.); ➢ Classification of waste according the national List of Waste (Official Gazette no.100/05); ➢ Classification of the main waste under the Waste Chapter 17 “Construction and demolition wastes (including excavated soil from contaminated sites)” with the waste code 17 01 –Asphalt, tar and tarred products, 17 05 04 – Excavated soil, 17 09 04 – Mixed waste from construction site;	• Contractor - Bidder • Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	Inappropriate waste management and not in time collection and transportation of waste streams		Waste stream under the Chapter 13 “Oil wastes and waste of liquid fuels”and Chapter 20 “cMunicipal wastes and similar commercial, industrial and institutional wastes” could be found as well (small amount of solid municipal waste could be found (food, beverages), as well as packaging waste (paper, bottles, glass, etc.)).	
			➢ Collection, transportation and final disposal of the inert and communal waste by the CSE “Pelagonija” Krivogastani; ➢ Collection of possible hazardous waste (motor oils, vehicle fuels separately and sub-contracting an authorized collector and transporter to transport and finally dispose of the hazardous waste; ➢ Covering of materials during transportation to avoid waste dispersion; ➢ Burning of construction waste should be prohibited.	• Municipality staff (Communal Inspector) • Mayor of the Municipality of Krivogastani • CSE” “Pelagonija” Krivogastani.
• *No environmental impacts are expected during the Operational phase* • *The regular preventive maintenance of the streets need to be performed*				

Table 16: Environmental Monitoring Plan

What parameter to be monitored?	Where is the parameter to be monitored?	How is the parameter monitored?	When is the parameter monitored (frequency of measurement)?	Why is the parameter monitored?	Cost		Responsibility	
					Construction	Operations	Construction/ reconstruction of local roads	Operations of the local roads
Project stage: Preparation activities/ Startup of the reconstruction and construction work (site cleanup, and marking out the route and construction sites along the settlements)								
OH&S Plan prepared and implemented The safety protection measures applied for the workers	On the construction / reconstruction sites	Visual checks	During the clean-up activities At the beginning of each working day during the project activities	To prevent health and safety risks – mechanical injuries To be in compliance with national communal health regulation and OH&S standards			Contractor - Bidder Supervisor Communal Inspector at the municipality Krivogastani	
Project stage: Construction and reconstruction of streets in the Municipality of Krivogastani								
Safety traffic flow through the construction/ reconstruction sites between the settlements: Bela Crkva and Vogjani, street in	On the site	Visual monitoring	During the working day	To ensure the coordinated traffic flow through the settlements:			Contractor - Bidder Supervisor Communal Inspector at the municipality Krivogastani	

What parameter to be monitored?	Where is the parameter to be monitored?	How is the parameter monitored?	When is the parameter monitored (frequency of measurement)?	Why is the parameter monitored?	Cost		Responsibility	
					Construction	Operations	Construction/ reconstruction of local roads	Operations of the local roads
Obrshani settlement and street Ilindenska in Krivogastani settlement								
Traffic Management Plan prepared and implemented	On the site	Review the keeping records on generated and managed waste streams as well as the Contracts for waste collection	Prior start up activities and during daily working period	To ensure proper waste management and minimization of pollution risks			Contractor - Bidder Supervisor Communal Inspector at the municipality Krivogastani	
Disposal of the waste streams (solid and liquid) near the river Crna reka and/ or river Krusevska-Norovska as potential pollution of good ecological status of water course	In Krivogastani near the project areas	Visual check if the waste is disposed near the Crna reka and Krusevska-Norovska river	During the construction period (once per week)	To ensure good status of water quality			Contractor - Bidder Supervisor	
Primary selection of the waste streams as they are generated at the spots	On the construction/ reconstruction sites	Review the documentation	At the beginning of work with new material/s	To separate hazardous from the non-hazardous waste as well as inert from biodegradable waste			Contractor – Bidder Supervisor	
Collection and transport as well storage of hazardous waste (if any occurs)	On safety temporary storage	Review the transportation list and conditions at the storage facility	Before the transportation of the hazardous waste (if there is any)	To improve the waste management practice on municipality and national level/ Not to dispose the hazardous waste on the waste disposal spots			Authorized Contractor for collection and transportation of hazardous waste (if any occurs)	
Collection, transportation and final disposal of the solid waste streams	On the sites and around the sites where construction/ reconstruction activities will be	Visual monitoring and reviewing the transportation and disposal lists from the sub-contractor	After the collection and transportation of the solid waste on regular base each day	Not to leave the waste on the spot to avoid the environmental and health impact on residents To have the real data for generated waste streams and to improve the waste management			Contractor – Bidder Supervisor	

What parameter to be monitored?	Where is the parameter to be monitored?	How is the parameter monitored?	When is the parameter monitored (frequency of measurement)?	Why is the parameter monitored?	Cost		Responsibility	
					Construction	Operations	Construction/ reconstruction of local roads	Operations of the local roads
	performed							
Fulfilled Annual Report for collection, transportation and disposal of waste	Local self-government administration	Review of documentation – Identification of waste list	After the accomplishment the task of collection, transportation, temporary disposal and final disposal of waste	To improve the waste management on local and national level To be in compliance with national legal requirements			Mayor of the municipality Krivogastani/ Ministry of Environment and Physical Planning	
Noise measurements	Near the construction/ reconstruction sites	Noise measurements	During the work peaks	To ensure noise level limits according regulation			Contractor - Bidder	

5.

TECHNICAL SOLUTION

5.1 Description

The project comprises technical solution for construction of two streets and reconstruction of one street in different local communities in the municipality Krivogastani. The construction of two streets will be performed on the unpaved construction on:

- Unpaved street that connect local community Bela Crkva and local community Vogjani with total length of 764.48m and;
- Unpaved street in the local community Obrshani with total length of 875.51m.

Moreover, it is planned the existing damaged paved construction on street "Ilindenska" with total length of 694.17m in the local community Krivogastani to be reconstructed.

Streets construction will be implemented in two phases, and the first phase contains construction of streets with total width of 3.5m. Further expansion of streets and construction of the other elements on the streets such as construction of sidewalks and storm water system will be realized by the municipality with own funds after fully resolving property and legal relations (parts of the streets crosses through private parcels)[5] and this is not part of this sub-project.

Streets that are subject to construction are classified as service and residential streets in local communities and are part of the secondary municipality traffic network. Project plan is constructed according to the Detail Urban Plan (DUP) for the current local communities, follows terrain configuration, spatial limitations in this field and the available data for existing and planned infrastructural facilities. The technical documentation follows laws and regulations in the area of design, urban planning and the applicable standards for construction of streets.

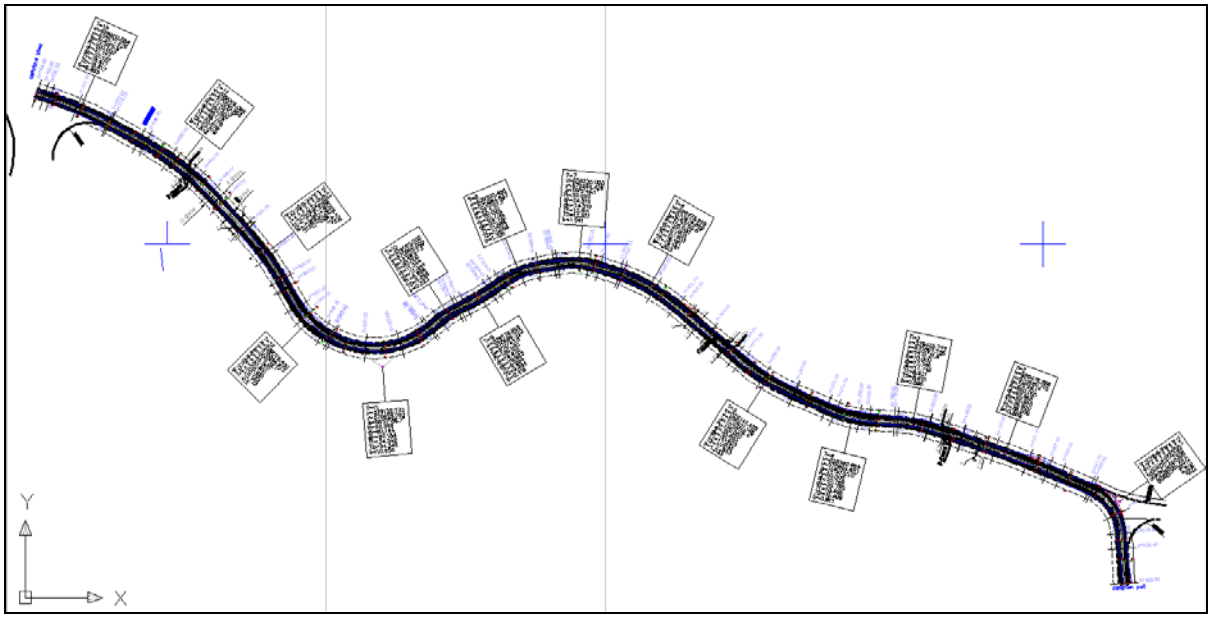


Figure 9 Street "A" between local community Bela Crkva and local community Vogjani
Source: Technical design of street "A" between l.c. Bela Crkva and l.c. Vogjani with technical number 13/2012

[5] Main project on line infrastructure for the street Ilindenska technical number 13/2014, pg.12

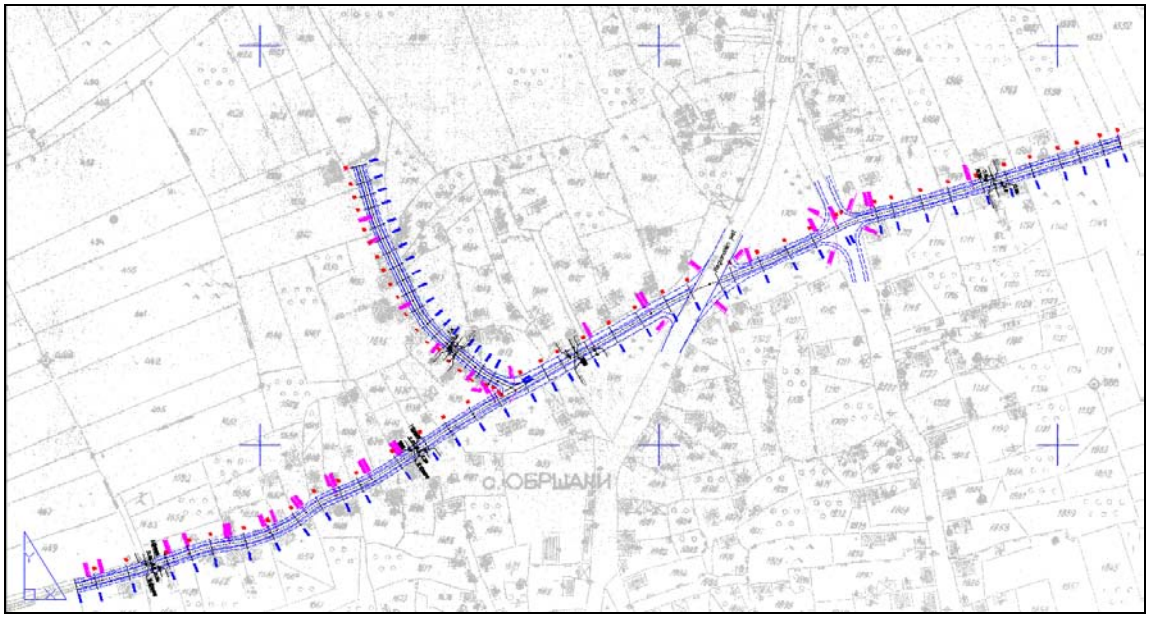


Figure 10 Street in the local community Obrshani
Source: Technical design of the street in local community Obrshani with technical number 08/2012

Figure 11 Street "Ilindenska"
Source: Technical design of street Ilindenska with technical number 13/2014

5.2 Analysis, evaluation and potential amendments

The technical documentation on preparation of infrastructural projects for construction of streets, which are classified as streets for secondary traffic network are subject of Detail Urban Plan for local communities in municipality Krivogastani. Technical documentation is prepared for construction of streets: "A" that connects local community Bela Crkva and local community Vogjani with technical number 13/2012 and the street in local community Obrshani with technical number 08/2012 is prepared by "Infra" – Engineering from Prilep. Technical documentation of the main project for reconstruction of street "Ilindenska" with technical number 13/2014 is prepared by "Geniko" from Prilep.

Total length of the streets planned for construction in municipality Krivogastani is 2,334.16m. In the following table are given the planned lengths and activities for construction of the line infrastructure:

Table 17 Technical characteristics of the streets planned for construction

#	Street	Description of activities	Length (m)
1	Street "A" that connects local community Bela Crkva and local community Vogjani	Construction of the street	764.48
2	Street in local community Obrshani	Construction of the street	875.51
3	Street "Ilindenska" in local community Krivogastani	Reconstruction of the existing paved street	694.17
		Total	2,334.16

Source: Project documentation

In the process of preparation of project documentation are not prepared geo-mechanical and geotechnical research activities on the terrain. Terrain characteristics are received by visual observation of the designer. The terrain is healthy, stable, with no visible signs of existing landslides and landslides that could possibly occur. There are no visual signs of high underground water that will need special technical measures for their acceptance. The structure, size and proposed technical solutions of the streets are based on the current legislation, regulations and standards applicable for this kind of traffic.

In construction of the streets, certain construction activities should be performed:

- Marking and ensuring of the alignment - the operation includes marking of the alignment, geodetic measurements regarding the transfer of data from the project to the location or from the location to the drawings and keeping the marks of the location throughout the period of construction;

- Firstly, planning the route or excavation of parts of the route that is necessary will be performed. Excavations for making the underground (removal of humus of the parts under the embankment, compaction of the underground layers performed with mechanization for compacting according to the type of the underground layers), making embankments, leveling and compaction of the base;

- Excavations for the upper part of the street which includes making of the buffer. The first layer of the underground layer constitutes buffer which is made by spreading and compacting with vibration of crushed stone material with a thickness of 20cm;

- Preparation of stabilized edges with compaction and planning. The material for construction will be buffer;

- Paving the upper part of the street in accordance with the project documentation.

5.2.1 Construction of street "A" that connects local communities Bela Crkva and Vogjani

The total length of the street that is subject of construction is 764.48m. The goal is to build a new traffic network with paved street on the existing unpaved street. In this district, the street lighting along the route of the residential street is already established by the municipality.

Figure 12 Street "A" between l.c. Bela Crkva and l.c. Vogjani
Source: CeProSARD archive

Street "A" is direct relation between two local communities Bela Crkva and Vogjani in municipality Krivogastani. This street is part of the secondary traffic infrastructure on these two between connected locations and serves for better communication of the local population to satisfy the needs of the residents in two local communities and ensure connection with the remaining traffic network. The terrain is healthy, stable, with no visible signs of existing landslides and landslides that could possibly occur. There are no signs of high underground water that will need special technical measures for their acceptance. In the following picture is presented the current situation of the street.

For dimensioning of the streets that is subject to this project and belong to municipality Krivogastani, are used previously developed documents: project assignment from the client (municipality Krivogastani), DUP of the local community, Infrastructural project for roadway prepared by "Infra" Engineering form Prilep with technical number 12/2012 from July 2012, updated geodetic base in scale 1:1000, received data on field visit.

It is planned the construction of the street to be implemented in two phases. Total width of the street is 6m, but the width of the street in the first phase, which is planned for construction under this project, is 3.5m, shown in figure number 13. The designed speed is V=40km/h.

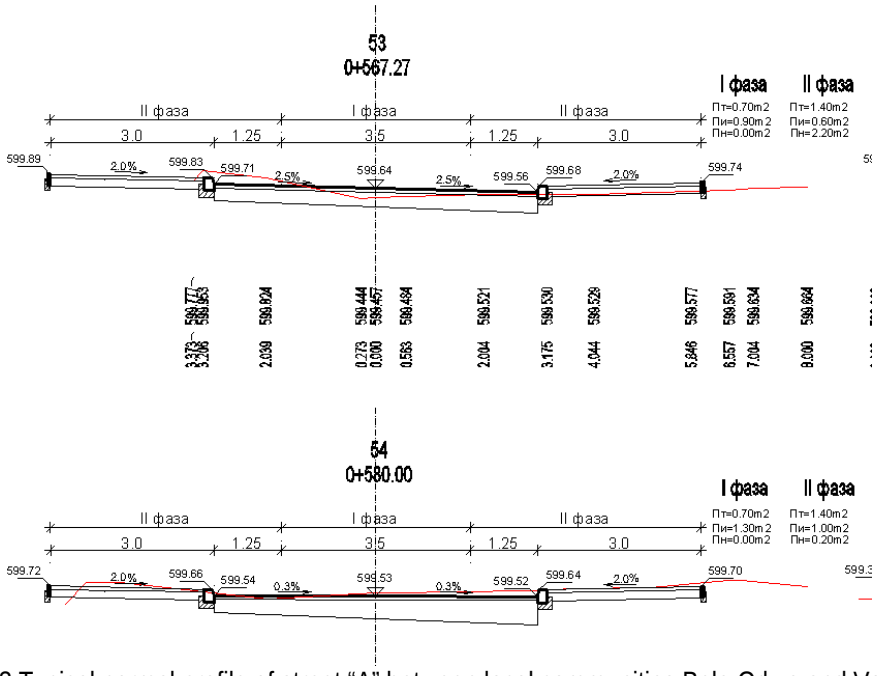


Figure 13 Typical normal profile of street "A" between local communities Bela Crkva and Vogjani
Source: Technical design of street "A" with technical number 13/2012

The construction of the street "A" between local communities Bela Crkva and Vogjani will be performed on the following way:

- Bearing and Wearing Course (BNHS -16a) …….. 7cm;
- Street base crushed stone layer …….. 20cm.

The maximal applied longitudinal slope of the vertical alignment along the street is 9.05%, and the minimal is 2.82%. The cross section profile of the street is designed with a cross slope of 2.5%. The storm water is planned to be channeled naturally, i.e. along the vertical alignment of the street where it is possible. For efficient drainage of the storm water the drainage of the sub-base course is planned to be carried out through its cross slope which is minimum 4%.

5.2.2 Street in the local community Obrshani

The street is part of the traffic network in the local community Obrshani and serves for satisfying the needs of the local population and connection with the remaining traffic network in Obrshani. The current situation is unpaved street with width in accordance with the DUP and difficult movement. This street through the local community Obrshani crosses the regional road. The terrain on which the construction of this street is planned is flat and almost inbuilt area. Figure 14 shows the current condition of the street.

Figure 14 Current situation of the street in Obrshani
Source: CeProSARD archive

When dimensioning the street in local community Obrshani that belongs to municipality Krivogastani previously prepared documents are used:

- Project assignment of the client (municipality Krivogastani);
- DUP of the local community;
- Infrastructural project for roadway prepared by "Infra" Engineering form Prilep with technical number 07/2012 from April 2012;
- Updated geodetic base in scale 1:1000;
- Received data by on field visit;
- Projected speed of movement is V=40km/h;

The street length in local community Obrshani is 875.51m.

The street is planned with two street lines with width 5m-4.5m and with sidewalks on two sides of the street as it is shown in the following figure. The width of the sidewalk is planned to be 1.5m, but the construction of the street will be performed in two phases. In the first phase which is subject to this appraisal a street will be constructed with width of 3.5m.

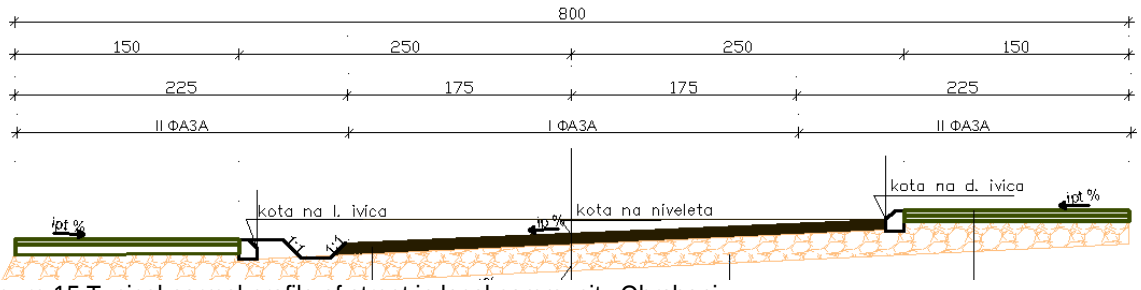


Figure 15 Typical normal profile of street in local community Obrshani
Source: Technical design of the street in local community Obrshani with technical number 08/2012

The street construction in local community Obrshani will be performed on the following way:

- Bearing and Wearing Course (BNHS -16a) 7cm;
- Street base crushed stone layer ..... 20cm.

The maximal applied longitudinal slope of the vertical alignment along the street is 2.9%, and the minimal is 0.3%. The cross section profile of the street is designed with a cross slope of 2.5%. This kind of applied longitudinal slope allows natural water flow. The drainage of the sub-base course is planned to be carried out through its cross slope which is minimum 4%.

5.2.3 Street "Ilindenska" in local community Krivogastani

The street "Ilindenska" starts from the street "Marshal Tito" and crosses through the local community Krivogastani and is predicted as a street that will be exposed to easy traffic load. The same street has already been paved, but the pavement is completely destroyed and on the certain parts of the street it does not exist. On figure number 16 is shown the current situation of this street.

Figure 16 Current situation of the street “Ilindenska”
Source: CeProSARD archive

When dimensioning the street “Ilindenska” in local community Krivogastani previously prepared documents are used:

- Project assignment of the client (municipality Krivogastani);
- Topographic base in scale 1:25000, 1:10000;
- Updated geodetic base in scale 1:1000;
- Legal technical regulation;
- Received data by on field visit;
- Projected movement speed is V=30-40km/h;

The length of the street “Ilindenska” is 694.17m.

The street “Ilindenska” is planned with two street lines with total width of 6.5m, with sidewalks on both sides of the street with width of 2m as shown in figure 17.

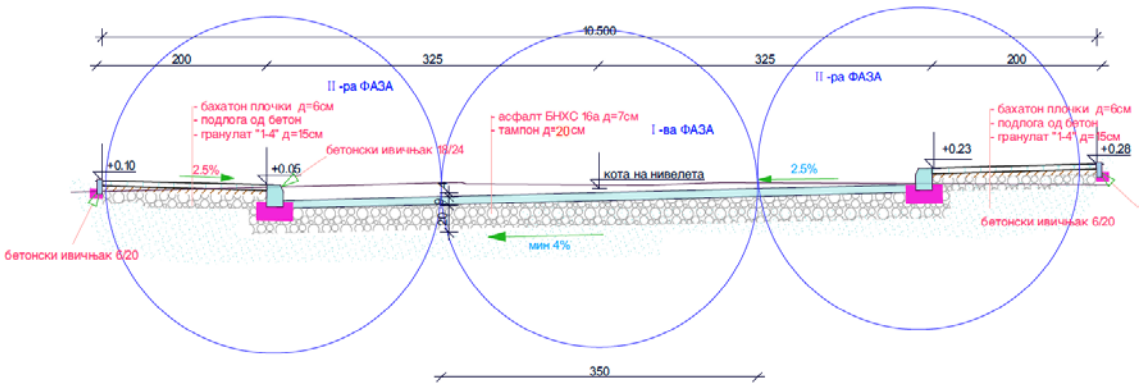


Figure 17 Typical normal profile of service street “Ilindenska”
Source: Technical documentation of the main project for reconstruction of the street “Ilindenska” with technical number 13/2014

The reconstruction of the street is planned in two phases. In the first phase is planned to be realized part of the street with width 3.5m (set centrally on the axis of the street) with two sided setting of edges with a width 2x0.75m, with previously removal of damaged pavement and placement of new crushed stone layer with thickness 20cm.

Reconstruction of the street “Ilindenska” will be performed on the following way:

- Bearing and Wearing Course (BNHS -16a) …….. 7cm;
- Street base crushed stone layer …….. 20cm.

The maximal applied longitudinal slope of the vertical alignment along the street is 0.51%, and the minimal is 0.31%. The cross section profile of the street is designed with a cross slope of 2.5%. Removal of the storm water is planned to be through natural water flow, i.e. along the longitudinal slope of the street where is possible. For

efficient removal of the water on the street, the drainage of the sub-base course is planned to be carried out through its cross slope which is minimum 4%.

5.3 Alternative sources

In order to provide the most suitable solution, several alternative approaches are analyzed in detail. One of the solutions is to solve the infrastructural network in whole, by whole construction of the streets, i.e. construction in one phase. However, this solution is not accepted because it will lead towards delay of the project realization on a long run, and delay in construction and reconstruction of the paved streets due to unresolved property legal relations (part of the streets crosses private parcels). That will lower the economic development of the municipality on a long run and will encourage the migration of the local population. The existing unpaved streets are not functional and cause damage to vehicles.

An alternative option is accepted by solving the infrastructure in two phases, and after solving property legal relations municipality will proceed with expanding the streets, as well as construction of the storm water network and sidewalks. The whole infrastructure (necessary for functioning of the planned areas) will be provided under the streets and sidewalks. On that way will be allowed gradual development of economic situation in municipality Krivogastani. This is the main reason why the engineers in the municipality and the team for design of the project consider no other alternative solution for construction of streets in the area.

5.4 Conclusions and recommendations

The project is in accordance with the existing positive laws and regulations in the country. It is part of the Detail Urban Plan (DUP) of local communities in the municipality. In preparation of the documentation are used geodetic situations in size R 1:1000 for municipality Krivogastani, analyzing the terrain and determining the spatial limitations of the location.

The technical solution is in line with the positive regulation, or any applicable laws, by-laws and standards for the construction and urban planning in the design of linear infrastructure systems for construction of streets. It is very important that municipality Krivogastani proposed construction of these infrastructural linear systems in the several local communities in the municipality as its highest priority on the basis of public hearings and various demands of residents. Other benefits in the implementation of the project are developed in the following sections of this appraisal.