Republic of Macedonia

Karposh Municipality

PROJECT APPRAISAL DOCUMENT

"Construction of stormwater network and reconstruction of various streets in the urban districts of the Municipality Karposh"

World Bank

Municipal Services Improvement Project

Skopje, October 2014

EXECUTIVE SUMMARY

The Project assumes construction of stormwater network of various streets in the urban districts Vlae 1 and Vlado Tasevski in the Municipality Karposh.The relevance of the Project results from the fact that 6.1% of the total population is directly influenced by negative implications of the inadequate surface of streets and sidewalks, in addition to stormwater due to lack of stormwater network. However, it should also be emphasised that some of these streets are the main traffic arteries in the different districts, whereby it can be inferred that the implementation of the Project will have a wider indirect benefit on the community living in the Municipality Karposh. 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 the Municipality Karposh. At the same time, the purpose of the technical design is to provide convenience and safety for pedestrians and traffic by controlling stormwater flows, within prescribed limits and to retain within each catchment as much stormwater and runoff as possible given the planned use of the terrain and its civil engineering characteristics. 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-line with the Strategy for Local Economic Development and it will contribute towards achieving the vision of the municipal administration for providing full coverage of transport and communal (utility) infrastructure throughout the municipal territory. The Mayor and the municipal administration strive to achieve full coverage of a transport, stormwater and other communal (utility) infrastructure throughout the municipal territory. It can be inferred that the implementation of the Project will undoubtedly contribute towards improvement of the quality of life and well-being of the citizens of the Municipality Karposh. 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 as cost-efficient and cost-effective, over a long run and also useful for the health of the citizens and the environmental protection.

No adverse social or environmental impacts were identified for this Project.

The cost-benefit analysis (CBA) 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 citizens 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 from property taxes.

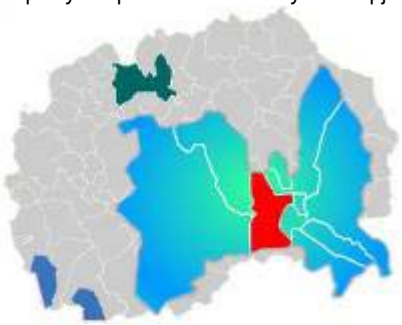
Furthermore, it is very difficult to relate the benefits of Projects of this kind with the economic development and poverty levels in a certain Municipality in a short-term. However, taking into account that increasing the quality of the transport infrastructure and increase in productivity is linked 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.

1. PROJECT DESCRIPTION

General Information on the Municipality Karposh

Karposh Municipality is one of ten constituent municipalities of the city of Skopje, the capital of the Republic of Macedonia. The Municipality is situated on the west-central part of the Skopje region (see picture 1.1), spreading on an area of 35km^2 on an average altitude of 362m. Municipality Karposh spreads on a large area of the Vodno Mountain located in the southern part of the Municipality and of the Skopje's valley. The overall wooded area in the Municipality is 235.12ha.

Picture 1.1. Municipality Karposh within the city of Skopje



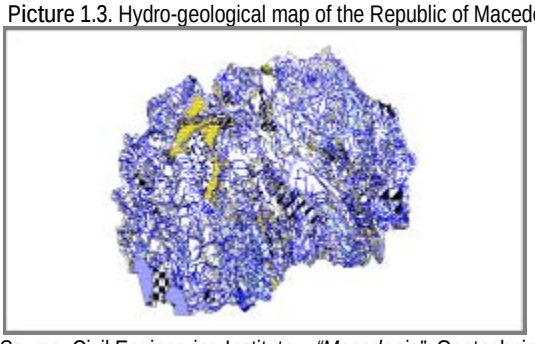
**Note: the municipal territory is marked in red*
Source: Ministry of local self-government of the Republic of Macedonia

Picture 1.2. City of Skopje with its ten constituent municipalities

**Note:* 1. Municipality Centar; 2. Municipality Gazi baba; 3. The Municipality Aerodrom; 4. Municipality Cair; 5. Municipality Kisela Voda; 6. Municipality Butel; 7. Municipality Suto Orizari; 8. Municipality Karposh; 9. The Municipality Gjorce Petrov; 10. Municipality Saray
Source: Ministry of local self – government of the Republic of Macedonia

Municipality Karposh borders with Municipality Saraj and Municipality Gjorce Petrov to the west, with Municipality Cucer-Sandevo to the north, Municipality Butel to the northeast, with Municipality Cair, Municipality Centar, and Municipality Kisela Voda to the east and Municipality Sopiste to the south. The Municipality has 59,666 inhabitants (revised Census data from 2005) and 14 local communities of which, the local communities (districts) of Karposh 1, Karposh 2, Karposh 3, Karposh 4, Taftaligje 1, Taftaligje 2, Vlae 1, Vlae 2, Vlado Tasevski, Kuzman Josifovski-Pitu, Peco Bozinovski-Kocho and Zlokukjani are located in the urban area, while the other 2 local communities (Bardovci and Gorno Nerezi) are located in the rural area of the municipality. This Project is intended to be implemented in the urban area of the municipality, i.e. in the Districts of Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho, and Vlado Tasevski (see Picture 1.4 below).

Picture 1.3. Hydro-geological map of the Republic of Macedonia 1:200,000



Source: Civil Engineering Institute – *"Macedonia",* Geotechnical department, Skopje 2010

The longest river in the Republic of Macedonia, river Vardar (total length 388km) passes through the territory of the Municipality Karposh. River Lepenec (total length of 75km) which is a left side tributary of the Vardar river also passes through Municipality Karposh and is discharging into the Vardar river in the rural district of Bardovci.

The average annual minimum temperature is 0.6^{o}C, while the annual maximum temperature is 24.1^{o}C, which classifies the area as hot and dry. The Skopje area is part of the Mediterranean basin and thus, characterized by hot summers, and even at times very hot and dry, while winters are relatively mild to cool, wet winters. It is important to note that the area is characterized by a largest cloudiness in the Republic of Macedonia after the Valley of Polog, with an average of 105.5 cloudy days per year. In addition, the average quantity of rainfalls is 500.7mm, which are unevenly distributed throughout the year. The months that are classified as the rainiest are January, April, May, June and November with an average of 60% of the average annual amount, while July and August are considered as the least rainy months with an average of only 6% of the average annual amount of rainfalls.

Demographic and economic profile of the Municipality Karposh

According to the revised 2005 Census data, the total number of inhabitants is 59,666 with a natural negative growth rate of 0.8 according to latest available data. The total number of households is 19,676, while the average number of households' members is 3.02. Additionally, the total number of dwellings is 22,849. There are 13km of local roads, 44 post offices and 42 primary health protection centres. Additionally, there are 8 high schools and 11 primary schools where 6,001 children at the age of 6-14 attend. As regards economy, there are 4,033 active enterprises according to the State Statistical Office data. The rate of employment is 43.6%, while the unemployment rate 16.9%. The women activity rate is 48.6%. The main macroeconomic indicators of the Municipality Karposh are provided in the following table:

Table 1.1. Main macroeconomic indicators of the Municipality Karposh*

Demography	Municipality Karposh	City of Skopje	Republic of Macedonia
Total Population	59,666	506,926	2,022,547
Natural growth rate	-0.8%	1.1%	2.0%
Total number of households	19,676	146,546	564,237
Average number of households members	3.02	3.45	3.58
Total number of dwellings	22,849	163,561	698,143
Percentage of dwellings that live in dwellings connected to the public water supply system (related to the total number of dwellings),	99.1	96.5	85.5
Percentage of dwellings that live in dwellings connected to the sewerage system (related to the total number of dwellings),	95.1	84.9	59.8
Percentage of dwellings that live in dwellings connected to the central heating (linked to the public network), related to the total number of dwellings	21.5	33.8	8
Infrastructure			
Local roads	13km	551km	9,355km
Number of locations in primary health protection	42	296	1,179
Number of Post offices	12	63	321
Education			
Regular primary Schools in school year 2012/2013	11	100	991
Children at age 7-14 that attend school in school year 2012/2013	6,001	53,586	195,311
Population literacy at age 10 and more	53,002	433,139	1,693,044
Economy			
Number of business subjects – active (as of 31.12.2012)	4,033	28,563	74,424
GDP per capita (Euro)**	n.a	5,228	3,631
Employment			
Employment rate(% of employed in working-age population – age 15-64)	43.6	35.4	40.8
Activity rate	52.4	49.4	57.3
Activity rate of women	48.6	41.0	46.2
Unemployment rate (% of unemployed from the labour force)	16.9	28.5	28.7

Source: State Statistical Office, Municipality Karposh, City of Skopje, Central registry of the Republic of Macedonia, Health Insurance Fund and Public Enterprise for Post services AD Skopje.

*Note: last available data

** Note: the data is for the Skopje planning region which constitute of the 10 constituent municipalities of the city of Skopje, as well as few gravitating municipalities around the city, i.e. Ilinden, Arachinovo, Cucer Sandevo, Studenichani, Zelenikovo, Petrovec and Sopiste.

The following table represents the age distribution in the total population. The analysis of data shows that the age groups are mainly distributed in the age groups of 15-50.

Table 1.2. Age repartition

	Municipality Karposh		City of Skopje		Republic of Macedonia	
Repartition	Number	Percent	Number	Percent	Number	Percent
0 - 4	2,837	4.8	30,097	5.9	122,757	6.1
5 – 9	3,142	5.3	32,788	6.5	143,184	7.1
10 – 14	3,550	5.9	35,942	7.1	160,339	7.9
15 – 19	3,760	6.3	38,117	7.5	165,422	8.2
20 – 24	3,657	6.1	40,111	7.9	161,945	8.0
25 – 29	4,030	6.8	39,973	7.9	153,461	7.6
30 - 34	4,741	7.9	38,700	7.6	148,281	7.3
35 - 39	4,671	7.8	36,900	7.3	149,837	7.4
40 - 44	4,228	7.1	35,361	7.0	146,902	7.3
45 - 49	4,406	7.4	37,152	7.3	142,688	7.1
50 - 54	4,328	7.3	37,044	7.3	127,760	6.3
55 - 59	3,595	6.0	27,497	5.4	95,234	4.7
60 - 64	3,674	6.2	24,283	4.8	89,822	4.4
65 - 69	3,632	6.1	21,500	4.2	84,443	4.2
70 – 74	2,672	4.5	14,906	2.9	61,969	3.1
75 – 79	1,713	2.9	9,906	2.0	40,384	2.0
80 – 84	741	1.2	4,484	0.9	18,975	0.9
Above 85	269	0.5	1,916	0.4	7,941	0.4
Age unknown	20	0.0	249	0.0	1,203	0.1
Total:	59,666	100	506,926	100	2,022,547	100

Source: State Statistical Office, Revised Census Data 2005

The following table represents the gender repartition in the total population. As it can be seen, 47.6% of the total population in the Municipality are male, while 52.3% are female, implying that the female population is the prevailing one.

Table 1.3. Gender repartition

	Municipality Karposh		City of Skopje		Republic of Macedonia	
	Male	Female	Male	Female	Male	Female
Number	28,460	31,206	249,689	257,237	1,015,377	1,007,170
%	47.6	52.3	49.3	50.7	50.2	49.8

Source: State Statistical Office, Revised Census Data 2005

The prevailing population is the urban one, whereby around 96.2% of the total population is settled in the urban area of Municipality Karposh (see table 1.4.)

Table 1.3. Urban repartition

	Municipality Karposh		Republic of Macedonia	
Repartition	Number	Percent	Number	Percent
Urban	57,423	96.2	1,169,032	57.8
Rural	2,243	3.8	853,515	42.2
Total	59,666	100	2,022,547	100

Source: State Statistical Office and Municipality Karposh

In relation to the ethnic affiliation of the citizens, the prevailing population in the Municipality Karposh are Macedonians, representing 88.5% of the total population (see table 1.5). It is important to note that each of the above ethnicities speaks its own languages in the informal communication. The officially used language in this Municipality however, is the Macedonian with its Cyrillic alphabet.

Table 1.4. Population repartition

	Municipality Karposh		City of Skopje		Republic of Macedonia	
Repartition	Number	Percent	Number	Percent	Number	Percent
Macedonians	52,810	88.5	338,538	67	1,297,981	64
Serbs	2,184	3.7	14,298	3	35,939	2
Roma	615	1.0	23,475	5	53,879	3
Vlachs	407	0.7	2,557	1	9,695	0
Turks	334	0.6	8,595	2	77,959	4
Bosniacs	98	0.2	7,585	1	17,018	1
Albanians	1,952	3.3	103,891	20	509,083	25
Others	1,266	2.1	8,167	2	20,993	1
Total	59,666	100	506,926	100	2,022,547	100

Source: State Statistical Office, Revised Census Data 2005

According to the data available, there is a slight decline in the number of live births in the Municipality Karposh, albeit with a slower dynamics (see table 1.6) resembling the trend of data for the city of Skopje and Republic of Macedonia.

Table 1.5. Live births number in Karposh

Total Births					
		2009	2010	2011	2012
Municipality Karposh	Male	299	326	287	302
	Female	295	306	243	263
	Total	594	632	530	565
City of Skopje	Male	3,366	3,502	3,370	3,428
	Female	3,161	3,201	3,145	3,156
	Total	6,527	6,703	6,515	6,584
Republic of Macedonia	Male	12,340	12,631	11,752	12,243
	Female	11,344	11,665	11,018	11,325
	Total	23,684	24,296	22,770	23,568

Source: State Statistical Office

Economic profile of the Municipality Karposh

According to the SSO data, private enterprises are operating mainly in wholesale and retail trade (31.4%); professional, scientific and technical activities (13.1%), followed by manufacturing (8.8%), other service activities (7.7%), Construction (7.7%), Transportation and storage (5.4%), Accommodation and food service activities (5.1%), Information and communication (4.9%), Human health and social work activities (4.3%) and administrative and support service activities (3.7%).

Table 1.7. Active business subjects by sectors (as of 31.12.2012)*

Active business subjects by sectors	number	in %
Agriculture, forestry and fishing	27	0.7
Mining and quarrying	12	0.3
Manufacturing	355	8.8
Electricity, gas, steam and air conditioning supply	18	0.4
Water supply, sewerage, waste management and remediation activities	12	0.3
Construction	310	7.7
Wholesale and retail trade; repair of motor vehicles and motorcycles	1265	31.4
Transportation and storage	216	5.4
Accommodation and food service activities	207	5.1
Information and communication	196	4.9
Financial and insurance activities	26	0.6
Real estate activities	50	1.2
Professional, scientific and technical activities	527	13.1
Administrative and support service activities	148	3.7
Public administration and defence; compulsory social security	9	0.2
Education	71	1.8
Human health and social work activities	173	4.3
Arts, entertainment and recreation	102	2.5
Other service activities	309	7.7
Activities of households as employers	0	0.0
Activities of extraterritorial organisations and bodies	0	0.0
Total	4,033	100

Source: State Statistical Office *Note: last available data

When analysing the labour market, the available data show that 26,212 of the municipal population is considered economically active, of which 21,784 are employed, while 4,428 are unemployed. From the total number of the unemployed persons, 53.2% are male, while 46.8% are female. Finally, 23,784 persons are considered economically inactive.

Table 1.8. Activity rates

		Economically active			Economically inactive	Total
		All	Employed	Unemployed		
Municipality Karposh	Number	26,212	21,784	4,428	23,784	49,996
	Percent	52.4	83.1	16.9	47.5	100
City of Skopje	Number	200,937	143,745	57,192	205,455	406,392
	Percent	49	72	28	51	100
Republic of Macedonia	Number	743,676	460,544	283,132	833,325	1,577,001
	Percent	47	62	38	53	100

Source: State Statistical Office, Revised Census Data 2005

General description of the Project

The streets are located in the urban districts of Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho, and Vlado Tasevski (see picture 1.5 below). According to the data available, 3,654 inhabitants live on these streets, which is 6.1% of the total population in the Municipality Karposh. It can be considered that they will have a direct benefit from the implementation of the Project. However, it should also be emphasised that some of these streets are the main traffic arteries in the different districts, whereby it can be inferred that the implementation of the Project will have a wider indirect benefit on the community living in the Municipality Karposh.

The streets are part of the Detailed Local Urban Plans (DLUPs hereinafter) for the urban districts of Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho, and Vlado Tasevski. The DLUPs are adopted by the municipal Council and as such, are a part of the General Spatial Plan (GSP) of the City of Skopje, which is adopted by the city's Council. The DLUPs of these urban districts were used as a base for elaboration of the technical documentation of the Project.

The streets "Ankarska", "Vlae", "Bagdadska", "Alzirska", "Borka Talevski", "Franc Preshern", a branch of the street "Franc Preshern" and "Korushka" that are subject to this PAD principally consist of individual

houses built during 1980s. For the last 30-40 years these streets have existed without stormwater network, which was not built at the time of their construction. In addition, according to the information provided by the Municipality, the streets "Prashka" and "Strushka" are also constructed during the 1980s and they are both in a very poor condition (Picture 1.4 below). The infrastructure on the streets has fallen into such disrepair that an expansive reconstruction is required, so as to extend their useful life. The lack of adequate stormwater network caused a number of health and environmental hazardous impacts as well as traffic inconvenience (discussed in Chapter 6) for the residents on these streets, and as a result they have been constantly complaining to the Mayor and the municipal administration about the situation. Therefore, 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 the Municipality Karposh.

Picture 1.4. Present condition of the streets "Prashka" (left) and "Strushka" (right)


Source: Field research, December, 2013

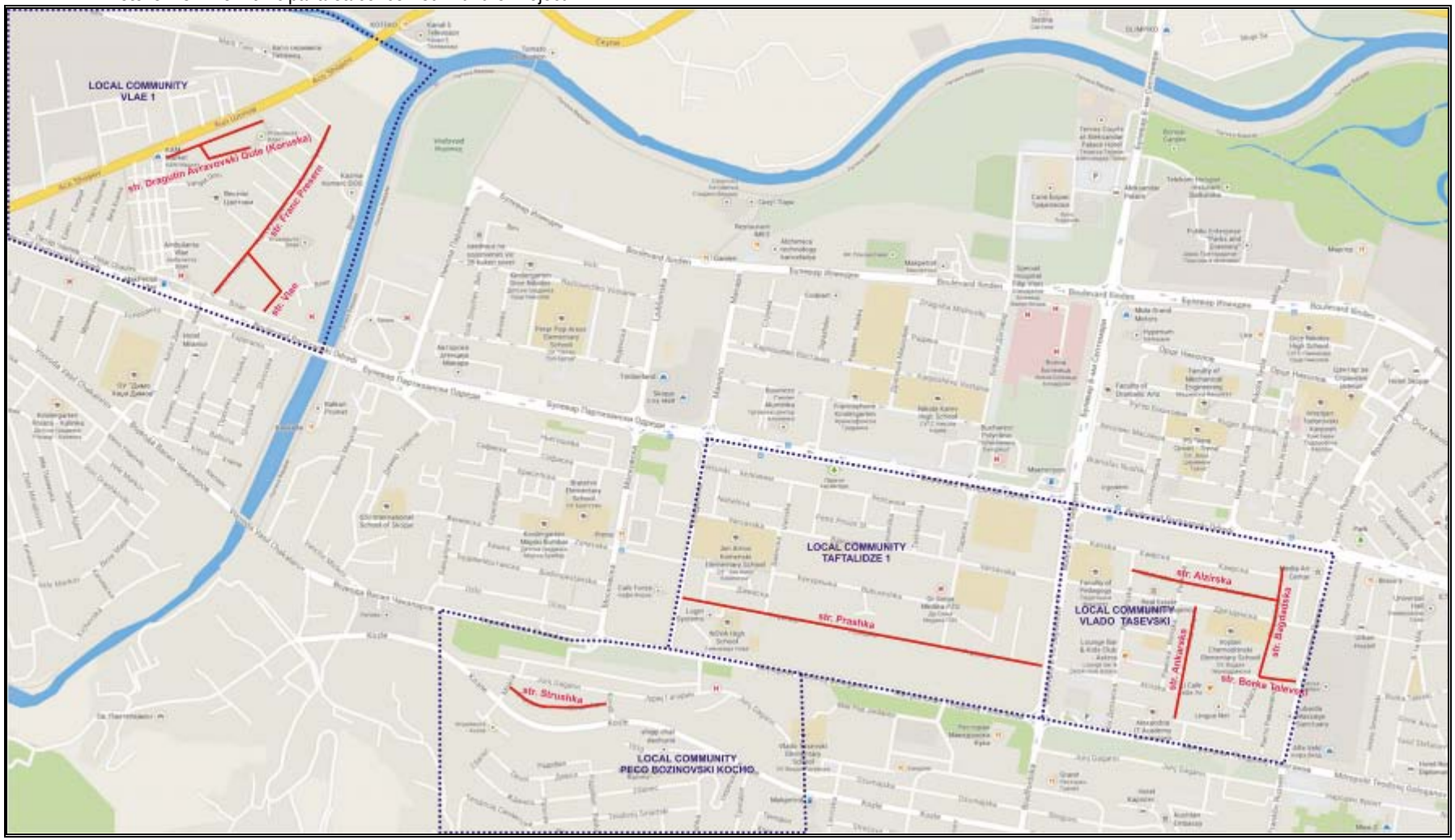
The objectives of the technical solution of the Project are:

- to provide traffic comfort, convenience and safety for the pedestrians and traffic by improving the surface and sidewalks on the streets of "Prashka" and "Strushka", as well as their carrying characteristics;
- to ensure that stormwater inundation of residential and commercial areas located on the flood−prone "Ankarska", "Vlae", "Bagdadska", "Alzirska", "Borka Talevski", "Franc Preshern", a branch of the street "Franc Preshern" and "Korushka" occurs only on very rare occasions and that the velocity/depth conditions during these events are below prescribed limits;
- to ease traffic on the streets, thus improving safety and reliability for pedestrians and goods movement; and
- to satisfy various social, recreational and residential needs of the citizens in the urban districts.

The benefits expected from the implementation of this Project (elaborated in detail in Chapter 6 below) are related to 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 citizens 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. The implementation of the Project is also expected to increase the property value of houses and other residential or commercial objects on the streets, thus increasing the growth of revenues from property taxes.

The implementation of the Project is expected to have environmental impact as well as positive impact on the health of the population, thus influencing higher productivity. It will also retain within each catchment as much stormwater and run−off as possible given the planned use of the terrain and its civil engineering characteristics which will not only reduce the municipal spending, but also private spending on repairs, thus enabling reallocation of the funds to other more beneficial, that is productive use.

Picture 1.5. The municipal area concerned with the Project



Source: Municipality Karposh

**Note:* The municipal area concerned with the Project is marked in blue, while the streets that are subject of this appraisal are marked in red.

Strategic Interest of the Municipality Karposh to implement the Project

If implemented, the Project will contribute towards accomplishment of the strategic goals in the area of infrastructure of the Municipality Karposh. As elaborated in the Strategy on Local Economic Development of the Municipality Karposh as well as the Local Environmental Action Plan and the Annual Program for Communal Utilities of the Municipality Karposh, which are all adopted by the Municipal Council, the municipal administration strives to see the Municipality Karposh with a full coverage of transport and communal (utility) infrastructure throughout its territory. It is important to note that out of the 13 km local road network, around 5km have been already covered with stormwater network. This project will add to the accomplishment of the strategic goal of the municipality in a manner that its accomplishment will lead towards increasing the coverage of stormwater network to around 70%. This will undoubtedly contribute towards improvement of the quality of life and well-being of all citizens of the Municipality Karposh. The lack of adequate stormwater on the streets subject to this Appraisal caused a number of health and environmental hazardous impacts (discussed in Chapter 6) for the residents on these streets and as a result they have been constantly complaining to the Mayor and the municipal administration about the situation. In addition, the project is considered as strategically important since the streets that are subject to the reconstruction are considered as one of the main residential/traffic arteries in the Municipality. As explained earlier, the implementation of the Project will undoubtedly contribute towards increasing 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. This in turn will increase the quality of life and well-being of the citizens. It is also important to state that the Municipality has the intention to improve the transportation network in all districts and to invest in stormwater network wherever deemed necessary. It solves the problems that were persistent for many years. Those, who will be not covered by this Project, can expect that will be provided with such public good subsequently. 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.

Knowledge and Experience of the Municipality Karposh to implement the Project

The knowledge and experience needed for successful implementation of the Project are related to project management, technical knowledge and execution of procurement practices. The Municipality Karposh, the competent authority in this Project, has participated in a wide variety of large construction or other type of Projects with different investors, whereby the Municipality allocated the land and provided the investors with technical services, and gained in return new businesses on its territory or improved housing facilities, schooling facilities, wastewater networks and treatment. The Municipality has implemented several Projects for improving municipal services supported by the Japanese Government, UNDP, USAID, Swiss Agency for Development and Cooperation and others. It can be inferred that the Municipality is able to contribute with the necessary experience to large construction Projects such as the construction of stormwater network of various streets in the urban districts of the Municipality Karposh, in addition to reconstruction on two streets in the urban districts of the Municipality Karposh, envisaged to be financed from the World Bank MSIP funds to the Government of the Republic of Macedonia.

Concluding remarks

The Project is in-line with the Strategy for Local Economic Development and it will contribute towards achieving the vision of the municipal administration for providing full coverage of transport and communal (utility) infrastructure throughout the municipal territory.

The relevance of the Project results from the fact that 6.1% of the total population is influenced by negative implications of the inadequate surface of streets and sidewalks, in addition to stormwater due to lack of stormwater network. However, it should be also emphasised that some of these streets are the main traffic arteries in the different districts, which implies that the implementation of the Project will have a wider indirect benefit on the community living in the Municipality Karposh.

The proposed technical solution is in-line with the existing standards and regulations for this kind of Projects. The knowledge and experience needed for successful implementation of the Project are related to Project management, technical knowledge and execution of procurement practices. Municipality Karposh has implemented various similar Projects in the past, some of which in collaboration with international institutions, which implies that the Municipality is able to implement large construction Projects such as the rehabilitation and/or reconstruction of various streets in the urban districts of the Municipality Karposh.

2. SOCIAL IMPACT

Methodology

The methodological approach was 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 behaviour, stakeholders, participation and social risk. The Assessment anticipated field research to get available information on interests and attitudes of stakeholders. Unfortunately, the time and resources constraint, did not admit field application of all instruments for data collection such as survey, meetings with focus groups, thus the research is reduced to relevant secondary data from the Municipality Karposh and face-to-face interviews with three officials (the Mayor, the Chair of the Council's Committee for communal utilities and Advisor for Communal Utilities in the Department for Urban and Communal Utilities), who gave 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 citizens 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 citizens since being their representatives and having frequent meetings with them, they are very familiar with the needs, attitudes and opinions of the local population.

Nevertheless, the weakness of this approach lies in its indirectness. More precisely, the indirect way of getting information on this issue, plus possibility of subjective approach among some of the interviewees decreases the level of accuracy of the public opinion in this respect. However, the answers from the interviews are very indicative and give a very good insight in the local processes relevant to the Project.

Social diversity and gender

Like in the other Municipalities in the country, in the Municipality Karposh, citizens are organized into various social groups based on their status prescribed at birth (ethnicity, gender, language, etc.). From the demographic data presented in Chapter 1, the following can be seen:

- The age groups are mainly distributed in the age of 15–50. The data show that this is the case both on a city of Skopje's level and on a country level as well;
- The life births number shows that there is a slight decline in the number of live births in the Municipality Karposh, albeit with a slower dynamics resembling the trend of data for the city of Skopje and Republic of Macedonia;
- The prevailing population in the municipality is female, whereas there is a nearly equal representation of male and female in the total population in the city of Skopje's level and on a country level too;
- The prevailing population is the urban one (96.2% of the total population in the Municipality is located in the urban area);
- The prevailing nationality in the Municipality Karposh is the Macedonian, representing 88.5% of the total population;
- Each of the ethnicities in the Municipality speaks its own languages in the informal communication. The officially used language in the Municipality is Macedonian with its Cyrillic alphabet;
- 99.1% of the households are connected to the public water supply system, opposite to 96.5% on the city of Skopje's level and 85.5% on a country's level;

- 95.1% of the households live in dwellings connected to the public sewerage system, opposite to 84.9% of the city's level and 59.8% on a country's level;
- 21.5% of the households live in dwellings connected to the public heating system, opposite to 33.8% on the city's level and 8% on a country's level;
- There are 4,033 active business subjects in the Municipality, opposite to 28,563 active enterprises in the city of Skopje and 74,7424 in the country;
- The activity rate in the Municipality is 52.4%, opposite to 49.4% in the city of Skopje and 57.3% in the country;
- The activity rate of women in the Municipality is 48.6%, opposite to 41% in the city of Skopje and 46.2% in the country;
- The unemployment rate in the Municipality is 16.9%, opposite to 28.5% in the city of Skopje and 28.7% in the country.

Asked about the number of beneficiaries of the Projects, the interviewees expressed their opinion that all of the citizens in the Municipality will be beneficiaries of the Project. However, the citizens who live on the streets of streets of "Prashka", "Strushka", "Ankarska", "Vlae", "Bagdadska", "Alzirska", "Borka Talevski", "Franc Preshern", the branch of the street "Franc Preshern" and "Korushka" located in the urban districts of Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho and Vlado Tasevski, can be considered as direct beneficiaries of the Project. According to the data available, 3,654 inhabitants live on these streets, which is 6.1% of the total population in the Municipality Karposh. However, it should also be emphasised that some of these streets are the main traffic arteries in the different districts, which implies that the implementation of the Project will have a wider indirect benefit on the community living in the Municipality Karposh.

Institutions, rules and behaviour

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 Projects and the overall existing streets and stormwater network in the Municipality Karposh, 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.

Stakeholders

There are several important stakeholders of the Project. The interviewees fully agree that the most influential participants in the process of decision making at the municipal level are the Mayor and the Municipal Council. In addition, potentially influential stakeholder in Karposh is the business sector. The nongovernmental organizations (NGOs hereinafter) are influential to some extent, but not as much as the former. Citizens, as an organized group of stakeholders, articulate their opinion directly to the Council and the Mayor, through the local communities present in every District and they are not very influential stakeholder in the municipal decision making, although their opinion is always taken into consideration.

The interviewees stated that the Project is supported by the Councillors representing different political parties in the Municipal Council, which means that a political consensus is achieved on this issue and that the Councillors are considering this Project as one of the top priorities of the Municipality Karposh. In respect to the citizens, the opinion of most interviewees is that all of the citizens support or will support the Project, because it is in the general interest of municipal community.

Influential stakeholders are the Mayor and the Councillors representing different political parties. As implied earlier, this Project has been supported by the Councillors adding additional weight to its relevance.

The NGOs have some influence, but since this Project will promote environmental protection and improvement of the quality of life in the Municipality Karposh, the NGOs are expected to be in favour of the Project.

The citizens in the urban districts of Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho, and Vlado Tasevski have frequently submitted their complaints about the current situation in the streets that are subject to this Appraisal, which again implies that the citizens are fully in favour of the Project. As elaborated earlier, since this Project is expected to influence the overall living standard in the Municipality, it is expected that the citizens will support the Project.

Participation

It is decided that the loan will be repaid from the municipal budget in the following years. The answers of the interviewees were unanimous that there is no need for any kind of voluntary participation or financial contribution of the citizens.

Social risks

High social risks for carrying out the Project cannot be perceived. In the Municipality Karposh, the Municipal Council consists of 23 Councillors from 6 political parties. Out of the total number of Councillors, 15 support the Mayor, while 8 are in opposition. In spite of their political orientation, the Councillors cannot endanger the realization of the Project because it is a part of the adopted DLUPs for the urban districts of Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho, and Vlado Tasevski, which on the other hand, are a part of the General Urban Plan of the City of Skopje (adopted by the City's Council). The Project is also a part of the Annual Program for Communal Utilities of the Municipality Karposh, which is also adopted by the Municipal Council. As elaborated earlier, the Councillors have already expressed their support for the Project and for raising a loan for its implementation. Namely, the decision (no. 07-656/23) for raising a loan through the World Bank's MSIP funds for support of this Project was adopted on the 11th session of the Municipal council held on 31.01.2014. According to the available information, after the discussion the majority of municipal councillors (19) voted in favour of the Project and raising a loan, two were in opposition while two were absent during the 11th session of the Municipal council.

Interviewees presented a wide range of priorities in many fields that are within the local government competencies. They identified the construction or rehabilitation of infrastructure (communal) facilities, the local economic development, increasing the employment rate, construction of stormwater network, use of renewable energy sources, improvement of social aid and social protection to vulnerable groups, etc. Without exception, all interviewees said that one of the highest priorities is full coverage of stormwater network throughout the Municipality Karposh, while also emphasizing the necessity of reconstruction of the streets in the urban districts that are subject of this Appraisal in particular.

Additionally, it was discussed in detail whether the citizens are fully informed of the intended reconstruction and rehabilitation of the streets that are subject to this Appraisal and the ensuing financial repercussions on the Budget of the Municipality Karposh. The interviewees stated that the citizens are informed in detail about the Project. Their arguments are based on the fact that this Project, i.e. the streets are part of the adopted DLUPs for the urban districts of Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho, and Vlado Tasevski, which were prepared over a long period and a subject of extensive public consultation with the citizens. The Project is also a part of the annual Programme for communal utilities for 2014 adopted by the Municipal council. In addition, the interviews highlighted the frequent complaints by the citizens of the urban districts during the municipal weekly-scheduled open days and the regular meetings of the Mayor and the municipal administration with the local urban communities about the current state of the streets that are a subject of this Appraisal. This implies that the citizens are fully informed about the implementation of this Project.

One very important question that was discussed is related to potential "*feeling of inequality among the citizens and possibility they could endanger the realization of the Project in order to get some personal or group benefits*?" The interviewees stated that it might happen that the realization of this Project causes a slight discontent among the population in the rural areas, simply because they will not be direct beneficiaries of the Project. It should be underlined that the Municipality Karpos is predominantly an urban municipality where according to the data, the majority of population (96.2%) lives in the urban area of the municipality. However, given the fact that most of the streets that are subject of this Appraisal are considered main local streets in four districts, whereas some are recognized as main traffic arteries, all of the citizens both in urban and rural areas should be in favour of the Project. It is also important to state that the Municipality has the intention to improve the transportation network in all districts and to invest in stormwater network 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. Those, who will be not covered by this Project, can expect that will be provided with such public good subsequently.

The interviewees unanimously expressed their opinion that any special technical or economic obstacles and difficulties in the maintenance of the Project could not be expected. They referred to both the implementation phase and the operation's and maintenance phase.

Since the streets that are subject to this Appraisal are set on municipal (state) property, no expropriation issue is expected to be raised.

Other considerations

Construction of stormwater network and the reconstruction of the streets in the urban districts of the Municipality Karposh that are subject to this Appraisal, is expected to improve the overall community living in the Municipality Karposh. The implementation of this Project is expected to create savings in the item of the municipal budget for the streets maintenance on the long-term basis. The implementation of the Project is also expected to improve local public finances in a sense that once the streets are being reconstructed and stormwater network is provided on flood-prone streets, the Municipality will spend less money for repairs 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.

Resettlement issues

This Project is not a subject to resettlement issues because the Project involves reconstruction and rehabilitation of already existing streets in the urban districts on the municipal territory.

Concluding remarks

The Project is expected to be socially successful for the following reasons:

- the Project is relevant because it is considered both as cost-efficient and cost-effective over a long run and also useful for the improvement of the community living in the Municipality Karposh;
- the Project is of a highest municipal priority for the public administration and for citizens;
- the stakeholders are very motivated by the realization of the Project;
- the Project does not bear very high financial burden in comparison to the Budget and the population is not placed into a position to contribute financially, so there is no cause for conflict on this point;
- the Project is not a subject to resettlement issues;
- no expropriation issue is expected to be raised during the implementation of the Project.

3. TECHNICAL SOLUTION

3.1 Description

The technical design assumes reconstruction of the streets "Prashka" and "Strushka". In addition, the the technical design assumes construction of a stormwater network for the flood-prone streets "Ankarska", "Vlae", "Bagdadska", "Alzirska", "Borka Talevski", "Franc Preshern", branch of the street "Franc Preshern" and "Korushka", which are located in the urban districts of Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho and Vlado Tasevski in the Municipality Karposh.

According to the positive regulation in the country, the streets are classified as local residential streets. It is worth mentioning that the streets "Prashka" and "Franc Preshern" are considered main residential streets in the urban districts of Taftaligje 1 and Vlae 1 respectively, which is evident from their width and length.

The basic technical design of the streets is based on extracts from the DLUPs for the urban districts of Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho, and Vlado Tasevski, survey situation in R=1:500, spatial limitation of the terrain, terrain-oriented reconnaissance, as well as available data on the existing and planned infrastructure. The technical design is in-line with the positive regulation, i.e. all applicable laws, secondary legislation and civil engineering and urban-planning standards in the area of reconstruction of streets and installation of stormwater networks.

3.2 Analysis and calculation

3.2.1 Reconstruction of the streets "Prashka" and "Strushka"

According to a European standard and world adopted definition, the street reconstruction Project is a Project whereby many or all meaningful elements of an existing street are being removed and replaced. This would include sidewalks, bituminous or concrete pavement, granular base and items appurtenant to these elements.

The total length of the streets that are to be reconstructed is 1,312.83m, whereas the width varies from 4.8m to 6.8m (see table 3.1 below).

Table 3.1. Length and width of the streets to be reconstructed

Street	Length (m)	Width of the street (m)
"Prashka"	1,015.45	6.8
"Strushka"	297.38	4.8
Total	1,312.83	

Source: Project's technical documentation

Given the fact that the Project concerns existing streets, geotechnical investigations and street sizing have not been carried out. The structure, sizes and layers of the proposed technical design for the streets are based on the positive regulation and standards applicable for this kind of traffic on these streets.

a) Street "Prashka"

The street "Prashka" is the main traffic artery in the urban district of Taftaligje 1 and thus, a street with significant frequency of traffic. The technical solution for the reconstruction envisages the following activities:

- scraping of the existing asphalt layer;
- placing of a new layer asphalt with the following characteristics:
- AB 11 (asphalt concrete layer) with a thickness of 5cm,

removing of existing and placement of new kerbstones and sidewalks on both sides of the streets with a width of 2m, with the following characteristics of the layers:

- 6cm thick paver elements,
- 5cm thick fine sand layer,
- 20cm thick base coarse layer made of crushed stone material.

- From change km 0+310 up to change km 0+ 455 due to intervention one lane from the street have been removed, therefore for this part of the street before laying of AB11, t=5cm the following activities will be performed:
  - compaction of the sub base,
  - installation of road base made of crushed stone material in a thickness of 30cm,
  - installation of bituminous bearing layer of asphalt in a thickness of 7cm.

Street drainage is regulated by taking into account longitudinal and cross slopes on the surface of the street, whereby the catchment of the stormwaters will be performed by the existing gullies along the street.

b) Street "Strushka"

The street "Strushka" is mainly a residential street in the urban district of Peco Bozinovski Kocho. The technical solution for the reconstruction envisages the following activities:

- scraping the old asphalt layer,
- placing of a new AB 11 (asphalt concrete layer) with a thickness of 5cm,
- removing of existing and placement of new kerbstones and sidewalks on both sides of the street with the following characteristics of the layers:
  - 6cm thick paver elements,
  - 5cm thick fine sand layer,
  - 20cm thick base coarse layer.

Street drainage is regulated by taking into account the longitudinal and cross slopes on the surface of the street, whereby the catchment of the stormwaters will be performed by the gullies on the crossings between the street "Mokra" on one hand and street "Korab" on the other.

3.2.2 Construction of storm water drains on the streets "Ankarska", "Vlae", "Bagdadska", "Alzirska", "Borka Talevski", "Franc Preshern", a branch of the street "Franc Preshern" and "Korushka"

The goals of the technical design for the stormwater collection for the flood-prone streets "Ankarska", "Vlae", "Bagdadska", "Alzirska", "Borka Talevski", "Franc Preshern", the branch of the street "Franc Preshern" and "Korushka" are to provide convenience and safety for pedestrians and traffic by controlling stormwater flows, within prescribed limits and to retain within each catchment as much stormwater and run-off as possible given the planned use of the terrain and its civil engineering characteristics.

(a) Street "Ankarska"

The construction of a stormwater network on the street "Ankarska" envisages stormwater pipes of PEHD 100 – SN8 with a diameter of OD315mm. The total length of the pipeline is L=146m with slope of J=0.3% and the technical solution envisages placing of 6 inspection-control manholes and 12 street gullies, which will collect all stormwaters from the street. Their location is determined by taking into account the streets' longitudinal and cross slopes.

The technical solution envisages catchment of the stormwaters on streets "Ankarska" and "Borka Talevski" and whereby the stormwaters will run to the existing stormwater network on the street "Dresdenska".

Technical solution takes into account the existing underground installations (heating, phone, water, sewerage, etc) on the street, whereby special attention is given on the fact that the new stormwater network will not overlap with them.

It is important to state that the technical documentation is complete and there is no need for elaboration of additional documents.

(b) Street "Franc Preshern"

The street "Franc Preshern" is the main residential street in the urban district of Vlae 1. The technical solution for construction of a stormwater network on the street "Franc Preshern", envisages placing of stormwater pipes of PEHD 100 SN8 pipes with a diameter of - OD 500mm. The total length of the pipeline is L=367.75m with different slopes of J=0.2% to J=0.55%. Along the same, 14 inspection-control manholes are envisaged to be placed, in addition to 29 street gullies. Their location is determined by taking into account the streets' longitudinal and cross slopes which enables as much stormwater and run-off as possible given the planned use of the terrain and its civil engineering characteristics.

Technical solution takes into account the existing underground installations (heating, phone, water, sewerage, etc) on the street, whereby special attention is given on the fact that the new stormwater network will not overlap with them.

It is important to state that the technical documentation is complete and there is no need for elaboration of additional documents.

(c) Street "Vlae"

The technical solution for construction of a stormwater network on the street "Vlae", envisages placing of stormwater pipes of PEHD 100 SN 8 pipes with a diameter of OD 315mm. The total length of the pipeline is L=184m with a slope of J=0.33%. Along the same, 7 inspection-control manholes are envisaged to be placed, in addition to 16 street gullies. Their location is determined by taking into account the streets longitudinal and cross slopes which enables catchment of as much stormwater and run-off as possible , given the planned use of the terrain and its civil engineering characteristics.

The technical solution envisages catchment of the stormwaters on street "Vlae" whereby the stormwaters will run to the foreseen stormwater network on the street "Franc Preshern" (also subject to this PAD). The detailed design of the Project acknowledges the necessity of firstly to construct the stormwater network on the street "Franc Preshern", prior the stormwater network on the street "Vlae".

Technical solution takes into account the existing underground installations (heating, phone, water, sewerage, etc) on the street, whereby special attention is given on the fact that the new stormwater network will not overlap with them.

It is important to state that the technical documentation is complete and there is no need for elaboration of additional documents.

(d) Streets "Bagdadska" , "Alzirska" and "Borka Talevski"

The technical solution envisages catchment of the stormwater from the street "Alzirska" and their run to the envisaged stormwater network on the first part of the street "Bagdadska" i.e "Bagdadska 1", whereby it will be connected to the existing stormwater network on the "Partizanski odredi" boulevard. The technical solution also envisages catchment of the stormwater from the second part of the street "Bagdadska" i.e "Bagdadska 2", whereby it will be connected to the existing stormwater network on the street "Dresdenska". In addition, the detailed design of the Project foresees catchment of the stormwater from the street "Borka Talevski", whereby the foreseen network will be connected to the existing stormwater network on the "Franklin Roosevelt" boulevard.

The technical solution on envisages placing of stormwater pipes of PEHD 100 SN8 pipes with a different diameter of DD 315mm,OD 400mm and OD 500mm. The total length of the pipeline is L=569.61m, with a different slope of J=0.2% to J=0.33%. Along the same, 15 inspection-control manholes are envisaged to be placed, in addition to 37

street gullies. Their location is determined by taking into account the streets longitudinal and cross slopes which enables as much possible catchment of the stormwater.

The horizontal technical solution takes into account the existing underground installations (heating, phone, water, sewerage, etc) on the street, whereby maximum attention is given on the fact that the new stormwater network will not overlap with them.

It is important to state that the technical documentation is complete and there is no need for elaboration of additional documents.

(e) Street "Korushka" and a branch of the street "Franc Preshern"

The technical solution for construction of a stormwater network on the street *"Korushka" and the branch of the street "Franc Preshern"* envisages placing of stormwater pipes of PEHD 100 SN8 pipes with a diameter from OD 315mm to OD 500mm. The total length of the pipeline is L=574.37m, hereby including both of the streets with a slope of J=0.33%. Along the same, 23 inspection-control manholes are envisaged to be placed, in addition to 34 street gullies. Their location is determined by taking into account the longitudinal and cross slopes on the streets which enables as much stormwater and run-off as possible given the planned use of the terrain and its civil engineering characteristics.

Technical solution takes into account the existing underground installations (heating, phone, water, sewerage, etc) on the street, whereby special attention is given on the fact that the new stormwater network will not overlap with them.

It is important to state that the technical documentation is complete and there is no need for elaboration of additional documents.

3.2.2.1 Alternative solutions

To provide technical solution a few alternative approaches have been considered in detail. An alternative option for implementation of a stormwater network would be to construct open channels, natural surface channels or canals across the streets subject to this PAD, which would capture the stromwater and take it to the nearest river or pond. Design variants for open channels include dry swales, wet swales and grass channels. However, the engineering characteristics and the configuration of the terrain are such that do not allow for construction of an open channels, natural surface channels or canals. This is the major reason why the engineers in the municipality and the designer of the Project consider that there is no other alternative design for implementation of a stormwater network in the district. The Project is designed according to the existing standards, norms and regulations. In addition it is important to state that the existing stormwater network in the city of Skopje and in the Municipality Karposh in particular, follow the same standards provided by the PE "Water Supply Network and Sewage System – Skopje" for implementation of stormwater networks.

3.3 Concluding remarks

The Project is in line with the existing positive regulation and standards in the country. The Project is part of the DLUPs for the urban districts Taftaligje 1, Vlae 1, Peco Bozinovski-Kocho and Vlado Tasevski in the Municipality Karposh, which were used as a base for elaboration of the technical documentation of the Project.

The technical solution assumes reconstruction of the streets "Prashka" and "Strushka", in addition to construction of a storm-water network for the flood-prone streets "Ankarska", "Vlae", "Bagdadska", "Alzirska", "Borka Talevski", "Franc Preshern", branch of the street "Franc Preshern" and "Korushka".

The existing stormwater network has a sufficient capacity to receive additional rain water quantities. The design is based on hydrology and hydraulic calculations for rainfalls with 20 min duration and two years repetition, including in the calculations all the catchment areas in order to obtain the required capacity of the storm water system.

The technical design is in line with the positive regulation, i.e. all applicable laws, secondary legislation and civil engineering and urban-planning standards in the area of streets and stormwater networks. It is worth mentioning that the Municipality Karposh has proposed the construction of stormwater and reconstruction of these streets as of its utmost priority based on public hearings and various complaints with the citizens as well as the strategic goals set in the Strategy for local economic development. The various benefits of the implementation of the Project are elaborated in the subsequent chapters of the PAD.

4. ENVIRONMENTAL IMPACT

The project consists of several sub projects with activities on construction of storm water network on various streets in the urban settlements Vlae 1 and VladoTasevski in the Municipality of Karposh and reconstruction of two streets in the urban settlements Taftaligje 1 and Peco Bozinovski–Kocho. The main characteristics of the sub-projects are the following:

a) Reconstruction of the sidewalks and surface of the streets "Prashka" and "Strushka" (the storm water system already exists) because these streets are constructed during the 1980's and both are in a very poor condition (see picture 1.4, PAD Chapter 1); and

b) Construction of a stormwater network for the flood-prone for streets "Ankarska", "Vlae", "Bagdadska", "Alzirska", "BorkaTalevski", "Franc Preshern", a branch of the street "Franc Preshern" and "Korushka". These streets were also constructed during 1980's and for the last 30-40 years they have existed without stormwater network, which was not built at the time of their construction.

Location of sub-projects

All streets included in this project are located in the urban settlements ofTaftaligje 1, Vlae 1, Peco Bozinovski – Kocho and VladoTasevski (see picture 1.5, PAD Chapter 1). The entire project area is located in urban area in City of Skopje, Municipality of Karposh.

The project location in urban settlement ofTaftaligje 1 (street "Prashka") is nearby family houses, one high school (NOVA), primary school (NOVA) and two kindergartens. Along this street there are a few residential buildings under construction. In local settlement VladoTasevski the project location is close to family houses, one faculty, one primary school, one public institution, one high school building and several catering facilities. In Vlae 1 the project location is near the family houses, school, kindergarten and playgrounds. The project location in urban settlement of Peco Bozinovski– Kocho is close to family houses, buildings for retail sales, car service and educational institutions.

Main sub-project activities with environmental impact

For each sub-project related to reconstruction of the sidewalks and surface of the street and construction of the stormwater network there are different project activities (provided in the main design for each project), but mainly the general construction activities consists of: dismantling of the existing equipment, replacement of existing curbs with new, demolition/ excavation of existing sidewalks, removing and scrapping the asphalt layer, placing concrete curbs, concrete interlock tiles, gullies and manholes for drainage, placement of asphalt for leveling and wearing course.

The technical solution for construction of a storm water system on the streets of "Ankarska", "Vlae", "Bagdadska", "Alzirska", "BorkaTalevski", "Franc Preshern", a branch of the street "Franc Preshern" and "Korushka"envisages placing RC/PE pipes with different diameters and total lengths, placement of inspection manholes and street gullies.

The main types of activities during implementation of sub-projects in urban area of Municiplaity of Karposh is provided in the table below.

Sub-project	Settlement	Length	Width	Type of activity
Reconstruction of the streets				
"Prashka"	Taftalidge 1	1,015.45m	6.8m	- scraping of the existing asphalt layer; - placing of a new layer asphalt; - removing of existing and placement of new kerbstones and sidewalks on both sides of the streets; - compaction of the sub base, - installation of road base made of crushed stone material; - installation of bituminous bearing layer of asphalt.
"Strushka"	Peco Bozinovski Kocho	297.38m	4.8m	- scraping the old asphalt layer; - placing of a new asphalt concrete layer; - removing of existing and placement of new kerbstones and sidewalks on both sides of the street.
Construction of storm water network				
"Ankarska"	VladoTasevski	146m		- construct open channels, natural surface channels or canals across the streets, which would capture the stromwater and take it to the nearest river or pond.
Branch of the street "Franc Preshern"	Vlae 1	367.75m		
"Vlae"	Vale 1	184m		
"Bagdadska", "Alzirska" and "BorkaTalevski"	VladoTasevski	569.61m		
"Korushka"	Vlae 1	574.37m		

Main environmental impacts and sensitive receptors

All project locations are in urban settlements: "Taftalidze 1", "Vlae 1", "VladoTasevski" and "Peco Bozinovski Kocho" in the Municipality of Karposh in the close surrounding of the river Vardar and its tributary river Lepenec. The vicinity of the rivers as well as their categorization refers to the existing water quality should be taken into account due to potential adverse impacts of the sub-projects to water quality (improper waste management – disposal of waste streams along the rivers).

The water characterization of the Vardar River at the measurement point in Municipality of Karposh is III and IV class (I-V classes are defined according the national legislation, the I class is the best quality and the V class is the worst quality). The III and IV class means polluted, which cannot be used for bathing and recreation, water sports and fish growing. Referring to the microbiological status, the river Vardar belongs to II and III class at the same measurement point. On the same measurement point the river Lepenec is III class quality. The proper waste management could prevent the additional pollution of river Vardar initiated by the sub-projects.

According the national water related legislation (Law on waters - Official Gazette No. 87/08, 6 / 09, 161/09, 83/10, 51/11, 44/12, 163/13 and secondary legislation) there is no any categorization of the storm water discharge. These storm waters are not classified as "waste waters" and no any permit required for their discharching. There are precautionary measures proposed by the CSE "Vodovod I kanalizacija" in Skopje within the issued "Regulation on the technical and sanitary conditions for discharging the waste waters in the sewage system within City of Skopje" where there is a ban for discharging of urban, industrial waste waters within the storm waters systems (mixed waters) to avoid pollution within the sewage system of City of Skopje. Also, there is a need for removal of any kind of solid materilas (e.g., sand, stones, glass) before the waters are discharging into the sewage collector system of City of Skopje.

The environmental impacts are expected on short-term basis- during the reconstruction period and the impacts will be with minor local significance. The good construction practice and associated measures could prevent and/or mitigate the short-term adverse

impacts. The main risks are safety and health for workers and community risks that could appear as a result of very urban area and surrounding of the project sites. The major impact is expected as a result of traffic disturbance during the reconstruction period, improper waste management with different waste streams, noise from the outdoor equipment (especially near schools, family houses and public institutions) and pollution of ambient air.

In order to prevent the adverse environmental impacts and to ensure regular transportation of goods and people across the settlements within the municipality the preparation of the Traffic Management Plan is essential to be adopted prior the start of the activities. The Plan should include the re-routing directions and works time schedule. The Information note/Press release about the project activities (start, timeframe and re-routes of traffic) need to be prepared by the Municipality of Karposh staff and announced via municipality board, web page or municipality newspaper (Karposh Urban) just in time. This is very important especially prior the asphalting of the streets.

The sensitive receptors of the planned project activities are citizens living and working near the project locations and kids, students and professors. According to the Law on noise sensitive protection (Official Gazette No. 79/07, 120/08, 1/09) all these areas (schools, living area and playgrounds) have been identified in the same noise areas. The living area, schools and playgrounds 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.

Air emissions that may occur during the implementation of sub-projects are from the phase of reconstruction of the roads and emissions from vehicles in the phase of road use. In the reconstruction phase of the roads, sources of air pollution are construction machinery (trucks and excavators), which will be used for supply of raw material and pipes, excavation of soil, scrape the asphalt, etc. The dust management measures should be implemented as well in order to reduce the PM (particulate matters – dust) emissions.

Different waste streams could be found on the reconstruction sites, so the compliance with the waste hierarchy principles is essential. The Contractor needs to communicate with the municipal staff at the beginning of the project in order to get instructions where to dispose the waste streams. Keeping records of temporary and final disposal of waste is also important.

In order to minimize the negative impacts on the safety of workers and the population living near the construction site, the Contractor should compulsory provide fencing, marking and putting signs on the construction site and should also provide use of personal protective equipment for workers in accordance with the good construction practice. Also, the citizens of the municipality of Karposh should respect the alert signs placed on the construction site and recommendations from the Contractor - prohibition of entry into the construction site in order to prevent the possibility of injury and causing accidents.

Other mitigation measures that need to be applied before and during construction activities are included in the Environmental Mitigation Plan – provided below. The main responsibility for implementation of the mitigation measures lay to the Contractor and Supervisor (nominated by the Municipality of Karposh) on daily basis. Some of the measures should be applied by the municipal staff (announcement of the traffic regime, recording the waste quantities, regular communal and environmental inspection).

According the national legislation, the Environmental Impact Assessment Reports for all construction and reconstruction projects were prepared in February 2014 (Center for promotion of sustainable agricultural practices and rural development “CeProSARD” Skopje). The adoption of the Reports was performed by the Mayor of the Municipality of Karposh on 26.2.2014 and the Decisions were issued. The Reports contain the main project goals, project activities, photos of the locations where the construction/ reconstruction activities will be performed and proposed general environmental mitigation measures. The detailed relevant Environmental Mitigation Plan and Monitoring Plan for all sub-projects are presented in the following Tables.

Table 4.1. Environmental mitigation plan

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
Reconstruction of 2 streets and construction of water storm system on 7 local streets in the Municipality of Karposh				
Preparation activities before construction works start Marking out the route and reconstruction of 2 streets and construction of water storm system at 7 streets in the Municipality of Karposh	Possible adverse social and health impacts to the population, drivers and workers due to: – Lack of ensured safety measures at the start of reconstruction works – Injury passing near by the construction sites and open trench and manholes – Not compliance with strict OH&S standards and work procedure – Inappropriate public access within the district	Local/ within the settlements: Taftalidze 1, Vlae 1, VladoTasevski and Peco Bozinovski Kocho Short term during the reconstruction period (different lengths – from 146m up to 1.015m) Significance - major	➢ Preparation of the Traffic Management Plan together with the municipal staff prior start up activities; ➢ Provision of the information via municipal newspaper (Karposh Urban) and municipality board about the 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 site including: • Ensure the appropriate marking out the construction site /section by section along the streets; • Placement of attention signs especially for limitation of speed driving near the streets under reconstruction; • Warning tapes and signage need to be provided; • Installation of Notice board with general information about the project, Contractor and Supervisor at each street/sub-project; • Forbidden of entrance of unemployed persons within the warning tapes; • Community and Worker's OH&S measures should be applied (first aid, protective clothes for the workers, appropriate machines and tools); • The street and around sidewalks/ small roads should be kept clean; • The mobile toilet should be placed on the construction sites; • Machines should be handled only by experienced and trained personnel, thus reducing the risk of accidents; • Constant presence of firefighting devices should be ensured 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 reconstruction streets.	• Contractor –Bidder • Supervisor • Municipality staff (Communal Inspector and Environmental Inspector)
	Possibleimpacts on	Local/within the	• Good construction practices have to be implemented – including fencing and protection	• Contractor –Bidder

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	landscape and visual aspects	settlements short term /minor	of construction site according to national legislation; • Minimization of the construction 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); • Fully clean-up of the construction sites immediately after accomplishment of 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).	• Supervisor
	Possible emissions by transportation vehicles and impact on air quality in the Municipality of Karposh due to: – Gases emissions of dust-suspended particulates – Traffic congestion will be caused as well causing changes in existing traffic circulation	Local/ within the districts short term/ major	• Reconstruction site, 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; • Usage of protective masks for the workers if the dust appears; • Restriction of the vehicle speed within the construction location; • Perform regular maintenance of the vehicles and construction machinery in order to reduce the leakages of motor oils, emissions and dispersion of pollution; • Burning of debris from ground clearance 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 districts short term /minor	• Whole noise protection area is relevant: the living area, schools, and faculty and playgrounds belong 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; • The control of noise level should be performed during work peaks in the vicinity of the school and faculty; • The temporary noise protection barriers should be installed around the schools and faculty near the construction sites.	• Contractor –Bidder • Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
			• The construction work should be not permitted during the nights, the operations on site shall be restricted to the hours 7.00 -19.00.	
	Possible impact on water courses – river Vardar and river Lepenec near the project site in the Municipality of Karposh	Local/ short term/ minor due to the distance from the project site	• Minimize storage or disposal of substances harmful to water – river Vardar and river Lepenec (e.g. fuels for construction machinery) on the construction site; Organize proper handling and storage. • The road should be kept 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 The inappropriate waste management and not in time collection and transportation of waste streams	Local within the districts short term/ major	• Identification of the different waste types at the reconstruction site (soil, sand, asphalt, bottles, food, etc.); • Classification of waste according the national List of Waste (Official Gazette no.100/05); • The main waste would be classified under the Waste Chapter 17 "Construction and demolition wastes (including excavated soil from contaminated sites)" with the waste code 17 01 – Waste from concrete, bricks, 17 05 04 – Excavated soil, 17 09 04 – Mixed waste from construction site; • Small amount of solid municipal waste could be found (food, beverages), as well as packaging waste (paper, bottles, glass, etc.).	• Contractor –Bidder • Supervisor
			• Collection, transportation and final disposal of the inert and communal waste by the CSE "Komunalna Higiena Skopje"; • Possible hazardous waste (motor oils, vehicle fuels) should be collected separately and authorized collector and transporter should be sub-contracted to transport and finally dispose the hazardous waste; • The materials should be covered during the transportation to avoid waste dispersion; • Burning of construction waste should be prohibited.	• Municipality staff (Communal Inspector) • Mayor of the Municipality of Karposh • CSE "Komunalna Higiena Skopje"
• *No environmental impacts are expected during the Operational phase* • The regular cleaning of the separation tanks for the storm waters washed away along the streets is needed in order to prvent the overload with solid materials and occurring the flood. The main responsibility is on the Municipality of Karpos in coordination with City of Skopje and CSE "Vodovod I kanalizacija".				

Table 4.2. 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 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)								
The safety protection measures applied for the workers	On the construction 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 of Karposh	
Project stage: Reconstruction of streets and construction of storm water system in the Municipality of Karposh								
Safety traffic flow through the settlements: Taftalidze 1, Vlae 1, VladoTasevski and Peco Bozinovski Kocho	On the site	Visual monitoring	During the working day	To ensure the coordinated traffic flow through the settlements: Taftalidze 1, Vlae 1, VladoTasevski and Peco Bozinovski Kocho			Contractor - Bidder Supervisor Communal Inspector at the Municipality of Karposh	
Disposal of the waste streams (solid and liquid) near the river Vardar and/ or river Lepenec as potential pollution of good ecological status of water course	In Karposh near the project areas	Visual check if the waste is disposed near the Vardar 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 site	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	On the sites	Visual monitoring	After the collection	Not to leave the waste on			Contractor – Bidder	

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 of local roads	Operations of the local roads
transportation and final disposal of the solid waste	and around the sites in all three districts	and reviewing the transportation and disposal lists from the sub-contractor	and transportation of the solid waste on regular base each day	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			Supervisor	
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 Municipality of Karposh/ Ministry of Environment and Physical Planning	
Temporary noise protection barriers installed around the schools and kindergarten	Around the schools	Visual check	Before the construction work start at the site near the schools and faculty	To minimize the noise disturbance of the sensitive group of people			Supervisor/ Communal inspector	
Noise measurements	Near the schools	Noise measurements	During the work peaks	To ensure noise level limits according regulation			Contractor - Bidder	
Clean up of the separation tank at the end of storm water system along the streets	At the storm water separation tanks location	Visual check	On regular basis and especially after hard rain when a big quantity of rain water could be discharged over the streets	To ensure that the separators are clean from disposed solid materilas coming from storm waters washing on the streets. To avoid flooding				Mayor of Municipality of Karposh in coordination with Mayor of City of Skopje and CSE"Vodovod il kanalizacija" Skopje

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