



PROJECT APPRAISAL DOCUMENT

**SOPISTE MUNICIPALITY
REHABILITATION OF VARIOUS STREETS**

AUGUST 2015

I. PROJECT DESCRIPTION

A. GENERAL INFORMATION ON THE MUNICIPALITY

Sopiste municipality is located in the central part of Macedonia and covers an area of 253.35km². Geographically, the municipality occupies the southwestern part of the Skopje Valley, along the Markova Sushica River and its junction with the River Treska, on the slopes of the Vodno Mountain.

The physical-geographical conditions within the municipality are extremely variable and some of them (climate, flora and fauna) occur as promoters of development of the settlements, and other (hydrological, hydrographic features) as inhibitors, whereas others show strong variability and polarization (topography, soil) and their impact on human settlements depends on their location. Despite the mountainous character and the peripheral position relative to the Skopje Valley, Sopiste municipality still has a favorable geographical position, due primarily to the immediate vicinity of Skopje.

Figure 1: Location of the municipality



Sopiste municipality is characterized by a transition between a continental and mountainous climate, with an average annual temperature of 11°C. In terms of precipitation, they are at greater intensity than Skopje valley, ranging between 600 and 1000mm per square meter, depending on the altitude. The average annual insolation is between 45-50%, but in terms of the Skopje Valley it's significantly greater in December, which is favorable for settlements in this area, due to the southern positioning of Sopiste, hence the warmth of the area.

The surface hydrographic network of the municipality's area is poorly developed, mostly because of the intense process of karstification that engulfed the terrains of Karadzica, Suva Planina and Venec. If we exclude the rivers Markova Reka and Treska, which mark the boundaries of the municipality, the conclusion remains that the only constant water flow is the Brzovechka River and the upper part of River Patiska. Further, there are several recurring streams that dry up in the dry summer periods. Concluding, Sopiste is poorly equipped in water resources, however the limestone foundations haven't been sufficiently examined to determine the possible potential of groundwater, which can be a decisive impulse for the development of the municipality.

The lack of water for households is a major inhibiting factor for the development of settlements and secondary housing, which can be seen in the settlements that are not connected to the water supply in Skopje.

The area of the Municipality of Sopiste is characterized by extremely diverse terrain and geological composition. The substrate consists of mainly metamorphic and sedimentary rocks of varying age. The eastern part of the area is dominated by dolomitic marbles, while the river basin of the Markova

River contains widespread Neogene lake sediments.

B. DEMOGRAPHIC PROFILE

According to the last census on Population, Households and Dwellings in Macedonia 2002, Sopiste has 5656 inhabitants (2875 households, 3398 apartments), who live in 13 compact settlements, with the absence of a classic urban center.

Table 1: Main characteristics of settlements

	Settlement	Population	Households
1.	Sopiste	1365	601
2.	Rakotinci	394	351
3.	Dobri Dol	431	234
4.	Dolno Sonje	707	437
5.	Gorno Sonje	240	558
6.	Barovo	24	10
7.	Govrlevo	31	43
8.	Chiflik	664	125
9.	Sveta Petka	718	129
10.	Jabolci	44	83
11.	Nova Breznica	89	88
12.	Drzhilovo	365	84
13.	Patishka Reka	584	132
	Total:	5656	2875

In the past, due to the policy of the depopulation of villages, there was a lot of movement from the countryside to Skopje. Today, the return of the population to the countryside is evident, partly caused by the weakened economic state, but also due to the imposed new lifestyle. This reverse migration from town to villages, the migrated population became a permanent population within the municipality.

The municipal population is relatively stable, with a tendency to slow natural growth. Apart from high natural population growth in the past, it is now in the process of decline due to the following two reasons:

- High natural growth in the four areas where the population is predominantly Muslim;
- Demographic stability of the population in some of the settlements in the suburban area of Skopje, where the degree of regression of the population is proportional to the distance from Skopje and the absence of functional and attractive factors.

In 2014 Sopiste municipality lost part of its population for the sake of the Kisela Voda Municipality. As a result the population decreased from 9522 to 5656.

Table 2: Municipal population by ethnicity

Ethnic group	Number	Structure (%)
Macedonians	3404	60.2
Albanians	1942	34.3
Turks	243	4.3
Serbs	32	0.6
Vlach	4	0.1
Others	31	0.5
Total:	5656	100

This project does not discriminate against any ethnicity. On the contrary, it addresses the problems of different ethnic groups. Out of the 6 villages directly influenced by the project, only one has an Albanian population (Sveta Petka), one has a mixture of Macedonians/Albanians (Barovo), and another has a Macedonian/Turkish mixture (Drzilovo), while the remaining 3 comprise mostly of Macedonians.

C. ECONOMIC PROFILE

The economic characteristics of the municipality are very specific due to a unique mix of natural, social and historical factors and the strong gravitational relationship of this region to the city of Skopje. Generally, one could distinguish:

- A relatively high utilization of the land,
- A heterogeneous structure of agricultural land, with many crops and a low level of mechanization,
- An absence of industrial facilities, employment of the population outside the territory of the municipality,
- A relatively well-developed infrastructure.

Table 3: Active business entities by size

	Micro	Small	Medium	Large	Total
2011	68	31	-	-	99
2012	90	21	-	-	111
2013	86	16	1	-	103
2014	191	17	1	-	219

In the municipality there is a sharp distinction between the different areas of agricultural production, due to the strong spatial variability of natural factors. In the basin of Markova Reka there are dominant areas intended for agricultural and orchard production, with cereal and vegetable crops which are most prevalent in the lower parts, while in the higher parts there is corn, barley, orchards, garden or forage crops. Higher terraces with southern or eastern exposure are planted with vines or vegetables.

An important part of the municipality consists of forest (40%), which has economic importance and is intensively exploited, particularly in the area of the village Drzhilovo and Patiska River and to the west, the "Jasen" reserve, where logging is minimal.

Farming is poorly developed. It is mainly a semi-nomadic type of grazing of roughly 100 cows and 2,000 sheep.

Table 4: Active business entities by sectors on business activity (2014)

Business activity	Number
Agriculture, forestry and fishing	14
Mining and quarrying	2
Processing industry	33
Water supply and disposal of waste water, waste management, rehabilitation of the environment	1
Construction	40
Wholesale and retail trade, repair of motor vehicles and motorcycles	65
Transportation and warehousing	39
Accommodation and food service activities	6
Information and communications	1

Professional, scientific and technical activities	4
Public administration and defense, compulsory social security	2
Education	2
Health care and social care	6
Other services	4
Total:	219

Most of the municipal population is employed in the secondary and tertiary sectors in Skopje. Employment sits at about 40% of the working age population.

Overall, the economic development of the municipality of Sopiste is inseparably tied to Skopje and is highly sensitive to all the processes that take place in Skopje.

D. GENERAL DESCRIPTION OF THE PROJECT

The project envisages the rehabilitation of six various streets in different villages of the municipality, including: street no. 7 and no. 24 in the village of Sopiste, street no. 12 in the village of Dolno Sonje, street no. 11 in the village of Gorno Sonje, as well as the local road between the village of Dolno Sonje and Sveta Petka, and the local road from the village of Drzilovo, to the junction of the regional road from Skopje to the Kozjak Dam.

The total length of the streets that are subject to this Appraisal is 8799m, varying in length from 397m to 3180m, while the width of the streets varies from 3.5m to 5m.

The basic characteristics of the streets/roads will not change, i.e the width, length and route direction will remain the same as the existing ones.

According to the current situation and the information provided by the municipality, two of the above mentioned streets: “street no. 12” in Dolno Sonje and “street no. 11” in Gorno Sonje are paved with a crushed stone layer. The other four streets/roads have an upper layer that is damaged asphalt because of the mountainous terrain, standing at an altitude of around 700 meters above the sea level and further accompanied by significant amounts of snowfall during the winter periods. They are all in a very poor condition lacking in appropriate drainage and constructive road elements. The infrastructure on the streets has fallen into such disrepair that an expansive rehabilitation is required, so as to extend their useful life. 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 of Sopiste.

The benefits expected from the implementation of this project are related to increasing the traffic safety and comfort, increasing the traffic capabilities 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 public transport services and forces the citizens to search for alternative routes, which ultimately results in a fall of productivity. Additionally, the implementation of the project is expected to lead towards the reduction of municipal costs for constant repairs of the streets to fill the holes with soil (tampon). 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 facilities on the selected streets, thus increasing the growth of revenues from property taxes.

1. Current situation

Transport infrastructure in the municipality is well developed, with a total of 200km roads, of which 58km are local roads (out of this number 49km are asphalted, while others are macadam or earth). None of the local streets have a storm water management system. The streets covered by this project already have water supply but do not have a sewerage system. Only the village of Sopiste in

the Municipality of Sopiste has a sewerage system. According to municipal data the streets covered by this project have 2012 inhabitants, and on those streets 831 vehicles transit every day. The local road Dolno Sonje-Sveta Petka has a transit character as it connects four villages in the municipality (Dolno Sonje, Sveta Petka, Barovo, Ciflik) and an estimated transit of 1200 inhabitants and 500 vehicles, as it is the only road that connects the villages with the city of Skopje. For these reasons the municipality is making systematic efforts to improve the road infrastructure and provide asphaltting of new local roads, but its financial capacity is limited. Over the last 4 years it managed to construct/reconstruct and rehabilitate 17.5 km of local roads mostly with funds achieved from the World Bank or European Investment Bank.

Table 5: Implemented infrastructure projects in Sopiste municipality

	Project name	Financing source
2014		
1.	Regional road Sopiste-Skopje 4.41km	MTC
2.	Rehabilitation street 33 Sopiste 200m	OF
3.	Rehabilitation street 22 Sopiste 200m	OF
4.	Rehabilitation R-2134 11km	ASR
5.	Rehabilitation R1106 16km	ASR/OF
6.	Reconstruction local road Patiska Reka 1km	OF
7.	Reconstruction local road Rakotinci- sv Ilija 370m	OF
8.	Technical documentation for regional road Sopiste-K.Voda	AFSARD
9.	Reconstruction local road street 27 Sopiste 1.1km	WB
10.	Urban Planning for v. G.Sonje	AFSARD
11.	Urban Planning for v. Sopiste	MTC
12.	Construction of playground in v. Ciflik	OF
2013		
1.	Construction of local road Sopiste- Rakotinci-D.Dol 2.4km	WB
2.	Construction of street 1 v. D.Dol 400m	ASR
3.	Reconstruction of paved road v.sv.Drzilovo 4.7km	AFSARD/OF
4.	Construction of new public taps in v.D.Sonje and v.D.Dol	OF
5.	Reconstruction of paved road v.Ciflik 1km	AFSARD
6.	Reconstruction of paved road v.sv.Petka 1km	OF

Abbreviations: AFSARD – Agency for financial support of agriculture and rural development, OF – own funds, MTC – Ministry of Transport and Communications, ASR- Agency on State Roads, BRD – Bureau for Regional Development, MEPP – Ministry of Environment and Physical Planning WB-World Bank.

E. STRATEGIC GOALS

If implemented, the project will contribute towards the accomplishment of the strategic goals in the area of infrastructure of the Municipality of Sopiste. The municipal administration recognizes the rehabilitation of local roads as its highest strategic priority in the area of improvement for the municipal infrastructure. The mayor and the municipal administration strive to achieve full coverage of transport and communal (utility) infrastructure throughout the municipal territory.

In 2011 the municipality prepared the Strategic Plan on Local Economic Development of Sopiste Municipality 2011-2015. In the process of strategic planning the municipality identified 11 areas. The second was the development of infrastructure, with defined specific goals concerning local roads. Therefore, one might claim that the project meets the long run development objectives of the municipality.

Based on its legal obligations the municipal council approved the “Program on Arranging/ Regulating of Undeveloped Construction Land and Maintenance of Communal Infrastructure in the Sopiste Municipality in 2015”. The municipal council confirmed that these six streets are priorities for rehabilitation. The program assumes preparation of detailed designs for roads included in this

project and their rehabilitation.

The core objectives of the project are as follows:

- Facilitate local communication in the municipality,
- Provide traffic comfort, convenience and safety for the pedestrians and traffic by improving the surface of the road/streets as well as their carrying characteristics,
- Decrease transport costs,
- Increase in work productivity,
- Improve quality of life - satisfy various social, recreational and residential needs for citizens in the local communities.

It can be inferred that the achievement of the above elaborated goals will undoubtedly contribute towards the improvement of the quality of life and the well-being of municipal citizens, as well as visitors who have holiday cottages there, since this area is greatly used for holiday and recreational activities. This can also contribute to an increase in the sale of construction plots there, thus increasing municipal revenues.

F. KNOWLEDGE AND EXPERIENCE OF THE MUNICIPALITY OF SOPISTE TO IMPLEMENT THE PROJECT

The municipality has implemented several projects on the improvement of municipal services supported by USAID, the Swiss Agency for Development and Cooperation as well as others. It can be inferred that the municipality is able to contribute with the necessary experience to large construction projects such as HPP (hydro power plant Patiska River), street lighting and the rehabilitation of various streets in the urban districts of the Municipality of Sopiste envisaged to be financed by the World Bank MSIP funds.

G. CONCLUDING REMARKS

The project is in-line with the strategic priorities of the municipality and will contribute towards achieving the vision of the municipal administration for providing full coverage of transport and a communal network throughout the municipal territory.

The relevance of the project results from the fact that the project refers to the whole territory of the municipality and further 33% of the total population lives along the streets which will be reconstructed, hence it is expected that the project will undoubtedly contribute towards the improvement of the quality of life and well-being of all of the citizens of the Municipality of Sopiste. The proposed technical solution is in-line with the existing standards and regulations for this kind of project. The knowledge and experience required for the successful implementation of the project are related to project management, technical knowledge and the execution of procurement practices. The Municipality of Sopiste has implemented various similar projects in the past, some of which have been in collaboration with international institutions, which implies that the municipality is capable of implementing large construction projects such as the rehabilitation of local roads.

II. SOCIAL IMPACT

A. METHODOLOGY

This section provides appraisal of possible social ramifications through active stakeholder participation and their effective mitigation. In the case of construction projects and their influence on the relevant human environment, there may be a more dispersed collection of interested and affected public, interest groups, organizations and institutions.

Questions about the social impact of the project are selected according to methodology: Five entry points, amounting to one result. The methodology is based on the methodological concept of the World Bank summarized as five entry points, one result. This concept requires the research of five components - social diversity and gender, institutions, rules and behavior, stakeholder participation and social risk. Estimates projected field research work in order to get the available information about the interests and views of the population and stakeholders.

Throughout the course of this study we interviewed 7 representatives of which 2 were women and 5 were men, 4 were Macedonian, 2 were Albanian and 1 was Macedonian Muslim. Regarding their educational background 3 of the representatives had a tertiary background, 3 have completed secondary studies and only 1 had a primary education. All agreed that the municipal needs in infrastructure are high, especially rural roads as less than half of the local roads are asphalted. On the other hand the municipal capacity to finance such projects is limited.

B. SOCIAL DIVERSITY AND GENDER

The population of the Municipality of Sopiste is relatively stable, with a tendency to slow natural growth. The territory of the Municipality of Sopiste according to the Statistical Office totals to a population of 5656 inhabitants of which 2895 are men and 2761 are women. Municipality Sopiste has 13 villages of a compact type. All residential areas along with village Sopiste and Skopje are connected by asphalted roads. Part of the transport infrastructure that leads to the village is old and partially destroyed, which makes the movement of traffic and the speed of access to the village difficult. The improvement of transport infrastructure can improve the accessibility to the villages and create new investments.

C. INSTITUTIONS, RULES AND BEHAVIOR

Citizen opinions about the success of the project depend on various assumptions, such as guarantees for implementation, monitoring the progress and providing systematic information. The selected contractor must give guarantees for the realization of the project. Council might ask information from the mayor in reference to the project's realization at any time.

Another interviewee noted that the basic assumptions for the successful realization of the projects are a capable administration, a mayor who has the capabilities of a good manager, support for the majority of the citizens and economic advantages coming from the realization of the project.

D. STAKEHOLDERS

Community and stakeholder participation is essential throughout the planning and implementation of the project. Up to this point the community is the primary stakeholder group and other relevant stakeholders include the business sector that is growing. From the survey conducted, the most influential subjects in the process of decision making at the municipal level are the mayor and political parties. The business sector is not very influential and not very active in the process of decision making. Of course there are a few active business individuals, but they do not exert great influence in the municipal decision making process. Citizens, as an organized group of stakeholders, do not articulate their opinion directly to the council and mayor, but through the political parties' representatives. Therefore, they are not a very influential stakeholder in the municipal decision making.

In public opinion all stakeholders will be supported by all political parties in the municipal council because political consensus is achieved. In respect to the citizens, the opinions of some of the interviewees are that all citizens support or will support the project because it is in the interest or to the benefit of all citizens in the municipality. The most important stakeholder is the mayor, who has a motive of realization for the project because the project is in favor of most of the citizens in the municipality.

The political parties are the second influential stakeholder because their members are represented in the council. But the political parties are not unanimous and have different and sometimes opposing interests, which weaken their positions. Next, being councilors, do not have such an active role in the whole political process at the local level. They can control issues by making a decision, further, the initiative and execution of the project is not in their hands.

The project is expected to lead towards increasing the attractiveness of the municipality for potential investors, therefore enhancing the commercial activities, which will also lead towards increasing the economic development and decline in the level of unemployment recognized in the municipality. In respect to the citizens, the opinion of most of the interviewees is that all of the citizens support or will support the project, because it is in the general interest of the municipal community.

E. PARTICIPATION

It was decided that the loan will be repaid from the municipal budget in the following years. Regarding the answers of the interviewees, which were unanimous, there is no need for any kind of voluntary participation or financial contribution from the citizens because the project is not of that nature, and since it is not so financially onerous it would be covered within the budget without additional financial contributions by the citizens.

This decision is made by the fact that the amount of the loans is not so high and that more than half of the citizens of all the municipalities in Macedonia, evade paying their communal duties, mainly due to poverty, thus participation would be an unpopular measure to be undertaken by the municipal authorities.

F. SOCIAL RISKS

Based on the public hearing, on July 13, 2015 the municipal council approved the projects and its financing. The council comprises 11 members representing different political parties: 4 members from VMRO-DPMNE, 1 member from SPM, 1 from DPA, 3 members from DS and 2 from DUI. The voting results for this sub-project were the following: 10 votes in favor.

Based on this public consultation one may conclude that citizens are fully informed of the project, its goals, costs and consequences. All stakeholders had access to information and could influence the scope of the project. There are no NGOs active at the municipal territory. The citizens' interests are mostly expressed by political parties, which are present in the municipal council. Voting results indicate that in a democratic procedure the majority of the council members supported project implementation. Based on this support expressed by citizens in a public debate and their representatives in council voting one might conclude that there is no resistance to the project.

The project will not cause a feeling of inequality among the citizens. All the municipal inhabitants are the beneficiaries of the project as the streets/roads selected have a transit character. The project does not favor any social or ethnic group. The project was publicly consulted and approved by the majority of councilors, therefore it is not expected that some group, organization or institution might cause problems during its implementation.

Citizens are not expected to participate directly in the project as all costs will be covered by the loan.

This Project is not a subject to resettlement issues because it involves the rehabilitation of already existing local streets/roads located on municipal territory. Technical design was prepared in accordance with an urban plan, but also in line with local conditions. As a result, there are no

property issues in this sub-project.

In conclusion, the project does not carry any social risks. It is considered cost-effective over the long run and will contribute to the improvement of the community standards of living in Sopiste Municipality. The project is a priority for public administration and the citizens. The population is not expected to contribute financially. The project is not subject to resettlement issues. No expropriation is expected to be raised during the implementation of the project.

Potential success of the project depends on its efficient implementation. The quality of constructed roads is of the highest importance. The citizens will pay special attention to quality as the loan will have to be paid off over the next 13 years from the municipal budget. The project is designed in such a way that during the loan repayment there should not be any incurred additional maintenance costs, except regular ex-ante predictions. The quality of project implementation will be provided by supervision on the selected company employed by the municipality. However, to achieve high quality of provided works citizen involvement is necessary.

G. CONCLUSION ON THE PROJECT POTENTIAL SUCCESS

There are positive assumptions for the successful realization of the project:

- The project is part of the municipal priorities and the majority of the citizens (none of the projects can be accepted by all citizens because there are a great variety of interests);
- Most of the stakeholders are motivated to accept the project;
- In respect to ethnic diversity, there is not a huge concentration of ethnic groups to prevent carrying out the project in case of their discontent;
- The project does not bear a high financial burden in comparison to the budget and the population is not put in a position to contribute.

III. ENVIROMENTAL IMPACT

The main aim of this project is to improve local transport infrastructure and to ensure economic development of the Municipality of Sopiste through the rehabilitation of 6 local streets/roads in various settlements/villages in the municipality.

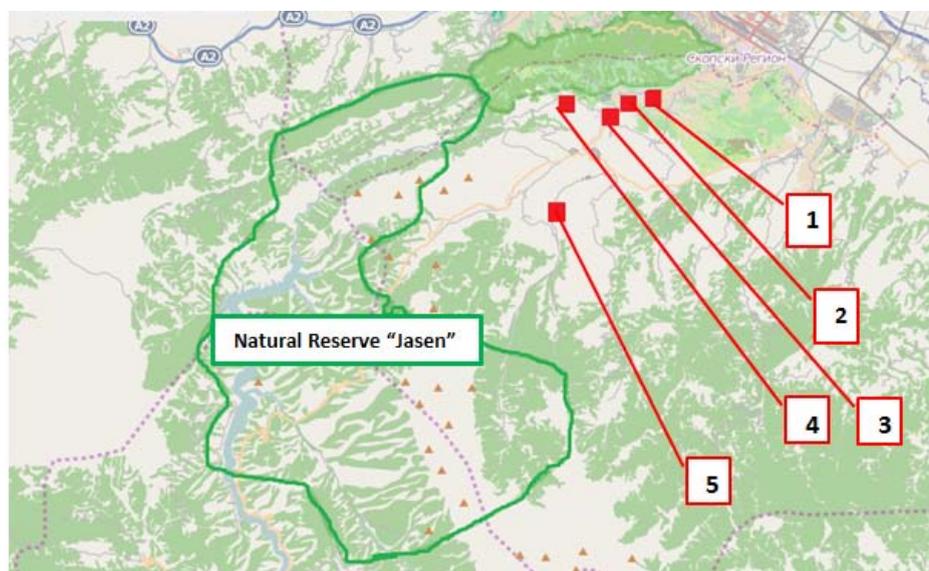
The rehabilitation activities include streets with variable length (from 397m to 3,180m) and a width (from 3.5m to 5m) with a total length of all streets at 8,799m. The project consists of 6 sub-projects with the following activities:

- Rehabilitation of street 7 and street 24 – both in village Sopiste;
- Rehabilitation of street 11 - in village Gorno Sonje;
- Rehabilitation of street 12 - in village Dolno Sonje;
- Rehabilitation of the local road between village Dolno Sonje and village Sveta Petka and;
- Rehabilitation of the local road from village Drizlovo to the intersection with the regional road from Skopje to the Kozjak dam.

Currently, the streets are in terrible condition with visible damages and lack of a drainage system (in compliance with the requirements for safety and good quality traffic flow within the municipality). Streets 11 and 12 are paved with a crushed stone layer. The rest of the streets are damaged with potholes and cracks on the surface (lacking in appropriate drainage (storm water system)). The sub-projects will ensure great benefits to the municipality providing proper and fast infrastructural communication to local residents along the streets, and not only in these villages but also in other areas in the Municipality of Sopiste. This will improve the safety for drivers and will reduce the costs of permanent repair and maintenance of the streets.

A. LOCATION OF SUB-PROJECTS

The planned sub-project activities will take place in a rural area of the Sopiste Municipality, along 6 streets in villages Sopiste, Gorno and Dolno Sonje, Drizlovo and Sveta Petka. The macro location of the sub-project activities is presented in Figure 2.



Legend

1. Streets 7 and 24 in village Sopiste;
2. Street 11 in village Gorno Sonje;
3. Street 12 in Dolno Sonje;
4. Local road between villages Dolno Sonje and Sveta Petka;
5. Local road from the village Drizlovo to crossroad with regional road of Skopje - Kozjak dam

Figure 2: Sub-projects location and location of the Natural Reserve "Jasen"

B. MAIN PROJECT ACTIVITIES WITH ENVIRONMENTAL IMPACT

The main activities performed by the contractor during the rehabilitation phase of the sub-projects

are presented in Table 6.

Table 6: Main type of sub-project activities

Name of the sub-project location	Type of planned rehabilitation activities	Width of street (m)	Length of street (m)
Street 7 in village Sopiste	Clearing, marking out and securing the route of the location where the sub-project activities will be performed; Removing of the existing damaged asphalt layer Setting a new tampon layer of crushed stone material, thickness layer of 25-30cm; Paving the streets with an asphalt layer of 7cm; Setting street shoulders on both sides of the streets, a width of 0.5 – 1m; Placement of appropriate storm water drainage elements which consists of gutters, cross slopes and slopes along the carriageway of the streets.	3.5	530
Street 24 in village Sopiste			1,002
Street 11 in village Gorno Sonje			620
Street 12 in village Dolno Sonje			397
Local road from village Drizlovo to crossroad with regional road of Skopje - Kozjak dam			3,070
Local road between villages Dolno Sonje and Sveta Petka		3.5-5	3,180

C. MAIN ENVIRONMENTAL IMPACTS AND SENSITIVE RECEPTORS

The sub-project activities will take place in the rural area of the Municipality of Sopiste in different locations (in the above mentioned villages). The possible adverse environmental impacts that may occur during the rehabilitation phase are: a) incompliance with OH&S requirements and possible risk for workers' health and safety and community safety, c) noise disturbance due to increased level generated from the usage of heavy construction machinery and equipment, d) increased air emissions (dust emissions during the rehabilitation of all streets), e) generation of different waste streams, improper waste management and potential risks of soil pollution, pollution of waters and ground waters.

Due to the type of sub-projects, main activities, main raw materials intend to be used, the location and surrounding the sensitive receptors, the adverse environmental, OH&S and communal safety impacts will be local, short-term with a minor significance.

Prior to the start of the street rehabilitation activities the contractor should prepare and imply a **OH&S Plan** in order to prevent possible injuries of workers and to fulfill OH&S requirements and standards (according to national legislation). Although it is a rural area, the contractor should take care especially for the safety and well-being of the local community/population (who lives along the streets) because the streets are narrow, with difficult access, and with significant slopes and inclines of the terrain. The plan should incorporate, preventive measures to ensure local community safety. The access to family houses along the streets should be provided as soon as possible. For local residents, easy and safe access to their homes will also contribute to the **Traffic Management Plan (TMP)** with directions for re-routing the traffic and works time schedule of the activities, or daily information on which section of the streets the rehabilitation works are carried out. The **Information Note/Press** is also important in order to inform the general public about the duration and type of activities and to provide a public warning and attention in the period of the sub-projects implementation.

The sensitive receptors affected by the generated **increased level of noise and vibration** are local residents who live along and near the streets. The appropriate mitigation noise measures (which should be implied by the Contractor) should be in accordance with the requirements of the Law on noise sensitive protection, Official Gazette No. 79/07, 124/10, 47/11 and 163/13. According to the

level of noise sensitivity the project locations have been identified to the areas with a mixed degree of noise protection: II degree of noise protection (streets 7 and 24 in the village of Sopiste, street 11 and 12 in villages Gorno and Dolno Sonje and partly of the local road Dolno Sonje-Sveta Sveta - maximum allowed noise level of 45dBA for night and 55dBA for evening) and III degree of noise protection (local road from village Drzilovo to the intersection with the road Skopje-Kozjak dam - maximum allowed noise level of 55dBA for night and 60dBA for evening and day). For the contractor it is very important to understand and take into consideration any grievances by the local residents about any disturbances due to the ongoing rehabilitation works (e.g. noise disturbance, waste debris left along the streets, unmarked rehabilitation street, etc.).

The main waste streams generated during sub-project activities are communal waste, excavation of soil, excavation of the existing layer of damaged asphalt (streets 7, 24, local road from village Drzilovo and local road Dolno Sonje-Sveta Petka) and contaminated soil from possible oil leakage (from construction mechanization vehicles). Prior to the start-up of rehabilitation works, the contractor should prepare a **Waste Management Plan and should implement the measures proposed within**. The supervisor should approve it and monitor the waste management practice on a daily basis. The mitigation measures should be in line with the requirements of the national legislation Law on Waste and List of Waste codes – Official Gazette of RM No. 100/05 and the main principles for waste hierarchy should be applied (selection of waste into waste streams according to the waste characteristics, re-use of any waste stream if it is possible on the spot, recycle, treatment or temporary and final disposal on proper place). The records with quantities of generated waste and the way of waste management should be established by the contractor as well. The final waste disposal will be performed on the landfill “Drisla” (located on the opposite downhill side of the village Batinci (about 10km from the project locations) by the CSE “Communal hygiene” from Skopje.

Near the project location the Markova River flows (about 3-5km west from the local road Drzilovo to the intersection with the road Skopje-Kozjak dam) and Treska River (about 2-5km east from the local road between D. Sonje-Sveta Sveta). According to the Regulation on the Classification of Waterways, Lakes, Reservoirs and Groundwater (“Official Gazette of RM” No. 18/99) the water characterization of Markova and Treska Rivers are II class (mesotrophic, with a low degree of pollution, which means that can be used for fish growing, bathing, water sports and recreation; with the appropriate method of treatment this water can also be used for drinking). The rivers are not in the near vicinity of the rehabilitation area, but the precautionary measures should apply. The waste disposal (inert or hazardous waste) near the river bands is strictly forbidden as well as any maintenance works on the mechanization vehicles (leakage of motor oils lubricants) or any disposal of concrete into the river band and possible soil erosion. The mitigation measures for the prevention of **adverse impact on water quality** are given in the Table Mitigation Plan.

The Natural Reserve “Jasen”, declared in 1958, with an area of 24, 000ha, can be found in the wider surroundings of the project. This protected area represents a natural habitat for various plants (some of them are endemic: *Viola koshaninii*, *Thymus oehmianus*, etc.) and animal species. Further, the reserve abounds with many cultural, natural heritage and natural monuments (such as the Canyon of River Treska and Canyon Matka, etc.). Because of the high level of biodiversity and species rarities this protected area is part of the EMERALD Network (Areas of Special Conservation Interest - ASCI), Important Bird Areas (IBA) and Important Plant Areas (IPA). Because the project locations are placed in the wider surrounding of the Natural Reserve “Jasen” (about 15km from the project locations) it can be concluded that they will not have adverse environmental impacts. The location of the Natural Reserve “Jasen” is presented in the Figure 1.



Figure x: Natural Reserve “Jasen” (with Kozjak dam in the background)

There are no cultural heritage protected structures in the close vicinity or under the construction area.

Taking into consideration the type of the rehabilitation activities proposed within the main design, the responsible person (on behalf of the major of the Municipality of Sopiste) signed a statement that these sub-project activities do not belong to any type of activities for which the preparation of the Environmental Impact Assessment Report-Elaborate is obligatory according to the national legislation.

The main mitigation measures are presented in the Environmental Mitigation Plan and Monitoring Plan, which should be implemented by the contractor. Their implementation should be monitored by the supervisor on a regular basis. Regular meetings should be organized between the contractor, supervisor and the municipality staff (project manager, environmental inspector and civil/construction Inspector) in order to communicate all issues raised during the construction phase in order to ensure smooth sub-project implementation.

D. MITIGATION PLAN

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
Rehabilitation of 6 streets on different locations (Street 7 and 24 in village Sopiste, Street 11 in village Gorno Sonje, Street 12 in village Dolno Sonje, local road from village Drizlovo to regional road of Skopje-Kozjak dam and local road between villages Dolno Sonje and Sveta Petka) in the municipality Sopiste				
Preparatory activities before rehabilitation of the streets Marking out the route of the project locations: Street 7 and 24 in village Sopiste, Street 11 in village Gorno Sonje, Street 12 in village Dolno Sonje, local road from village Drizlovo to regional road of Skopje-Kozjak dam and local road between villages Dolno Sonje and Sveta Petka in the municipality Sopiste	Possible adverse social and health impacts to the local population and workers due to: <ul style="list-style-type: none"> – Lack of ensured safety measures at the start of the street rehabilitation activities – Possible injuries of passing near by the project locations – Not compliant with strict OH&S standards and work procedure – Inappropriate public access within the locations where the sub-project 	Local/ along the streets where the sub-project activities will be implemented Short term during the sub-project activities Significance - major	<ul style="list-style-type: none"> ➤ Preparation, implementation and approval of the OH&S Plan (including community safety measures) and the Traffic Management Plan together with the municipal staff before the activities start; ➤ Announce the information on local Radio/ TV and /or municipal board about the rehabilitation activities – start up and finish of work for each day and location of activities, on daily basis, duration of work and traffic access on other streets. The information should be announced few days before the work starts; ➤ Application of good construction practice for marking out the rehabilitation sites including: <ul style="list-style-type: none"> • Ensure appropriate marking out of the rehabilitation sites along the 6 streets; • Placement of warning/attention signs especially for limitation of speed near the streets; • Warning tapes and signage need to be provided; • Installation of a notice board with general information about the project, contractor and supervisor near the rehabilitation area with locations of all streets under rehabilitation; • Forbidden 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 streets and area near them should be kept clean; • The mobile toilet should be placed along the rehabilitation sites (project locations); • Machines and mechanization vehicles should be handled/driven only by 	<ul style="list-style-type: none"> • Contractor – Bidder • Supervisor • Municipal staff (Communal Inspector and Environmental Inspector)

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	activities will be performed		<p>experienced and trained personnel, thus reducing the risk of accidents;</p> <ul style="list-style-type: none"> • Larger quantities of flammable liquids should not be kept on the rehabilitation sites along the streets, near the family houses in the vicinity of rehabilitation area. 	
	<p>Possible emissions by transportation vehicles and impact on air quality along the streets due to:</p> <ul style="list-style-type: none"> – Gass emissions of dust-suspended particulates – Traffic congestion will be caused as well causing changes in existing traffic circulation 	<p>Local/ along the streets within the villages</p> <p>short term/ major</p>	<ul style="list-style-type: none"> • Rehabilitation sites, transportation routes and handling materials should be water-sprayed on dry and windy days; • Materials used for rehabilitation activities 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 rehabilitation area especially because nearby there are entrances into family houses; • Perform regular maintenance of the vehicles and construction machinery in order to reduce the leakages of motor oils, emissions and dispersion of pollution (in the proper place – auto service facility); • Burning of debris from ground clearance not permitted. 	<ul style="list-style-type: none"> • Contractor – Bidder • Supervisor
	<p>Possible noise disturbance as a result of outdoor equipment usage and transportation vehicles driving around the sites</p>	<p>Local/ along the streets within the villages</p> <p>short term /major</p>	<ul style="list-style-type: none"> • Two noise protection area are relevant for all sub-projects:1) Area (streets 7 and 24 in village Sopiste, street 11 and 12 in villages Gorno and Dolno Sonje and partly of the local road Dolno Sonje-Sveta Sveta) with second degree of noise protection and the maximum allowed noise level should be 45dBA for night and 55dBA for evening and day; and 2) The area which contains mostly agricultural fields and a small part of hilly-mountainous landscape (local road from village Drzilovo to the intersection with the road to the Skopje-Kozjak dam) which belong to the area of third degree of noise protection with a maximum allowed noise level of 55dBA for night and 60dBA for evening and day. • The rehabilitation activities should not be permitted during the nights; the 	<ul style="list-style-type: none"> • Contractor – Bidder • Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
			operations on site shall be restricted between the hours 7.00 -19.00.	
	Possible impact on water courses – Markova River (about 3-5km west from the local road Drzilovo to intersection with road Skopje-Kozjak dam) and Treska River (about 2-5km east from the local road between Dolno Sonje-Sveta Petka)	Local/ short term/ minor	<ul style="list-style-type: none"> • Minimize storage or disposal of dangerous substances near or into the water courses –Markova River and Treska River (e.g. fuels for construction machinery) on the rehabilitation sites; • The temporary or final disposal of any waste stream near the water courses is forbidden; • The roads 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. 	Possible impact on water courses – Markova and Treska River near the project locations in the Municipality of Sopiste
	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/ along the streets within the villages short term/ major	<ul style="list-style-type: none"> • Preparation, adoption and implementation of a Waste Management Plan; • Identification of the different waste types at the rehabilitation sites (soil, sand, asphalt, bottles, food, etc.) and separation of waste streams; • Classification of waste according to the national List of Waste (Official Gazette no.100/05); • The main waste would be classified under the Waste Chapter 17 “Construction and demolition of waste (including excavated soil from contaminated sites)” with the waste code 17 05 04 – Excavated soil and 17 09 04 – Mixed waste from construction sites); • Small amount of solid municipal waste could be found (food, beverages), as well as packaging waste (paper, bottles, glass, etc.). • Collection of generated waste on daily basis, selection of waste, transportation and final disposal at landfill “Drisla” which is located by the basin of the Markova River, on the opposite downhill side of the village Batinci (about 10km from the project locations); 	<ul style="list-style-type: none"> •Municipal staff (Communal Inspector) • Mayor of the Municipality of Sopiste • CSE “Communal hygiene” from Skopje

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
			<ul style="list-style-type: none"> • Collection, transportation and final disposal of the inert and communal waste by the CSE “Communal hygiene” from Skopje; • Possible hazardous waste (motor oils, vehicle fuels) should be collected separately and an authorized collector and transporter should be sub-contracted to transport and finally dispose the hazardous waste (The list of authorized companies could be found at the MoEPP website: www.moepp.gov.mk); • The materials should be covered during transportation to avoid waste dispersion near the houses; • Burning of the waste on the rehabilitation sites is prohibited. 	
<ul style="list-style-type: none"> • <i>No environmental impacts are expected during the operational phase</i> • <i>Regular maintenance, clean up of streets and maintenance of horizontal and vertical signalization is essential for safety traffic.</i> 				

E. 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	Rehabilitation of 6 streets on different locations within the municipality Sopiste	Operations of the streets
Project stage: Preparatory activities/ Start up of the streets rehabilitation activities (clean up and marking out the route of the areas where the project activities will be performed)								
The safety protection measures applied for the workers and local residents	On the sites	Visual checks	During clean-up activities At the beginning of each working day during sub-project activities	To prevent health and safety risks – mechanical injuries To be in compliance with the national communal health regulation and OH&S standards			Contractor - Bidder Supervisor Project manager, municipal Environmental Inspector	
Project stage: Rehabilitation of Street 7 and 24 in village Sopiste, Street 11 in village Gorno Sonje, Street 12 in village Dolno Sonje, Local road from village Drizlovo to regional road of Skopje - Kozjak dam and Local road between villages Dolno Sonje and Sveta Petka								
Safety traffic flow along the streets (preparation and implementation of Traffic Management Plan)	On the sites	Visual monitoring	During the working day	To ensure the coordinated traffic flow through the project locations (villages) in the Municipality of Sopiste			Contractor - Bidder Supervisor Project manager, municipal Environmental Inspector	
Disposal of the waste streams (solid and liquid) near the Markova and	Near the river bands of the Markova and Treska River	Visual check if the waste is disposed near or in river bands of the Markova and	During the working period (once per week)	To ensure good status of water quality			Contractor - Bidder Supervisor Environmental	

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	Rehabilitation of 6 streets on different locations within the municipality Sopiste	Operations of the streets
Treska River as potential water pollution of ecological status of water course		Treska River, or any leakages are dispersed into the water					Inspector and Communal Inspector at the municipality Sopiste	
Primary selection of the waste streams as they are generated at the sites	On the rehabilitation sites	Review the documentation (records of waste streams generation)	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 municipal 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) Environmental Inspector	
Collection transportation and final disposal of the solid waste	On/around the rehabilitation sites	Visual monitoring and reviewing the transportation and disposal lists from the sub-contractor	After the collection and transportation of solid waste on a regular base each day	Not to leave waste on the spot to avoid the environmental and health impacts on local citizens To have the real data for generated waste streams and to			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	Rehabilitation of 6 streets on different locations within the municipality Sopiste	Operations of the streets
				improve waste management				
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 of Sopiste/ Ministry of Environment and Physical Planning	
Noise measurements	Along streets: street 7, 24, street 11, Local road from village Drizlovo to regional road of Skopje - Kozjak dam and Local road between villages Dolno Sonje and Sveta Petka	Noise measurement equipment	During the work peaks and especially if any grievance by local residents if noise disturbance occurs.	To ensure noise level limits according to regulation			Contractor - Bidder Municipal Environmental Inspector	

IV. TECHNICAL SOLUTION

A. DESCRIPTION

The project will contribute for the improvement in municipal infrastructure services, and will increase the safety and security of pedestrian and drivers.

The project assumes the rehabilitation of six streets/ local roads. The local road from village Dolno Sonje to village Sveta Sveta, local road route from the junction of the main road to village Drzilovo and also the streets 7 and 24 in the village Sopiste have damaged upper-layers, which are paved with damaged asphalt. Streets "12" in Dolno Sonje and street "11" in Gorno Sonje are paved with a crushed stone layer. They are all in a very poor condition without appropriate drainage and road constructive elements. For each of these 6 streets, a separate technical design is prepared with all the necessary elements as part of the street rehabilitation design. The technical design on rehabilitation of 4 existing streets comprises the following activities: removal of the existing upper-layer, setting a new tampon layer, asphalt layer and setting the drainage elements and appropriate outlets. The basic characteristics of the streets will not be changed i.e. the width, length and route direction remain the same as the existing ones.

Table 7: Basic characteristics of the local streets/roads

	Street	Length (m)	Width (m)	Drainage
1	Street 7 Sopiste	530	3.5	drainage elements and outlets
2	Street 24 Sopiste	1002	3.5	drainage elements and outlets
3	Local road Dolno Sonje - Sveta Petka	3180	3.5-5.0	drainage elements and outlets
4	Local road from junction of main road to Drzilovo	3070	3.5	
5	Street 12 Dolno Sonje	397	3.5	drainage elements and outlets
6	Street 11 Gorno Sonje	620	3.5	drainage elements
	Total:	8799		

B. ANALYSES AND CALCULATIONS

1. Rehabilitation of the local road to Drzilovo village

The designed technical characteristics of the local road are:

- a rank of a street local
- an accrual speed 40km/h
- width of carriageway $2 \times 1.75\text{m} = 3.5\text{m}$
- side shoulders 0.75m
- average longitudinal slope $i = 8.8\%$

With the rehabilitation of the local road the following construction activities are planned:

- placement a layer of asphalt BNHS 16 thickness = 7cm
- improvement of the basis (gravel material) on some parts of the road: thickness = 25-30cm
- stabilization of the side shoulders on both sides thickness = 7cm

The drainage of storm water from the carriageway will be solved by the cross slopes and slopes along the path on the carriageway in the surrounding area.

Picture 2: Road from junction of main road to the village Drzilovo



2. Rehabilitation of the local road Dolno Sonje –Sveta Petka village

The designed technical characteristics of the local road are:

- a rank of a street local
- an accrual speed 40km/h
- width of carriageway 3.5-5m
- side shoulders 0.75m
- longitudinal slope $i = -5$ to 15%

For the rehabilitation of the carriageway, the following construction activities are planned:

- placement of a layer of asphalt BNHS 16 thickness = 7cm
- improvement of the basis (gravel material) on some parts of the road: thickness = 20cm
- stabilization of the side shoulders on both sides thickness = 7cm (0.1 m³ per m)

The drainage of storm water from the carriageway will be solved by the cross slopes and slopes along the path on the carriageway in the surrounding area. Concrete gutters are planned along the carriageway at some parts, where it is necessary.

Picture 3: Road from village Dolno Sonje to Sveta Petka village



3. Rehabilitation of street 12 in Dolno Sonje

The designed technical characteristics of the road are:

- a rank of a street local
- an accrual speed 40(30)km/h
- width of carriageway 3.5m
- side shoulders /
- longitudinal slope $i = -5.44$ to 2.60%

For the rehabilitation of the carriageway the following construction activities are planned:

- placement of a layer of asphalt BNHS 16a thickness = 7cm
- road base layer of crushed stone thickness = 25cm
- placement of concrete gutters

The drainage of storm water from the carriageway is solved by the cross slopes and slopes along the path on the carriageway and gutters, which duct the water to the nearby channels.

Picture 4: Street 12 in Dolno Sonje



4. Rehabilitation of street 7 in the Sopiste village

The designed technical characteristics of the street are:

- a rank of a street local
- an accrual speed 40km/h
- width of carriageway depending of the circumstances 3.5m
- cross slope $i = -6$ to 15%

With the rehabilitation of the street the following construction activities are planned:

- placement a layer of asphalt BNHS 16 thickness = 7cm
- road base layer of crushed stone thickness = 30cm

Picture 6: Street 24 in Sopiste



6. Rehabilitation of street 11 in the Sopiste village

The designed technical characteristics of the street are:

- a rank of a street local
- an accrual speed 40km/h
- width of carriageway depending of the circumstances 3.5m
- side shoulders 0.5-1.0m depending of the circumstances
- longitudinal slope $i = -4$ to $i_{max} = 2.6\%$

For the rehabilitation of the carriageway the following construction activities are planned:

- placement a layer of asphalt BNHS 16 thickness = 7cm
- road base layer of crushed stone thickness = 30cm
- improvement of the basis (gravel material) on some parts of the road thickness = 50cm
- stabilization of the side shoulders on both sides thickness = 7cm
- placement of curbstones 18/24cm
- placement of concrete gutters
- placement of guard rail at a length of 20m

Picture 7: street "11" in Gorno Sonje



C. CONCLUDING REMARKS

The project is in line with the existing positive regulation and standards in the country. The technical solution assumes rehabilitation of the local road route from village Dolno Sonje to the village Sveta Petka, local road route from the junction of the main road to the village Drzilovo, streets 7 and 24 in the village of Sopiste, street 11 in the village Gorno Sonje and also street 12 in Dolno Sonje.

The realization of this Project will contribute towards better visibility on the road, greater traffic safety, improving the working conditions of existing commercial, sport and tourist facilities in the area, as well as the opportunity to construct new facilities. Besides local residents, there are plenty of seasonal inhabitants using their holiday cottages.

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 local roads, storm-water networks and technical characteristics of the appropriate equipment.