PROJECT APPRAISAL DOCUMENT

Rehabilitation of various streets and two local roads and procurement of special vehicles for communal enterprise

August 2014

OHRID MUNICIPALITY

I. PROJECT DESCRIPTION

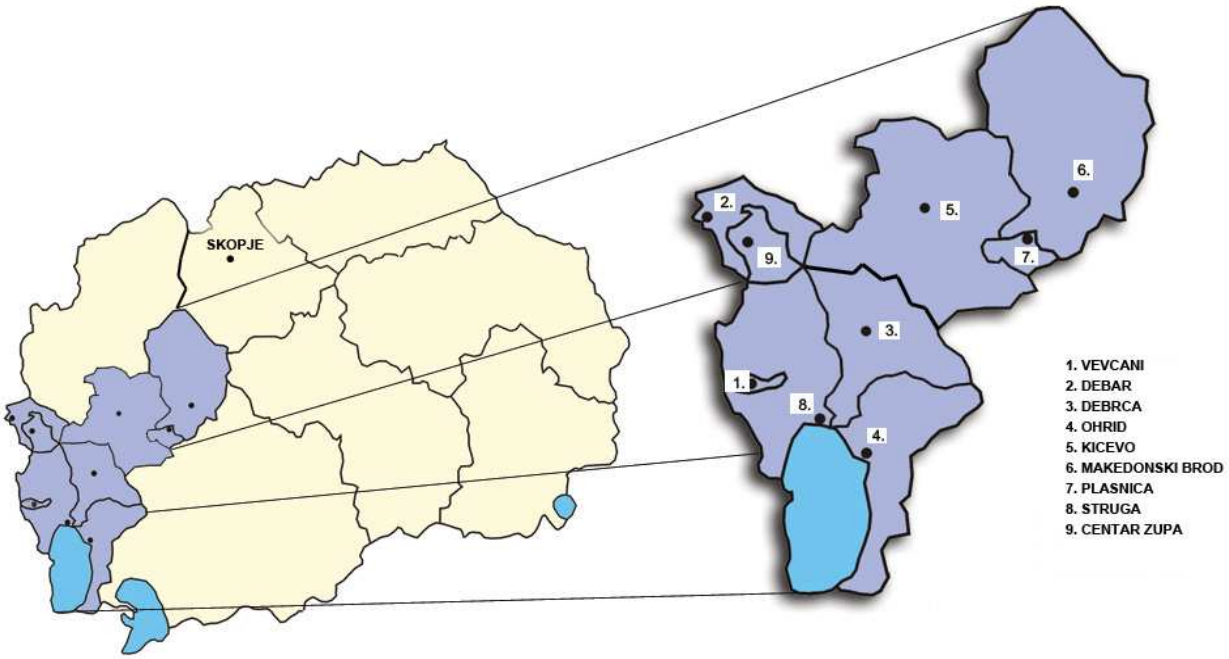
A. GENERAL INFORMATION ON THE MUNICIPALITY

Ohrid municipality is one of 80 municipalities in the Republic of Macedonia and belongs to the South West planning region occupying part of Ohrid-Struga valley, Lake Ohrid and part of Galicica National Park. It borders Debarca municipality to the north, Resen municipality to the east, Struga municipality to the west and Albania to the south. Total area of 383.93km^2 comprises 204km^2 land and 179.93km^2 water. Total population is 55,749 inhabitants. The climate is continental with some Mediterranean influence coming through the mountain of Galicica. There are 18 urban communities and 26 rural communities in the city. Ohrid city and the Ohrid Lake became a world cultural and natural heritage under the protection of **UNESCO** since 1979.

Figure 1: Republic of Macedonia

*note: the municipal territory is marked in green

Figure 2: Municipalities of the South West region



*The South-west planning region is one of eight statistical regions within the Republic of Macedonia. It comprises 9 municipalities: Vevcani, Debar, Debrca, Ohrid, Kicevo, Makedonski Brod, Plasnica, Struga and Centar Zupa.

B. DEMOGRAPHIC AND ECONOMIC PROFILE

According to the last 2002 Census the total number of inhabitants in the municipality is 55,749 from which male are 27,598 and female 28,151 with natural increase of 0.4%. In relation to the ethnic affiliation of the citizens, the prevailing population are Macedonians, representing 85% of the total population (see table 2). It is important to note that each of the ethnicities speaks its own language in the informal communication. The officially used language in this municipality is the Macedonian with its Cyrillic alphabet. The basic economic and demographic data of the municipality of Ohrid are provided in the following table:

Table 1: Main macroeconomic indicators

Demography			GDP growth in Macedonia in % for 2013	3.1
Number of settlement	33		Public enterprises	8
Area in km^2	383.93		Active business subjects	2,910
Population census 2002	55,749		**Employment**	
Total number of household, census 2002	16,010		Number of female unemployment census 2002	5,600
Total number of dwellings census, 2002	28,437		Activity rate Census 2002	48.4
Average number per household, census 2002	3.48		Unemployment rate Census 2002	43.5
Infrastructure			**Education**	
Total length of local roads	163km		Regular primary schools	9
Airports	1		Secondary schools	3
Economy			Kindergartens	7
GDP per capita in $ in Macedonia for 2013	10,700		Children at age 7-14 that attend school	5,156

Source: State Statistical Office and Ohrid Municipality

Ohrid municipality comprises 33 settlements. Since 2004 municipality Kosel was incorporated into Ohrid municipality and population number increased by 1,369. The municipality has 55,749 inhabitants and 16,012 households (on average 3.48 persons per households). By municipal data the number of population is declining due to increased migration of the young population to the capital city and abroad. Municipality estimates the number of population at about 45,000.

Table 2: Population by settlements

	Settlement	**Population**	**Households**	**Dwellings**
1.	**Velgoshti**	3,060	860	1,027
2.	**Velestovo**	53	19	102
3.	**Gorno Lakocerej**	515	172	251
4.	**Dolno Konjsko**	551	146	284
5.	**Dolno Lakocerej**	728	206	365
6.	**Elesec**	69	20	110
7.	**Elsani**	590	160	319
8.	Konjsko	22	9	73
9.	**Lagadin**	20	8	192
10.	**Leskoec**	2,595	684	860
11.	**Ljubanista**	171	68	420
12.	**Naselba Istok**	117	29	78

13.	**Orman**	104	30	68
14.	**Ohrid**	42,033	12,043	20,778
15.	**Pestani**	1,326	395	846
16.	**Podmolje**	331	91	139
17.	Ramne	632	188	540
18.	**Raca**	1,043	283	508
19.	**Svet Stefan**	112	27	82
20.	**Tppejca**	303	85	265
21.	Shipokno	5	3	18
22.	**Vapila**	112	43	99
23.	Zavoj	12	7	98
24.	**Kosel**	586	193	261
25.	**Kuratica**	326	107	220
26.	**Livoista**	178	59	90
27.	Openica	58	25	59
28.	Plakje	4	2	39
29.	Rasino	8	7	11
30.	Recica	5	2	36
31.	Svinjishta	64	33	136
32.	Sirula	10	5	30
33.	Skrebatno	6	3	33
	TOTAL:	**55,749**	**16,012**	**28,437**

Source: State Statistical Office, 2002 Census with 2004 revisions (according to the territorial organization of 2004)
Note: Bold are settlements covered with solid waste collection service

Table 3: Population repartition by nationality

Nationality	Number	%
Macedonians	47,344	84.9
Albanians	2,962	5.3
Turks	2,268	4.1
Roma	69	0.1
Vlachs	323	0.6
Serbs	366	0.7
Bosnians	29	0.05
Others	2,388	4.3
Total	55,749	100

Source: State Statistical Office – 2002 Census

The following table represents gender distribution in the total population. It can be seen that there is nearly equal representation of male (49.5%) and female (50.5%) in the total population.

Table 4: Gender repartition

Gender	Number	Percent
Male	27,598	49.5
Female	28,151	50.5
Total	**55,749**	**100**

Source: State Statistical Office – 2002 Census

The following table represents the age repartition in the total population. The analysis of data shows that the dominant age groups are 20-24 and 40-44.

Table 5: Age repartition

Age groups	Number of inhabitants
00 – 04	2,825
05 – 09	3,428
10 – 14	3,947
15 – 19	4,394
20 – 24	4,501
25 – 29	4,067
30 – 34	3,917
35 – 39	3,906
40 – 44	4,433
45 – 49	4,313
50 – 54	4,073
55 – 59	2,870
60 – 64	2,647
65 – 69	2,480
70 – 74	1,836
75 – 79	1,280
80 - 84	608
85 +	212
Unknown age	12
TOTAL	**55,749**

Source: State Statistical Office – 2002 Census

The prevailing population is the urban one - around 79% of the total population is settled in the urban area of Ohrid.

Table 6: Urban repartition

Repartition	Percent
Urban	79
Rural	21
Total	100

Source: Ohrid municipality estimates

Regarding the educational system there are 9 regular primary schools, 3 secondary schools, 3 state universities and 7 kindergartens.

Table 7: Number of enrolled pupils in primary schools on municipal territory for 2013 -2014

Name of primary school	Number of pupils
Hristo Uzunov - Ohrid	1,180
Koco Racin - Ohrid	387
Bratstvo Edinstvo - Ohrid	1,032
Grigor Prlicev - Ohrid	1,091
St. Kliment Ohridski - Ohrid	335
Metodi Patce - Ohrid (music)	335
Zivko Cingo - Ohrid	261
Vanco Nikoleski - Leskoec, Ohrid	326
St. Naum Ohridski - Pestani, Ohrid	209
TOTAL	**5,156**

Source: Ohrid municipality

Table 8: Number of enrolled children in kinder gardens on municipal territory

Name of kindergarten	Number of children
Rosica - Ohrid	118
Biljana - Ohrid	128
Lihnida - Ohrid	149
Jasna Risteska - Ohrid	203
Razvigorce - Ohrid	166
Velgoshti - Ohrid	23
Leskoec - Ohrid	25
TOTAL	**812**

Source: Ohrid municipality, status as of 19.5.2014

Through the territory of Ohrid municipality two roads are passing: the main road M5 Ohrid-Bitola-Skopje of 235km and the main road M4 Ohrid-Kichevo-Skopje of 176km.

Table 9: Overview of local roads in the municipality of Ohrid (km)

	Asphalt and cobbled roads						
	All	**Asphalted**	**Cobbled**	**Macadam**	**Dirt**	**Designed roads**	**Total**
Ohrid municipality	99.5	99.5	-	32	13.5	18	163

*Source: Ohrid Municipality *status as of 31th of December 2013*

Taking into account that the city of Ohrid is one of 28 mix (combined) UNESCO world heritage sites in the world, a lot of domestic and foreign tourist come to visit Ohrid, thus tourism represents the main economic driver in the social and economic life of the municipality. The table bellow shows data on the tourists visits in the city for 2013.

Table 10: Number of tourist visits in the City of Ohrid for 2013

Month	**Foreign tourists**	**Domestic tourists**	**Total**
January	1,448	1,183	2,631
February	859	1,246	2,105
March	2,970	1,933	4,903
April	5,609	3,538	9,147
May	14,176	8,221	22,397
June	14,961	6,773	21,734
July	14,692	26,756	41,448
August	16,272	29,309	45,581
September	14,040	3,787	17,827
October	9,879	5,664	15,543
November	2,458	2,474	4,932
December	1,503	1,753	3,256
Total	**98,867**	**92,637**	**191,504**

Source: Tourism department in Ohrid municipality and State Statistical Office

Table 11: Hotel capacity at the municipality of Ohrid

Hotel capacity	number of rooms	number of beds
Hotel *****	117	250
Hotel****	465	951
Hotel***	225	504
Hotel**	508	1,154
Hotel *	122	256
TOTAL	1,437	3,115

Source: Tourism department in Ohrid municipality

According to the data from the Sector for Tourism and Local Economic Development in the Ohrid municipality, a total of 2,197 small-scale accommodation facilities have been categorized by May 2014, with a total of 12,401 beds. It is assumed that the number of beds actually rented and not categorized and registered is much larger.

In the city there are more than 120 restaurants, cafés and bars, serving traditional and European food and cuisine.

There are 2,910 active business legal entities in Ohrid municipality, which represents 3.9% of the total active business legal entities in Macedonia. Micro business dominates with share of 71.3% in Macedonia and 74% in municipality of Ohrid. Micro and small business legal entities in Macedonia are 98.7% of the total active business legal entities or 99.1% of the total active business legal entities in the municipality of Ohrid.

Table 12: Active business legal entities in Ohrid municipality and Macedonia in 2012

	Total	**Micro**	**Small**	**Medium**	**Large**
Ohrid	2, 910	2, 143	742	21	4
Macedonia	74 ,424	53,117	20,341	631	335

*Source: State Statistical Office*Statistical year book 2013*

In the next table the employment in city of Ohrid is illustrated based on the census 2002 data. The available data shows that 27,011 or 48.4% of the municipal population is considered as economically active, of which 15,275 or 56.5% are employed.

Table 13: Activity rate

Total population	**Economically active**		**Economically inactive**
	Employed	**Unemployed**	
55,749	15,275	11,736	20,980

Source: State Statistical Office, 2002 Census

In accordance with the Employment agency of Macedonia data presented in the table bellow we can see that the unemployment on the territory of the City of Ohrid (no separate data for municipality of Ohrid available) is 4.1% compared to Macedonia. The female unemployment is 1,909 or 44.7% of the total unemployment in the City of Ohrid. Also, we can see that among age classes the highest number of unemployment in the City of Ohrid is in the classes 25-29, 50-54 and 55-59.

Table 14: Unemployment by age and by gender in the City of Ohrid and in Macedonia

City of Ohrid	**Total**	**15-19**	**20-24**	**25-29**	**30-34**	**35-39**	**40-44**	**45-49**	**50-54**	**55-59**	**More then 60**
Total	4,268	64	387	534	404	319	306	361	485	637	771
Female	1,909	20	189	285	234	181	149	154	214	269	214

Macedonia	Total	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	More then 60
Total	103,250	2,140	11,628	14,188	10,442	9,086	8,650	8,958	9,940	13,401	14,817
Female	43,117	757	5,204	7,132	5,207	4,402	3,908	3,776	3,841	5,103	3,787

*Source: Employment Agency *status as of 30th of April 2014*

Additionally, according to the SSO data, private enterprises are operating mainly in wholesale and retail trade repair of vehicles, motorcycles and personal household goods (1,196) followed by manufacturing (331), hotels and restaurants (245), real estate renting and business activity (228), transport storage and communication (184), other community, social and personal service activities (179). The biggest employers in the municipality are the following companies:

- LTH Learnica - manufacturing aluminums anti-vibration components, spools- employment about 400
- ASP PPBags - production of plastic packing bags – employment about 143
- PN Metal - production of fireplaces on pellets – employment about 121

Table 15: Active business subjects by sectors in 2012

Active business subjects by sectors	Municipality of Ohrid	Republic of Macedonia
Wholesale and retail trade, repair of vehicles, motorcycles and personal household goods	1,196	29,270
Manufacturing	331	8,225
Transport storage and communication	184	6,496
Real estate, renting and business activity	228	6,125
Other community, social and personal service activities	179	4,669
Health and social work	111	3,246
Hotels and restaurants	245	3,938
Agriculture, hunting and forestry	21	2,815
Education	29	954
Financial; intermediation	14	334
Mining and quarrying	3	144
Public administration and defense, compulsory social protection	5	219
Construction	147	4,004

*Source: State Statistical Office, last available data *Statistical year book 2013*

1. Infrastructure

Ohrid is an urban municipality in which all settlements are connected with local roads. The total length of local roads in the municipality is 163km, out of which 99.5km are already asphalted. The storm-water system exists only in the city of Ohrid and it is 32km long. The network of sewerage system in the city is 74km long, and there are 42km of mixed sewage and storm-water system. The coverage of the city streets with storm water system is about 25-30%.

The municipality is making systematic efforts to improve the road infrastructure and provide asphalting of new local roads, but its financial capacity is limited in comparison with needs. The value of the investment budget was equal to about 3mln Euro in 2012 and 2mln Euro in 2013, and majority was financed from municipal budget. The investments implemented in 2013 mostly referred to construction/ reconstruction of local roads (67%).

C. GENERAL DESCRIPTION OF THE PROJECT

This project assumes:

- Construction of 2 new roundabouts (Turisticka/ Makedonski Prosvetiteli and Turisticka/ Bistrica),
- Rehabilitation of road surfaces, reconstruction of carriageways, construction of the storm water system on 8 streets/roads,
- Procurement of 5 communal vehicles for CSE and
- Construction of a perimeter fence around the landfill Bukovo.

Table 16: Summary of project activities

No.	Street	Storm water	Road surface	Side walks
1	Local road Elsani	- (does not exist)	√	Shoulders only
2	Street" Pitu Guli"	- (exists)	√	Reconstruction of the existing one
3	Street "Sateska",Voska	√	√	Exists
4	Street "Trajce Trajceski", Voska	√	√	Construction of new sidewalks
5	Street "Mica Gilic", Voska	√	√	Construction of new sidewalks
6	Street "Vasil Stefoski", Voska	√	Good condition	Exists
7	Local road "Ilija Smiceski" Leskoec	- (does not exist)	√	Shoulders only
8	Street "Risto Cado "	√	√	Construction of new sidewalks on both sides

The technical design for the streets assumes rearrangement of traffic control with construction of roundabouts, rehabilitation of the road surface, reconstruction of the streets and construction of a new storm water system. Two intersections will be reorganized with reference to traffic flow: construction of roundabouts is assumed on two intersections on the transit street Turisticka, which is part of the main regional road: Turisticka/Makedonski Prosvetiteli and Turisticka/Bistrica.

Rehabilitation of the existing road surface will be performed on the local road Elsani. This road is the main traffic communication for the Elsani village that connects this village with the regional road Ohrid-St.Naum. Then, rehabilitation of the following streets is assumed: "Pitu Guli" in the urban community Vlaska mala, "Risto Cado" in Vidobista urban community, "Ilija Smiceski" in the village Leskoec, and rehabilitation of the streets in Voska district: "Trajce Trajceski", "Mica Gilic", "Sateska". The street "Vasil Stefoski" in Voska district after construction of the storm water will be returned to the previous conditions.

The total length of the streets that are subject to this appraisal is 5286m, varying from 155m to 2257m, while the width varies from 3m to 9m.

According to the data available, there are approximately 35,716 inhabitants gravitating on these streets, which is 64% of the total population in the Ohrid municipality. The streets are part of the Detailed Local Urban Plans (DLUPs hereinafter) for the urban districts that were adopted by the municipal Council. The DLUPs of the urban districts were used as a base for elaboration of the technical documentation for the Project. According to the information provided by the municipality the above mentioned streets are constructed 30-40 years ago and all have the upper layer of asphalt but with great stage of damage. They are all in a very poor condition without appropriate drainage and road constructive elements. The infrastructure on the streets has fallen into such disrepair that an expansive reconstruction and/or 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 municipal community.

The project also assumes procurement of 5 communal vehicles such as:

- Two solid waste collection vehicles with capacity of $3m^3$ each,
- One solid waste collection vehicle with capacity of $9+1m^3$,
- One solid waste collection vehicle with capacity of $16+1m^3$,
- One hydrostatic street cleaning machine (electric type).

All solid waste collection vehicles will be able to lift waste containers of $1.1m^3$ and 120-240l bins. The maintenance of new vehicles will be the responsibility of CSE.

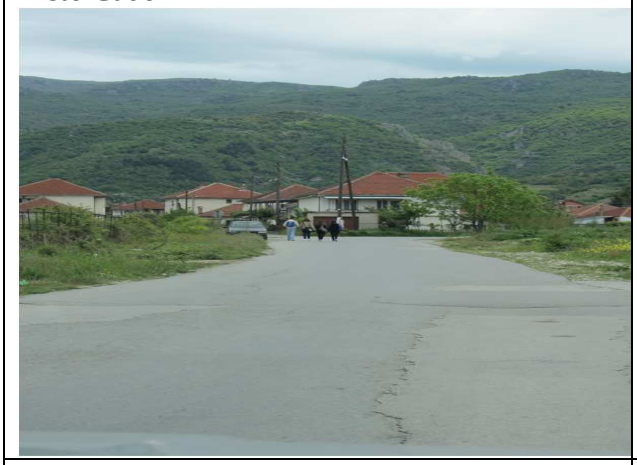
Finally, the project assumes construction of a perimeter fence around the landfill Bukovo (1850m). Currently, the Bukovo landfill is not fenced, is easily accessible, which creates additional environmental risks.

Figure 3: The present condition of the local roads/streets subject to this appraisal

Leskoec

Elsani

Risto Cado



Pitu Guli

Voska

Roundabout Turisticka/ Makedonski Prosvetiteli

1. Current waste management system

The current waste management in the Ohrid municipality has been implemented by the Communal Service Enterprise (CSE) "Ohridski Komunalec" established in 1989. The company provides several communal services: collection, transportation and final disposal of municipal solid waste, maintenance of public hygiene, greenery and parks, removal and storage of improperly parked vehicles. CSE comprises 4 working units: (1) communal hygiene, (2) parks and greenery, (3) mechanization and (4) common service.

The public company has 237 regular employees (93 on solid waste management) and plus 30 temporary employees for the summer season.

In general, the public utility company provides communal services on whole municipal territory including about 16,000 households and 5,000 summer houses/apartments. The collection of the municipal solid waste is organized in the City of Ohrid and 21 settlements out of 33. The following settlements (weekend settlements and villages) are receiving the communal services related with waste management: Racha, Velestovo, Sveti Stefan, Istok, Dolno Konjsko, Lagadin, Elshani, Eleshec, Peshtani, Trpejca, Ljubanishta, Orman, Podmolje, Velgoshti, Leskoec, Gorno Lakcherej, Dolno Lakocherej, Kosel, Livoishta, Vapila, Kuratica. The population covered with solid waste service is 54,923 (98.5%). Waste collection is not provided to the villages: Recica, Plake, Zavoj, Ramne, Svinista, as they are highly depopulated with small number of inhabitants. CSE signed service agreements with all legal entities that are users of the service, whereas no formal agreements are signed with physical persons.

CSE (hygiene section) with the existing human and technical capacity is working in two shifts during the year and in three shifts in the summer for the months July and August. Ohrid city is served every day, and during the summer 2-4 times a day. In other settlements the waste is collected twice a week, and during the summer more often if necessary. Tourist complexes located along the road Ohrid-St.Naum are provided with solid waste collection service every day during the summer, whereas in the winter twice or once a week.

Table 17: Basic data on solid waste collection

	Waste collected with vehicles (m^3)	Waste collected with vehicles (t)	Industrial waste (m^3)
2010	212,325	21,232	523
2011	219,052	21,905	535
2012	214,485	21,485	560
2013	277,963	27,796	360

Source: CSE

In 2013 CSE increased the amount of collected waste. On average it collected with vehicles 498.6 kg per year per capita (1.4kg per day per capita).

Waste collection is carried out with containers with a capacity of $1.1m^3$ and part of them (550 containers) are intended for households and institutions and around 30-50 containers with a

volume of 5m^3 and 7m^3 are intended for commercial facilities. On daily basis 60-70 tones waste has been collected and in the period the quantity raises up to 90-100 tones waste per day.

The composition of the municipal solid waste is not so different than in other municipalities as a result of every-day activities of one household. The following waste streams could be found in the solid municipal waste: glass, PET bottles, paper and cardboard, textile, food, waste from agriculture activity in the household yards, other biodegradable waste, etc. The composition of collected waste is presented in the following table.

Table 18: Municipal solid waste collected in 2013

Type of waste stream	Unit	Quantity
Collected with vehicles	m^3	277,963
Construction debris	m^3	2,115
Demolition waste	m^3	528.5
Biodegradable waste	m^3	1,698
Earth, sand, stone	m^3	2072.5
Industrial waste	m^3	360
Paper	kg	119,468
Plastic	kg	1,532

Source: CSE

The primary selection at the source of generation (households) of paper and PET bottles is performed only in Ohrid city. The CSE recorded these annual quantities as presented in Table 19.

Table 19: Collected quantity of paper and PET in City of Ohrid

	Type of waste (kg)	
	Paper	Plastic
2010	98,000	3,240
2011	117,280	1,857
2012	80,800	1,969
2013	119,468	1,532

Source: CSE

CSE mechanization comprises 27 vehicles. Solid waste mechanization comprises two electric machines for compressing the waste and 15 solid waste vehicles, out of which only 8 are operational. The oldest vehicle is from 1979 and the newest from 2003, which means that all are fully amortized (annual rate is 14%). Once the procurement of new vehicles is completed, the supervisory board of CSE will write off the records all vehicles which are out of order and will make a formal decision on a public tender for their recycling.
In 2013 during the summer CSE borrowed two solid waste collection vehicles with capacity of 3m^3 each from CSE „Komunalna Higiena – Skopje". Without these vehicles it would not be able to collect waste according to needs.

Table 20: CSE mechanization

	Type	Waste reception capacity (m^3)	Working capacity (cm^3)	Power (kW)	Load capacity (kg)	Production year	Comments
Solid waste mechanization							
1	MAN	90	6871	191	9060	1998	Used every day
2	Mercedes	120	10888	159	10350	1988	Used occasionally/ fully amortized
3	Iveco	30	3908	65	2400	1995	Used every day
4	Mercedes	99	12760	188	8300	1982	Used every day
5	Mercedes	60	5675	96	2000	1985	Used every day
6	FAP	39	11040	147	4300	1987	Used every day
7	FAP	69	11040	151	6100	1991	Used every day
8	Izuzu	2.26	4334	88	2250	1997	Not in operation since 17.04.2014, spare parts could not be found
9	Izuzu	2.26	4334	88	5073	1997	Used every day
10	FAP	69	11040	151	5620	1991	Used every day
11	FAP	81	11040	147	3700	1998	Not in use, to be written off the records
12	MAN	120	6374	205	11920	1999	Not in use, the engine is being repaired
13	Mercedes	120	11967	228	11590	2002	Not in operation since 14.05.2014 due to defect in electric system
14	Mercedes	0.35	2148	80	820	2003	Used for compressing of waste. Electro motor is out of order 3-4 times a year
15	Mercedes	0.35	2148	80	820	2003	Used for compressing of waste. Electro motor is out of order 3-4 times a year
16	Raba	78	10355	188	7300	1984	Not in use, to be written off the records. Chassis could be used
17	Iveco	30	3908	65	2400	1995	Not in use, to be written off the records
Tracks							
18	FAP	4.5	8280	107	7600	1991	Used every day
19	FAP	4.5	8280	106	7500	1979	Not in use, to be written off the records
20	FAP	4.5	8280	106.7	8000	1983	Used every day
Tractors							
21	IMT	4	2360	26.6	--	1991	Used every day
22	IMT	4	2360	28.7	--	1986	Used every day

Tanker							
23	FAP	--	8280	145	7500	1980	Used every day
Sweeping vehicle							
24	Schmidt	--	4164	99	--	2000	Defect – temporary not in use
Other vehicles							
25	Combined construction machine			79.2		2002	
26	Transport track						
27	Bulldozer					1982	Not in use, to be written off the records
Other mechanization							
	Waste compressing machine, transportation line, sewerage cistern						

Source: CSE

There is a service and parking site for the communal vehicles - several photos were taken during the site visit performed on 11.11.2013.

Figure 4: Communal mechanization of CSE "Ohridski Komunalec"

Due to high rate of depreciation of communal vehicles, the public utility has very high maintenance costs (around 4200 EUR per year). To ensure efficient and better operation of communal trucks CSE ***has transfer station*** where the waste has been transferred from the trucks with small capacity into bigger trucks. It is a very positive step towards increasing the efficiency of work and saving the resources as the quantity of waste that needs to be transferred with small vehicles to the landfill far 25km, has been transported with one bigger vehicle.

The communal services fees were changed in 2008, 2012 and 2013. The fee for households is based on living space area and is 2.4MKD/m^2 and for legal entities the fee is differentiated between the City of Ohrid and rural areas.

Table 21: Monthly fees for solid waste collection

	Council Decision 2008	Council Decision Jan 2012	Council Decision Sep 2013*
Households (permanent)	2.2MKD/m^2	2.4MKD/m^2	2.4MKD/m^2
Households (temporary)	1.1MKD/m^2		
Companies (trade and hotels) – in the Ohrid City	Depends on the working space: up to 100m^2: 15MKD/m^2 >100m^2: 10MKD/m^2	Depends on the working space: up to 100m^2: 16.3MKD/m^2 >100m^2: 11MKD/m^2	Depends on the working space: up to 100m^2: 16.3MKD/m^2 >100m^2: 11MKD/m^2
Companies (out of Ohrid City)	Containers 5-7m^3: 900MKD/m^3+ 30MKD/km Containers 1.1m^3: 480MKD/m^3+ 10MKD/km	Containers 5-7m^3: 980MKD/m^3+ 33MKD/km Containers 1.1m^3: 520MKD/m^3+ 11MKD/km	Containers 5-7m^3: 980MKD/m^3+ 33MKD/km Containers 1.1m^3: 520MKD/m^3+ 11MKD/km

**The prices of additional services provided by CSE have decreased*

There are two landfills near the City of Ohrid: Bukovo and Mauker.

a) Municipal landfill for final disposal of the ***municipal solid waste***, situated 25km from City of Ohrid at the location called Bukovo, near Bukovo settlement: The total area of the municipal landfill for municipal solid waste is 27,880m^2 and the whole area is active. There is no fence around the landfill Bukovo as well as a security guard 24 hours/day (this project addresses this with component on fencing the landfill). There is a bulldozer for covering waste with soil. The existing waste disposal practices do not comply with technical and environmental standards; landfill represent risks for the pollution of air, soil, surface water and groundwater, as well as potential risks for biodiversity, agricultural land and human health due to deposition of mixed hazardous and non-hazardous waste. An additional environmental problem is with smell during burning on open-air fires of municipal waste. The landfill will be closed once the regional landfill is launched.

b) Municipal landfill for ***inert waste*** at the location called Mauker, 3km from City of Ohrid at the entrance to the city on the regional road Skopje-Ohrid with total area of 32,000m^2: The landfill was created in 1998. The disposal of the inert waste is free of charge and usually the persons who are performing the building/construction works are disposing the inert waste by themselves. There is a guard 12 hours a day (2 employees). The landfill can be used for next 10 years.

Several photos taken from these two landfills are included below.

Figure 5: Municipal landfill Bukovo

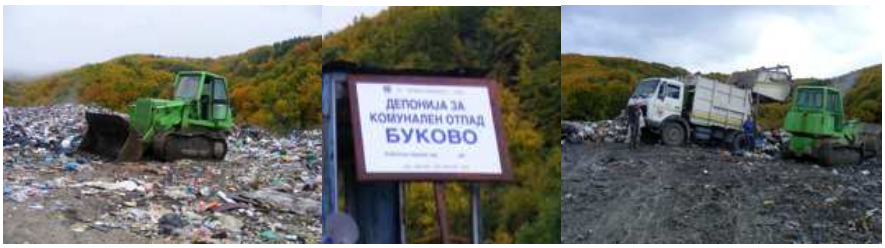


Figure 6: Municipal landfill Maucher for inert waste

According to the statements provided by the communal inspectors, there are 17 illegal waste dumps near roads that CSE cleans irregularly.

The medical waste is collected separately in appropriate package with label “medical waste” and it is transported to Bitola and finally disposed and incinerated in the incinerator at Drisla landfill near Skopje. The hazardous waste is collected and transported by company S-IGOR from Kicevo- licensed company for collection, transportation of hazardous waste. The used cooking oil origin from the households and restaurants are collected, transported and recycled by company SUNILENS from Skopje.

CSE organized primary selection of waste: 57 containers for PET and 50 grid metal boxes for paper are distributed in the city of Ohrid. CSE distributed 550 containers with capacity of 1.1m^3.

The main waste management problems identified by the management of the public utility are:

- Most of communal trucks are very old, with high fuel consumption and frequently need of service and procurement of spare parts;
- The public utility has no financial resources to purchase the waste collection vehicle/s providing better service to the population;
- No proper waste disposal (municipal landfills Bukovo and Maucher do not fulfill technical and environmental standards);
- Increased demand on services during the tourist season.

In 2013 CSE collected 27,796.3t of waste. The maximum intensity of waste accumulation in Ohrid is recorded during the summer months, in June, July, August and September i.e. during the

summer tourist season. Taking the population of Ohrid city of 55,749 an average daily generated waste is 1.4 kg per capita.

Table 22: Average communal waste collection by months in 2013

Month	Waste deposited per month in tons
January	1363.1
February	1563.1
March	1909.2
April	2238.4
May	2456.6
June	2465.1
July	2656.5
August	3603.7
September	2430.3
October	2415
November	2316
December	2379.3
Total	27,796.3

Source: CSE "Ohridski Komunalec"

Table 23: Composition of collected waste

	2011	**2013**	**2013**
Collected waste (t)	22022	21567.5	27769
Selected waste:	117	82.5	121
-paper	117	80.5	119468
-plastic	0	2	1532
Deposited to the landfill	21905	21485	27649
Total length of routes (km)	406610	398215	422305

Source: IBNET database

Current collection rate is equal to 83% and is higher for households (84%) than for companies (78%).

Table 24: Solid waste collection rate (%)

	2009	2010	2011	2012	2013
Invoiced: solid waste collection	56,582,000	84,636,000	85,271,000	93,512,000	96,221,000
Invoiced: households	40,656,000	61,990,000	61,197,000	67,585,000	69,989,000
Invoiced: companies	15,926,000	22,646,000	24,074,000	25,927,000	26,232,000
Collected: solid waste collection	46,464,000	64,547,000	70,658,000	78,892,000	79,554,000
Collected: households	33,734,000	48,399,000	52,601,000	59,155,000	59,120,000
Collected: companies	12,730,000	16,148,000	18,057,000	19,737,000	20,434,000
Collection rate	82	76	83	84	83
Collection rate: households	83	78	86	88	84
Collection rate: companies	80	71	75	76	78

Source: CSE "Ohridski Komunalec"

In order to successfully undertake this responsibility, it is necessary for the CSE to empty the waste containers and the other waste vessels on time and to keep the environment clean between each collection of waste in line. Considering the lack of adequate waste collection vehicle, the CSE is not in the position to fulfill this task, therefore, the municipality and the CSE face many - justified - complaints and criticisms issued by the citizens. The waste collection problem has been clearly defined a long time ago, but still remains current, primarily due to the financial constrains of the CSE. The new special communal waste vehicles, which are subject to this appraisal, can solve the waste collection problems, thus allowing the municipality meeting its legal obligation.

a) Communal State Enterprise "Ohridski Komunalec"

In 2010 the CSE "Ohridski Komunalec" comprised the following working units: (1) communal hygiene, (2) parks and greenery, (3) mechanization, (4) market, (5) construction works and cemetery, (6) common services. From January 1, 2011 a few activities were extracted from the scope of works of CSE „Ohridski Komunalec" and 3 new CSEs were created: "Gradski Pazar", "Pogrebalni uslugi", "Gradski Grobista". As a result: CSE "Ohridski Komunalec" comprises 4 remaining units: (1) communal hygiene, (2) parks and greenery, (3) mechanization, (4) common services.

CSE operates with profits.

Table 25: Financial results

	2010	2011	2012	2013
Employment (end of year)	280	220	258	237
Revenues (000 MKD)	117,209	104,588	108,264	107,600
Expenditures (000 MKD)	116,634	103,793	107,548	106,803
Financial results (000 MKD)	575	795	716	797

Source: CSE "Ohridski Komunalec"

2. Future situation

Ohrid municipality plans to improve the system of solid waste collection. Thus, the municipality is making efforts to increase the capacities of the equipment for waste collection as well as to improve the system of solid waste collection. Hence, the municipality intents to improve living conditions by investing in the local road network. Special attention is paid to the security of traffic and this issue will be addressed with construction of two roundabouts at the main road crossing the City of Ohrid.

The project does not generate additional revenues, but will have substantial impact on cost reduction – better service will be provided at lower price. The procurement of vehicles will ensure more efficient waste management with lower environmental and health risks. The quality of public services will be higher that is expected to improve tourist attractiveness of this area.

The benefits expected from the project implementation 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. Additionally, the implementation of the project is expected to lead towards reduction of the 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 for houses and other residential or commercial objects on the streets, thus increasing the growth of revenues from property taxes. Population will get access to new public service: storm water system.

Specifically, the following goals were identified:

Procurement of vehicles and fencing the landfill:

- Provide better solid waste collection services to the population,
- Improve waste disposal by managing the environmental risks,
- Decrease maintenance and fuel costs of solid waste collection vehicles,
- Decrease CO_2 emissions,
- Improve level of public hygiene.

Streets reconstruction and rehabilitation:

- Provide traffic comfort, convenience and safety for the pedestrians and traffic,
- To ensure there is no storm water inundation of the streets by construction of storm water network.

3. Beneficiaries

a) Vehicles

Procurement of vehicles for CSE will contribute to well-being of almost all municipal population, as the waste is collected from 54,923 people (98.5% of population). Additionally, tourists will be also beneficiaries of the project. According to the information provided by the municipality (tourism department), collected by the State Statistical Office, in 2013 the municipality was visited by 191,504 tourists, which is 3.5 times more than the municipal population. The highest number of tourists is registered in summer months: June – 21,734, July 41,448, August – 45,581, September – 17,827.

b) Roads

Elsani village is located 10km from the Ohrid city and is connected with regular bus transport. There are a few grocery shops and two old churches in the village, which is a good starting point to hiking in national park Galicica. The local road financed with this project starts from regional road Ohrid-St.Naum and ends in the village. For all inhabitants of this village (590) this is the only road to go out of this settlement, so everybody uses it regularly.
Leskoec village is located 4.15km from Ohrid city. The street Ilija Smiceski serves all village inhabitants (2595) and starts in the middle of the settlement and leads to church St.Naum.
Pitu Guli street is in the center of the city and starts from the General Hospital and leads to the bus station. This is the street used by those who travel from Ohrid to Bitola. There is primary school "Hristo Uzunov" located on this street.
Risto Cado street starts in the city center in Vudobista settlement and connects this settlements to the main crossroad in the city that is the starting point for directions to Bitola and Skopje. Association of the drivers (Ohird section) is located on this street, and secondary electro-mechanical school St.Naum Ohridski is on a short distance.
The project refers to a few streets in **Voska** district, which is a tourist area located in close distance to Ohrid lake.
Two **roundabouts** are located on the regional road Skopje-Ohrid. Ohridska Banka headquater is located on roundabout Tursticka/ Makedonski Prosvetiteli, whereas on roundabout Turisticka/ Bistrica there is a petrol station. One might travel from any of these roundabouts to the old part of the Ohrid city.
Pitu Guli and Risto Cado streets, and two roundabouts indirectly lead to all tourist locations in the municipality such as Ohird lake, National Park Galicica, historical churches, Samuel fortress, gallery of icons, National Museum (houses of Robevci and Hristo Uzunov), Museum of Slavic literacy, ancient amphitheater, Memorial House of Grigor Prlicev, University St.Kliment and archeological site Plaoshnik.

Table 26: Beneficiaries of the project

Street	Residents	Households connected to the water supply network (2013)
Elsani	(590)	184
Leskoec	(2595)	117
Pitu Guli	UC10 Gorna Vlaska mala (4380)	364
Risto Cado	UC11 Vidobista (3625) (20% of city population transit through this street)	329
Voska	UC4 (3875)	399+232+47+42
Roundabout Turisticka/ Makedonski Prosvetiteli	UC1 (2400) UC2 (3195) UC6 (3510) UC7 (2110) Total 11215	
Roundabout Turisticka/ Bistrica	UC3 Koshishta (3 913) UC 4 Voska (3875) UC5 Leskajca (1 648) Total 9 436	
TOTAL:	35 716 or 64%	1714 (out of 28332 connected households)

Source: Ohrid municipality

4. Strategic goals

The project will contribute to accomplishment of the strategic goals in the area of infrastructure and communal waste management of Ohrid municipality as identified in the "Strategy on Local Economic Development (2007-2020)", "Waste management plan in Ohrid municipality in 2009-2014", "Waste management program in Ohrid municipality in 2014".

Waste management plan identifies the following goals:

- Regional approach to waste management;
- Municipal contribution to regional approach;
- Full coverage of all settlements in the municipality with solid waste collection service;
- Waste selection;
- Selection of biodegradable waste;
- Upgrading the transfer station;
- Public awareness;
- Identification of financing sources.

Plans:

- Installation of underground containers,

- Setting the pressing containers in those settlements where apartment buildings are located,
- Procurement of 120l waste bins for all households,
- Creation of new green areas, maintenance and setting new trees,
- Upgrading the nursery and garden center.

As elaborated in the strategy the highest priority in the area of municipal infrastructure is improvement of the existing network of local roads and streets and construction of a new one where it is deemed necessary and regarding the area of communal waste management the highest priority is procurement of new vehicles for waste collection. It can be inferred that the achievement of the above elaborated goals will undoubtedly contribute towards improvement in the quality of life and well-being of Ohrid municipality inhabitants, but also will improve the tourism offer.

II. SOCIAL IMPACT OF THE PROJECT

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 behavior, stakeholders, participation and social risk.

From the above presented demographic data in Chapter 1 the following can be concluded:

- Dominating age group in the population are from 40 to 44 years,
- There is nearly equal representation of male and female in the total population of municipality,
- Prevalent ethnicity is Macedonian.

There are several important stakeholders concerned in regard of the project with different power and influence on its realization. The most influential participants in the decision making process at the municipal level are the Mayor and the municipal Council. The Mayor forms a team of employees in the local development, communal development, urban planning and environmental protection, in cooperation with the CSE, to prepare the necessary documents for the implementation of the Municipal Services Improvement Project financed by a loan from the International Bank for Reconstruction and Development.

The legal framework requires organization of consultations on any infrastructure project proposed by the municipality. In line with those requirements the municipality organized public debate on the proposed project on August 12, 2014. The entrance was free to anyone interested and invitations were sent via the local communities. There were 23 persons present including those representing local communities covered by this sub project, namely Voska, Gorna Vlaska Maala, Vidobista, Leskoec and Elsani. The municipality was represented by the Mayor, municipal secretary, director of CSE “Ohridski Komunalec“ and representatives from CSE ”Niskogradba”, sector on tourism and local economic development as well as sector on development of communal utilities. The Mayor along with the secretary and representatives of

the professional services of the municipal administration addressed the present citizens with information that long-term domestic borrowing of Ohrid municipality will be accomplished through the signing of sub-loan with the Ministry of Finance, within the funds provided a loan from the International Bank for Reconstruction and development - World Bank..

The Mayor presented content of the projects, estimated value and financing sources and conditions (interest rate, 13 years of duration of the loan with 3 years of grace period). It was stressed that all legal issues were clarified. The Mayor informed the citizens about the additional benefits of this borrowing pertaining to the possibility of getting a grant from the World Bank in the amount of 5% of realized projects, which can be used for realization of similar infrastructure projects and the fact that only used amount will be repaid (in case the bid selected will be below the initial project value estimations). The current value of the interest rate (6-month EURIBOR) was presented.

Citizen of the urban community 7th November asked for the possibility of adding the rehabilitation of street “Dejan Vojvoda“ in this project. The Mayor responded that the project at this stage cannot be extended thus rehabilitation of the street will be considered for funding by municipal resources or other sources of funding.

A citizen of the urban community Voska said that the planned project will solve the problems of flooding of street "Sateska” in this urban community, which is a bitter issue for the inhabitants for many years. Also citizens asked for more information about the anticipated activities on the roundabout Turisticka-Bistrica particularly regarding the bad condition of the sidewalks along the intersection and the bike path asking why the municipality did not assume their rehabilitation within the project. Secretary of the municipality explained that the replacement of the sidewalks and rehabilitation of the bike path on this roundabout was envisaged to be done with municipal funds, thus the project will be fully completed.

A citizen from urban community Kosista, so called settlement Drvara, asked for an explanation regarding the status of storm water system on all streets that are subject to the project, because they were often flooded that distorted the traffic. It was told by the Mayor that the setting of storm water system is envisaged on the streets covered by the project and he noted the problem with the uncompleted collector system in the municipality that pollutes the Ohrid Lake. The Mayor also stressed that a feasibility study for reconstruction and revitalization of the collector system is being prepared in collaboration with the Ministry of Finance as it will be very expensive investment.

On the citizens question whether the protection of the environment is taken into consideration for the planned projects the secretary replied that for all planned projects environmental studies were developed and approved by the Municipal Inspectorate for Environmental Protection.

A citizen from urban community “Biljanini izvori” asked whether sewerage network is planned to be placed on mentioned streets. Representative of the CSE "Niskogradba" said that there is a sewerage network on all streets covered by the projects, explaining that there is separation of the water into storm water and sewerage. The same citizen raised question about revitalization of

Lake slough with criticism that the municipality is not paying enough attention to its protection and he pointed the need for establishment of communication between the lake and the slough on the section from the bridge to the hotel Park by construction of the mechanism of water transmission between the lake and the slough.

The Mayor said that according to some analyzes the Lake slough is quite polluted and some places have up to 4 meters of garbage, adding that it began to be systematically destroyed since 1978 with construction of the Sport centre and the Bejbunar settlement, so that part of the slough is fully destroyed and cannot be repaired in its original appearance but in any case the part that still exists deserves attention from the municipality in order to avoid its complete disappearance. Citizen of urban community Gorna Vlaska Mala raised the question of whether the secondary streets of Pitu Guli Street are planned to be covered by this project. Answer was given by the municipal representatives saying that these activities are foreseen for realization in the annual Program of Department of Public Utilities in Ohrid municipality.

A citizen of the urban community Voska, who lives abroad pointed out that there is a lack of the geriatric homes in Ohrid and asked the municipality to solve this problem. He explained that foreign investors are interested to build geriatric homes in Ohrid but designed exclusively for elderly people from Germany.

The President of local community Leskoec requested information on the expected time for construction of the street "Ilija Smiceski" that is assumed under this project. The Mayor explained the tender procedures on construction of these kind of projects adding that the process of setting up of a sewerage system on this street is in progress and the possible time for asphalting of the street would be the end of the current calendar year.

Director of CSE "Ohridski Komunalec" welcomed the efforts of the local government for the enhancement of the condition of the infrastructure in the city as well as the purchase of five communal vehicles and stressed that for 20 years the enterprise has not purchased new vehicles which was the major issue for regularly picking up the garbage and the cleanness of the city for citizens and tourists.

A citizen of the local community Elsani and president of the Citizens Association “Saint Ilija" appreciated the municipality for setting water supply system in Elsani and decision to rehabilitate the local road Elsani within this project. He said that this project will greatly contribute to the development of rural tourism in this local community. The mayor said that the main project for the road Peshtani Ohrid - Saint Naum is in at the final stage and the same project will provide connection of Elsani with this road.

The Mayor stated that after successful implementation of the project the municipality is planning to apply for a new loan on infrastructure projects on what the citizens gave their suggestions for project proposals with a request to be considered for funding by the World Bank.

Besides the public consultations, the citizens in the local community of Ohrid have frequently submitted their complaints on the current situation in the streets that are subject to this Appraisal,

which again implies that the citizens are fully in favor of the Project. The NGOs have some influence, but since this Project will promote improvement of the quality of life in the municipality of Ohrid, the NGOs are expected to be in favor of the Project.

All of the citizens in the municipality will be beneficiaries of the Project. However, the citizens who live on the streets that are subject of this appraisal can be considered as direct beneficiaries of the Project. Direct beneficiaries of the project are also the employees of the CSE. The special communal waste vehicles, which will be provided by the project, will improve the working conditions for the employees in the public enterprise as well prevent their direct contact with the waste that has not been selected and is a potential carrier of infectious diseases caused by disintegration of organic substances. Having on mind that the new vehicles will be used for waste collection on the whole municipal territory, the indirect beneficiaries of the project will be the citizens equally in the urban and rural settlements as well as the tourists who visit the municipality.

The loan will be repaid from the municipal budget in the ensuing years. There is no need for any kind of voluntary participation or financial contribution from citizens.

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.

Based on the public debate on August 22, 2014 the municipal Council approved the projects and its way of financing (13 for, 6 against – out of 19 present). The Municipal Council consists of 23 Councilors from 6 political parties. Out of the total number of Councilors 12 supports the Mayor, 8 are in opposition while 3 are independent. The Project is also part of the Annual Program of the CSE ”Ohridski Komunalec” and the Annual Program on Communal Development of the municipality of Ohrid, which have been also adopted by the Council. As elaborated earlier, the Councilors have already expressed their support for the Project and for raising a loan for its implementation.

It is worth mentioning that the municipality of Ohrid is considered one of the top tourist destinations in the Republic of Macedonia with a high potential of rural and alternative (eco) tourism. The city of Ohrid as a UNESCO world heritage site with its surroundings offers many historical monuments of an utmost historical, cultural and artistic value. Taking into account the significance of tourism for the economic development of the municipality as well as the decline in the unemployment, the development of tourism is considered one of the pillars of the Strategy for local economic development of the Ohrid municipality.

The conclusion is that the project does not carry any social risks, because it will improve the community living standards in the municipality, the project is priority for the public administration and citizens, there is no need for financial contribution from citizens, the project is not a subject to resettlement issues and the stakeholders are highly motivated for realization of this project.

III. ENVIRONMENTAL IMPACT

In summary, the project comprises several activities on **construction of two new roundabouts (Turisticka/ Makedonski Prosvetiteli and Turisticka/ Bistrica), rehabilitation of road surfaces, reconstruction of carriageways and construction of the storm water system on 8 local streets/roads** in the City of Ohrid and nearby villages, **procurement of 5 communal vehicles for CSE "Ohridski Komunalec" and construction of a perimeter fence around the landfill Bukovo** in the municipality of Ohrid.

The main characteristics of the sub-projects are following:

a) Two intersections will be reorganized with reference to traffic flow: construction of roundabouts is assumed on two intersections on the transit street Turisticka, which is part of the main regional road: Turisticka/Makedonski Prosvetiteli and Turisticka/Bistrica;

b) Rehabilitation of the existing road surface will be performed on the local road Elsani. This road is the main traffic communication for the Elsani village that connects this village with the regional road Ohrid-St.Naum. The rehabilitation of the following streets is assumed as well: a) Street "Pitu Guli" in the urban community Vlaska mala, b) Street "Risto Cado" in Vidobista urban community, c) Street "Ilija Smiceski" in the village Leskoec, and rehabilitation of the streets in Voska district: "Trajce Trajceski", "Mica Gilic", "Sateska". The street "Vasil Stefoski" in Voska district after construction of the storm water pipeline will be returned to the previous conditions. The total length of the streets that are subject to this appraisal is 5.286m, varying from 155m to 2.257m, while the width varies from 3m to 9m;

c) Procurement of 5 communal vehicles, which will be used for collection and transportation of communal waste such as:

- Two solid waste collection vehicles with capacity of 3m3 each;
- One solid waste collection vehicle with capacity of 9+1m3;
- One solid waste collection vehicle with capacity of 16+1m3;
- One hydrostatic street cleaning machine (electric type).

All solid waste collection vehicles will be able to lift waste containers of 1.1m^3 and 120-240l bins. The maintenance of new vehicles will be the responsibility of CSE "Ohridski Komunalec".

d) Construction of a perimeter fence around the landfill Bukovo (total length 1,850m). The total area of the municipal landfill for municipal solid waste is 27,880m^2 and the whole area is active. There is no fence around the landfill Bukovo and it creates environmental and health risks for the population and biodiversity.

1. Location of the sub-projects

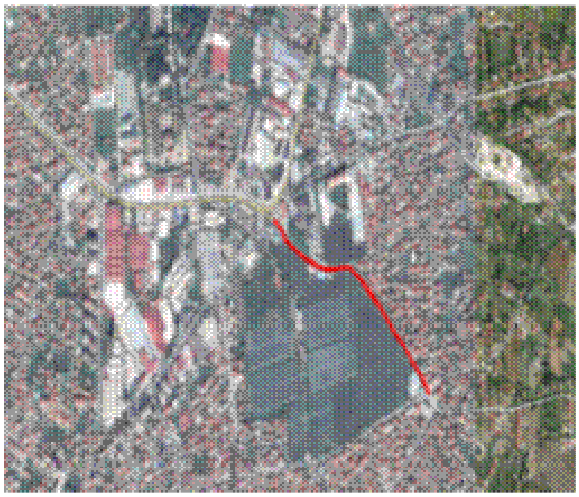
Two roundabouts are near the residential and social buildings in City of Ohrid (Figure 7). Six of total eight streets included within the project are located in the urban settlements of Vlaska maala, Vidobista and Voska in Ohrid (Figures 10,11,12), and two local roads are in settlements Elsani and Leskoec which are located in the periphery of the City of Ohrid (Figures 8,9).
The entire project area is located near the family houses. In Voska, the project location is very close to the Ohrid Lake - only 150 meters distance. In Vidobista the project location is nearby Department of Drivers' Association, few production halls, bus station, high school building and commercial building. In Vlaska Maala the project is nearby elementary school building and Health care medical center. In Elsani the project is nearby National park “Galicica”.

Figure 7: Local roundabouts: Turisticka/ Makedonski Prosvetiteli and Turisticka/ Bistrica

Figure 8: Local road Elsani. Figure 9: Street Ilija Smiceski” in the village Leskoec

Figure 10: Street “Pitu Guli” in the urban community Vlaska mala

Figure 11: Streets ”Trajce Trajceski”, “Mica Gilic”, “Sateska” – Daljan district
Figure 12: Street ”Risto Cado” in Vidobista urban



2. Main sub-project activities with environmental impact

For each sub-project related to rehabilitation and reconstruction of the local streets there are different project activities (provided into the main design for each project), but mainly the general construction activities consists of: dismantling of the existing equipment, removing and scrapping of the asphalt layer, placing of concrete curbs, concrete interlock tiles, gullies and manholes for drainage, placement of asphalt for leveling and wearing course. On the local streets the two sided sidewalks 1.5m wide will be constructed.

The technical solution for construction of a storm water system on the streets in Voska district envisages placing RC/PE pipes with different diameters and total lengths, placement of inspection manholes and street gullies.

The perimeter fence around the landfill Bukovo should be built with steel pillars 4x6cm and 1.5m high, fixed in concrete foundations placed 2m apart. The foundation should be with

dimensions 30x30x40cm. At the entrance, gate made of steel profiles should be provided and fixed with the fence as well as additional protection with barbed wire.

The communal vehicles will be EUR 5 emission standards and diesel running vehicles and the hydrostatic street cleaning machine will be unleaded fuel driving vehicle.

3. Background environmental data

Ohrid region which includes the lake and mountain Galichica allow Macedonia to be among the few countries with a rich diversity of habitats for wildlife. In 1958, due to the characteristic location, extremely rich flora and fauna and exceptional natural beauty and landscape values, Galichica Mountain was declared National park "Galichica" with 25,000ha protected area. On the other hand, in 1979 the Ohrid Lake was declared under UNESCO protection. With its unique flora and fauna, the lake is one of the largest biological reserves in Europe.

The Ohrid Lake is one of deepest and the oldest in Europe, preserving a unique aquatic ecosystem with more than 200 endemic species. The Lake fish fauna include 17 native species, of which 10 are endemic (two of which belongs to Salmonide family). Ten from the fish species have a commercial value. But also a lot of snails (85%), worms, and sponges are endemic species. Littoral zone is characterized by considerable communities of the plant and animal species. The red belts at this part of the lake have a big ecological importance as biotopes for a lot of other organisms, places for fish reproduction, and bird nesting place. Related to bird nesting over 60,000 birds have been observed in the Lake.

Figure 13: Ohrid Lake and National park "Galichica"

The water characterization of the Ohrid Lake is I and II class (I-V classes are defined according the national legislation, the I class is the good quality and the V class is the worst quality). The I and II class means very clean, oligotrophic water, which in its natural state can be used for bathing and recreation, water sports and it ensure fish growing.

4. Main environmental impacts and sensitive receptors

All project locations are near the Ohrid Lake, most far from the Ohrid Lake is Elsani village (approximately 3km). The vicinity of the lake and potential adverse impacts of the sub-projects to water quality or to the landscape (improper waste management, traffic disturbance) should be

taken into account due to the importance of the lake for economic development of the municipality. All planned construction activities are far away from the borders of the national park, so these activities will have no negative impact on the biodiversity, natural protected areas or cultural heritage of the protected region.

The environmental impacts are expected on short-term basis: during the construction/ reconstruction period and the impacts will be with minor local significance. The good construction practice could cover almost all mitigation measures proposed mainly to overcome the OH&S risks 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 hospital) and pollution of ambient air and water. The impacts are minor, but the significance is on regional/ national level taking into account vicinity of Lake Ohrid and National Park "Galichica".

In order to prevent the adverse environmental impacts and to ensure regular transportation of goods and people across the City of Ohrid and nearby villages (extremely important because reconstruction sites will be active during several months affecting the regular traffic) 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 time schedule. The Information note/ Press release about the project activities (start, time frame and re-routes of traffic) need to be prepared by the municipal staff and announced via local TV/radio/newspaper 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 tourists. According to the Law on noise sensitive protection (Official Gazette No. 79/07, 120/08, 1/09) all these areas (tourism and recreation area, national park, hospitals, schools, living area) have been identified at different noise areas. The tourism and recreation area and National park (projects in district Voska and village Elsani) belongs to the area with first degree of noise protection and the maximum allowed noise level should be 40dBA for night and 50dBA for evening and day. The living area (projects in Leskoec, Vidobista, Vlaska Maala and area for planned roundabouts) 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 course of this project are the following: emissions 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 emissions.

Different waste streams could be found on the construction sites and implementation of the waste hierarchy principles is essential. The contractor needs to communicate with municipality staff at

the beginning of the project in order to get instructions where to dispose the waste streams. The keeping records of temporary and final disposal of waste are important as well.

In order to minimize the negative impacts on the safety of workers and the population living near the construction site, the contractor should compulsorily provide fencing, marking and putting signs on the construction site and should also provide personal protective equipment for workers in accordance with the good construction practice. Also, the citizens of the municipality of Ohrid 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 following Environmental Mitigation Plan. The main responsibility for implementation of the mitigation measures lay to the sub-contractor and supervisor (nominated by the municipality) on daily basis. Some of the measures should be applied by the municipal staff (announcement of the traffic regime, recording the waste quantities and regular communal inspection).

For the procurement of the vehicles for the CSE “Ohridski Komunalec”, the noise specification (to be in compliance with EU Directive 2000/14/EC: noise level lower than 102 dB (A)) and the regular maintenance of the vehicles are crucial for minimization of the environmental and occupational safety risks. The director and technical staff of the CSE are responsible for regular maintenance of the vehicles, regular service and cleaning.

According to the national legislation, The Environmental Impact Assessment Reports for all construction and reconstruction projects were prepared in period March - May 2014 (Company “Advisent” dooel Skopje) and they were adopted by the Mayor. The Reports contain the main project goals, project activities, photos of the locations where the construction/reconstruction activities will be performed. The Reports provides general environmental mitigation measures.

The detailed relevant Environmental Mitigation Plan and Monitoring Plan are presented in following Tables.

B. ENVIRONMENTAL MITIGATION PLAN

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
Construction of 2 roundabouts and reconstruction of 8 streets and construction of water storm system				
Preparatory activities before construction works start: marking out the route and construction of 2 new roundabouts, reconstruction of 8 streets and construction of water storm system in Municipality of Ohrid	**Possible adverse social and health impacts on the population, drivers and workers due to:** - Lack of ensured safety measures at the start of reconstruction works; - Injury due to 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 districts: Elsani, Leskoec, Vlaska maala, Voska, Vidobista. Short term during the construction period (different lengths – from 155m up to 2,257 m) Significance: Major	➢ Preparation of the Traffic Management Plan together with the municipal staff prior start up activities; ➢ Provide the information via local radio/TV station/local newspaper 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; • 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; • 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 street and around sidewalks/ small roads should be kept clean; • The mobile toilet should be placed on the construction site; • 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;	• Contractor – Bidder • Supervisor • Municipality staff (Communal Inspector and Environmental Inspector)

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
			• 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 reconstructed streets.	
	Possible impacts on landscape and visual aspects	Local/ within the districts short term/ minor	• Good construction practices have to be implemented – including fencing and protection of construction site according to national legislation; • Minimization of the construction area as much as possible (carefully planning and design of the project activity according 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).	• Contractor – Bidder • Supervisor
	Possible emissions by transportation vehicles and impact on air quality in the Municipality of Ohrid due to: – Gases emissions of dust-suspended particulates; – Traffic	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 of 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 is not permitted.	• Contractor – Bidder • Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	congestion will be caused as well causing changes in existing traffic circulation.			
	Possible noise disturbance as a result of outdoor equipment usage and transportation vehicles driving around the sites	Local/ within the districts short term/ minor	• Two noise protection areas are relevant: a) Voska and Elsani - first level of protection (the noise should be 50dB per day and evening and 40dB during the nights), b) Leskoec, Vodoviste, Vlaska Maala and roundabouts area - urban residential areas - the level of noise should not exceed 55dB during the day and evening and 45dB during the nights; • The control of noise level should be performed during work peaks in the vicinity of the school, hospital and tourism and recreation areas; • The temporary noise protection barriers should be installed around the hospital and school near the construction sites; • The construction works should be not permitted during the nights, the operations on site shall be restricted to the hours 7.00 -19.00.	• Contractor – Bidder • Supervisor
	Possible impact on water course – Ohrid Lake near the project site in the municipality of Ohrid	Local/ short term/ minor due to the distance from the project site	• Minimize storage or disposal of substances harmful to water – Ohrid Lake coast (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 watercourse or drain during heavy rainfall.	• Contractor – Bidder • Supervisor
	Possible adverse environmental impact and health effects could occur	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).	• Contractor – Bidder • Supervisor

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	as a result of generation of the different waste streams The inappropriate waste management and not in time collection and transportation of waste streams		• 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.);	
			• Collection, transportation and final disposal of the inert and communal waste by the CSE "Ohridski Komunalec"; • 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 Ohrid • CSE "Ohridski Komunalec"
• ***No environmental impacts are expected during the Operational phase***				
Procurement of 5 vehicles for collection of communal waste				
Delivery of basic equipment (vehicles for collection of communal waste)	**Positive environmental, social and health impact due to improved collection and transportation of solid waste in the**	Local/ Long term/major	• The preventive measures could be implemented when the new vehicle is delivered including: • Check all technical specifications of the delivered vehicle in compare with the technical requirements (EURO5 engine specification and noise specifications as minimum environmental requirements); • Check the fuel quantity, lubrication oil quantity, breaking and steering system at the spot and lighting system;	• Contractor – Bidder • Director of the CSE "Ohridski Komunalec" and technical staff within the CSE

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	settlements which are not covered with communal service		• The review of the producer manual and driving manual recommendations for smoothly running of the vehicle (nomination of the responsible person within the CSE); • Delivery of short training to driver/drivers of the vehicle for the most economically running of the truck and training for communal workers operating with vehicle collection mechanism; • Delivery of training for regular maintenance of the vehicle.	
Putting the vehicle into operation	**Environmental and health impacts** Improper put into operation (running), or lack of prior check of the fuel quantity, lubrication oil quantity and breaking and steering system at the spot could cause adverse environmental and health impacts.	Local Long term/major	• Perform the procedure of homologation of the vehicle at the Faculty of Mechanical Science; • The technical specifications provided by the vehicle supplier should be checked according the EURO4 emission standards, general and specific safety requirements and all fitted devices like: rear protection devices, warning light, speed limitation device, braking and anti-blocking system, electrical and hydraulic system for waste compression, etc.; • The noise specification should be checked as well; • The level of noise should be not exceed more that national limited level (according to national legislation and EU requirement); • Perform the annual approval test at the authorized compliance body issuing the registration card for the vehicle.	• Contractor – Bidder • Director of the CSE "Ohridski Komunalec" and technical staff within the CSE
Regular operation of the waste collection vehicle	Improper or lack of regular maintenance could increase the environmental and occupational safety risks and health risks to all citizens due to the	Local/Regional Long term/major	• Regular maintenance and repair of the new vehicle and delivery of the spare parts on time by the professional service company; • Signing a contract with the service company for regular maintenance, replacement of spare parts, preventive lubricant oil changes, checks on electronic and hydraulic compression waste system, proper tire maintenance as one of the most important safety function, etc.;	• Director of the CSE "Ohridski Komunalec" and technical staff within the CSE

Project activity	Potential impact	Impact scale	Proposed mitigation measures	Responsibility
	following: – low fuel efficiency, – higher emissions of GHGs and other pollutants (CO, HC, PM and NOx), – increase in noise level, – leakages of liquid waste from the truck, – water and soil pollution as a result of possible oil leakages.		• Regular washing of the vehicle and keeping the parking site clean; • Forbidden replacement of motor and hydraulic oil at the parking site to avoid the oil and pollution of waters and soil; • Perform regular annual approval test during the annual registration of the vehicle; • The CSE should prepare the Fuel consumption and CO_2 emissions data Report on annual base; • The Report should contain at least the amount of diesel fuel consumption, type of diesel fuel used and the CO_2 emissions derived from the consumption, total length of the routes passed, the distance routes among the local settlements and all settlements covered with waste collection and distances to the municipal landfill; • The CSE should prepare the Waste Collection Plan on monthly/annual base including all local settlements with frequency of collection and the most efficient traffic routes.	

C. MONITORING PLAN

What Parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored (frequency of measurement)?	Why is the parameter to be monitored?	Cost		Responsibility	
					Construction	Operations	Construction of local roads/Delivery and put into operation of the waste collection vehicles	Operations of the local roads/Operation of the waste collection vehicles
Project stage: Preparation activities/ Start-up of the 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	
Project stage: Construction of streets/ roads in Ohrid municipality								
Safety traffic flow through the City of Ohrid and nearby villages	On the site	Visual monitoring	During the working day	To ensure the coordinated traffic flow through the settlements in Municipality of Ohrid			Contractor - Bidder Supervisor Communal Inspector	
Disposal of the waste streams (solid and liquid) near the lake Ohrid as potential	In Ohrid near the project areas	Visual check if the waste is disposed near Ohrid Lake	During the construction period (once per week)	To ensure good status of water quality			Contractor - Bidder Supervisor	

What Parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored (frequency of measurement)?	Why is the parameter to be monitored?	Cost		Responsibility	
					Construction	Operations	Construction of local roads/Delivery and put into operation of the waste collection vehicles	Operations of the local roads/Operation of the waste collection vehicles
pollution of good ecological status of water course								
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 any occurs)	To improve the waste management practice on municipality and national level/ Not to dispose the hazardous waste on the waste disposal spots			Authorized Contractor for collection and transportation of hazardous waste (if any occurs)	
Collection transportation and final disposal of the solid waste	On the sites and around the sites in all three districts	Visual monitoring and reviewing the transportation and disposal lists from the sub-contractor	After the collection and transportation of the solid waste on regular base each day	Not to leave the waste on the spot to avoid the environmental and health impact on residents To have the real data for generated waste streams and to improve the waste			Contractor – Bidder Supervisor	

What Parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored (frequency of measurement)?	Why is the parameter to be monitored?	Cost		Responsibility	
					Construction	Operations	Construction of local roads/Delivery and put into operation of the waste collection vehicles	Operations of the local roads/Operation of the waste collection vehicles
				management				
Fulfilled Annual Report for collection, transportation and disposal of waste	Local self-government administration	Review of documentation – Identification 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 Ohrid municipality/ Ministry of Environment and Physical Planning	
Temporary noise protection barriers installed around the hospital and school	Around the hospital and school	Visual check	Before the construction work start at the site near the hospital and school	To minimize the noise disturbance of the sensitive group of people			Supervisor/ Communal inspector	
Noise measurements	Near the hospital and school	Noise measurements	During the work peaks	To ensure noise level limits according regulation			Contractor - Bidder	

What Parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored (frequency of measurement)?	Why is the parameter to be monitored?	Cost		Responsibility	
					Construction	Operations	Construction of local roads/Delivery and put into operation of the waste collection vehicles	Operations of the local roads/Operation of the waste collection vehicles
Project stage: Procurement of 5 communal vehicles for Public Communal Enterprise "Ohridski Komunalec"in Municipality of Ohrid								
The environmental and safety protection measures applied before putting the vehicle into operation	On the parking site of the CSE	Check the fuel quantity, lubrication oil quantity and breaking and steering system at the spot Test running successfully done	Immediately after arriving of the vehicles in the CSE	To prevent health and safety risks – mechanical broken and injuries			Contractor - Bidder Director of the CSE Municipal Inspector	
EURO 5 technical specifications Noise level specification of the vehicle Lights, electronic and hydraulic compression system, braking	At the homologation site – Faculty of Mechanical Science, Skopje (Homologation attest) The approval test site at the	Review the technical specifications of the vehicles Mechanical and electronic checks	At the beginning of the running phase Before putting into operation (running)	To minimize the adverse environmental and health impacts			Contractor – Bidder Director of the CSE with technical team	

What Parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored (frequency of measurement)?	Why is the parameter to be monitored?	Cost		Responsibility	
					Construction	Operations	Construction of local roads/Delivery and put into operation of the waste collection vehicles	Operations of the local roads/Operation of the waste collection vehicles
and anti-blocking system and tires	authorized body for annual registration (Registration card for the vehicles)							
Standard technical operational parameters of this kind of vehicle (protective steering, brakes, fuel consumption)	Pre-registration inspection at the authorized body for annual registration	Monitoring of the technical specifications Approval test Report showing that the vehicle is in compliance with safety requirements, environmental requirements related to	On annual basis	To ensure safety running of the vehicles and minimization of the environmental and health impacts				Director of the CSE with technical team

What Parameter is to be monitored?	Where is the parameter to be monitored?	How is the parameter to be monitored?	When is the parameter to be monitored (frequency of measurement)?	Why is the parameter to be monitored?	Cost		Responsibility	
					Construction	Operations	Construction of local roads/Delivery and put into operation of the waste collection vehicles	Operations of the local roads/Operation of the waste collection vehicles
		noise, exhaust emissions and fitted devices						
Skill of driver/s on modern driving techniques and some improved performances of the new vehicle	At the CSE site	Training records kept Review of the training records	Before official start up of running	To improve the driving techniques and to be familiar with vehicle characteristics and compression system				Director of the CSE with technical team
Good maintenance practice and repair performed by professional staff	At the service company	Review of reports from the service company	Periodically (six months min.)	To ensure minimization of the environmental and occupational safety risks through high fuel efficiency and decrease of emissions of GHGs and other pollutants (CO, HC, PM and NOx)				Director of the CSE with technical team