Construction of ecological islands with underground containers in the Municipality of Postojna

INVESTMENT PROJECT IDENTIFICATION DOCUMENT

Investor:
MUNICIPALITY POSTOJNA

Manufacturer:
CASTIS d.o.o.

July 2022

The situation in the field of waste collection and removal

The collection and removal of waste in the area of Postojna municipality is carried out by the concessionaire, the company PUBLIKUS d.o.o. from Ljubljana.

In 2020, an average of 497 kg of municipal waste per inhabitant was generated in the Municipality of Postojna, 424 kg of municipal waste per inhabitant was collected and 62 kg was disposed of.

In the municipality, 9 kg more municipal waste was generated than the average in Slovenia, 69 kg more was collected than in the whole of Slovenia, and 31 kg more was disposed of than the national average.

Collection center

The collection center is located at Jeršice 3.

A collection center is a place arranged and equipped for the separate collection and preliminary storage (until it is handed over to the appropriate recipient) of various types of municipal waste. Municipal waste is accepted from natural persons free of charge, while legal entities can only hand in municipal waste against payment.

Ecological islands

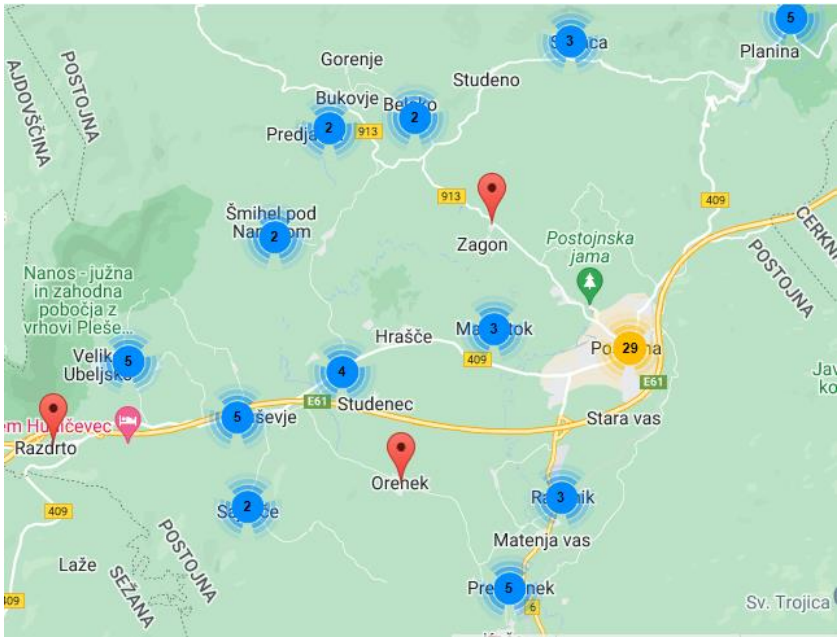
In addition to the separate collection of waste within an individual household, citizens also have the option of separate collection and disposal of different types of waste in designated containers on so-called "ecological islands". Containers for separate collection are located on each ecological island.

Due to the desire to enable users to dispose of as wide a range of waste as possible in an individual household, certain ecological islands have been upgraded to so-called super ecological islands, where users can dispose of, in addition to the groups of waste listed above, the following:

- WASTE CLOTHING and TEXTILES,
- SMALL WASTE ELECTRICAL and ELECTRONIC EQUIPMENT,
- WASTE EDIBLE OILS.

SUPER EKOLOŠKI OTOK	OBLAČILA	OEEO	OLJE
POSTOJNA – Pri pokopališču na Titovi cesti	DA	DA	DA
POSTOJNA – Na Tržaški cesti	DA	DA	
POSTOJNA – Pri trgovini TUŠ (Ulica Franca Smrduja)	DA		
POSTOJNA – Na Volaričevi cesti	DA		DA
PRESTRANEK – Na Ulici padlih borcev	DA	DA	DA
HRUŠEVJE – Pri gasilskem domu		DA	DA
PLANINA – Pri Demšarju		DA	
PLANINA– Pri igrišču			DA

Picture 2.4: Showing the locations of ecological islands



Fundamental reasons for the investment intention

In the field of waste management, digital solutions most often appear in three areas, namely:

- **Communication** (websites, mobile applications, links, social networks);
- **Waste collection** (vehicles equipped with sensors, route planning, resource planning, inventory management and documentation);
- **Internal processes** (accounting, bookkeeping, controlling, order processing, documentation).

DEFINITION OF DEVELOPMENT OPPORTUNITIES AND INVESTMENT GOALS

The general goal is to rationalize the collection of municipal waste and reduce the proportion of unsorted and bulky waste, as well as to increase the awareness of the project's target groups (companies/industry workers and the population) regarding the promotion of a circular economy.

The main effects are:
1) a digitized system designed to monitor the percentage of filling of different types of containers;
2) establishment and use of buried or partially buried smart collectors.

RESULT:
Optimized innovation in the field of municipal waste management by introducing a trial activity in the considered territory. We will obtain this result: a) with the help of a system suitable for controlling the percentage of filling of different types of street and underground waste collectors, and this data will be transmitted and recorded through management software. Data on individual collectors and their geolocation, determined by the GPS system, will enable optimal handling of the collected waste, and in the long term it will enable the optimization of: the routes of the trucks used for emptying (by reducing the length of the route, emissions into the atmosphere, fuel consumption and noise) ; the distribution of collectors within the coverage areas; the environmental impact of waste collection islands (with direct consequences for tourist attraction); use of human resources and equipment. b) with the introduction of a user identification system, which will enable the establishment of the foundations for the development of the "I pay for the waste I produce" concept.

The option analysis is prepared for two variants, the first assumes the preservation of the existing situation, and the second assumes an investment in the construction of three ecological islands with underground containers with a control system that includes sensors of the fullness of each container.

Minimal variant or preservation of the existing state – variant 1

The minimum variant or the "no investment" variant represents the current situation, which is not consistent with the needs of the local and wider environment. In the case of this variant, this would also mean ecological islands with classic containers in the future, where truck workers drive from container to container and empty them in a predetermined sequence, not knowing which containers are half empty and which are full. Such a system leads to excessive use of fuel and other valuable resources.

Variant "with" investment in the construction of ecological islands – variant 2

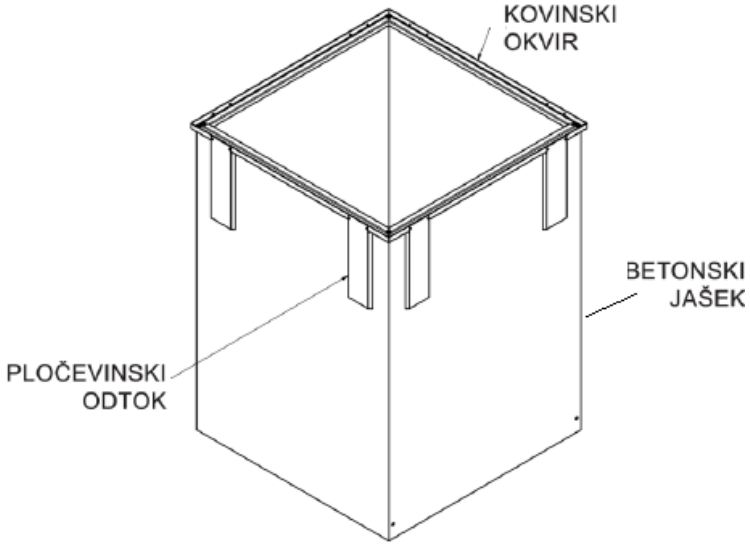
The variant deals with the construction of three ecological islands with underground containers with a control system that includes sensors of the fullness of each container.

Each of the ecological islands will include:
- Underground container for paper with a volume of 5 m³,
- Underground container for packaging with a volume of 5 m³,
- Underground container for glass with a vlume of 3 m³.

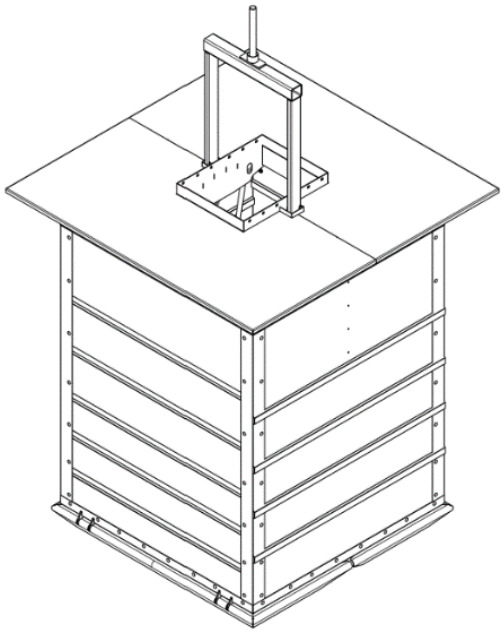
Each underground waste collection system consists of a reinforced concrete shaft, an underground container, a protective platform and an above-ground waste disposal unit.

a) Prefabricated reinforced concrete container shaft 3 m³ and 5 m³

b)

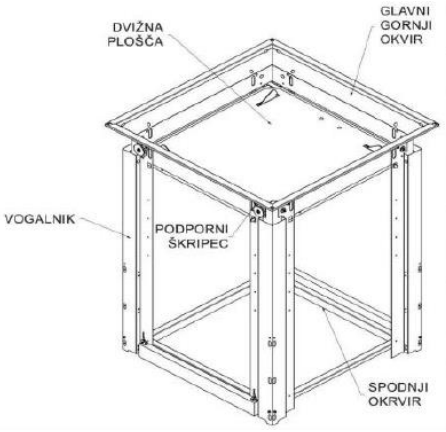


b) Underground container



c) Above ground unit

d) Metal safety platform with lifting system and metal construction



EXPECTED PLACEMENT LOCATIONS OF UNDERGROUND CONTAINERS

Ecological island Volaričeva ulica

Ecological island Kosovelova ulica – Zeleni biser

Ecological island Titova cesta - cemetery

INVESTMENT VALUE OF THE PROJECT

The investment is valued at EUR 232,716.00 including VAT.

As a leading partner with the project, the municipality applied for the target tender for standard projects no. 7 of the Interreg ITALIA-SLOVENIJA V-A 2014-2020 program – Acronym of the WASTE DESIGN project and received EUR 197,808.60 in grants for its part of the project. Value added tax, according to the tender conditions, represents an eligible cost.

Estimated funding sources (EUR)

ESRR	197.808,60	85,00%
MUNICIPALITY POSTOJNA	34.907,40	15,00%
TOTAL	**232.716,00**	**100,00%**

In the table below, we show the total investment value according to the years in which the costs were incurred.

Investment value of the project (EUR)

Element	SKUPAJ	2021	2022	2023
Construction work	**30.452,52**	0,00	30.452,52	0,00
Setting up ecological islands with underground containers	**76.524,44**	0,00	38.262,22	38.262,22
Sensors for measuring the fullness of containers	**9.836,07**	0,00	9.836,07	0,00
Informing the public	**13.415,08**	2.235,84	8.943,43	2.235,81
Outsourcing costs (external support, studies, analyses, diip)	**24.853,85**	0,00	19.883,05	4.970,80
20% flat rate for staff	**37.840,00**	6.306,68	25.226,64	6.306,68
15% administrative costs	**5.676,01**	946,01	3.784,00	946,00
TOTAL	**198.597,97**	**9.488,53**	**136.387,93**	**52.721,51**
VAT	**34.118,03**	491,88	23.623,00	10.003,14
TOTAL INCLUDING VAT	**232.716,00**	**9.980,41**	**160.010,93**	**62.724,65**

INVESTMENT IMPLEMENTATION TERM PLAN

The project documentation was already created in 2020, with application for the Interreg ITA-SLO and signed financing agreement. The tender documentation has already been done, and the completion of the procedures for selecting the most favorable contractor is expected by September 2022. Informing the public is already underway, the construction of underground containers and the supply of the necessary control equipment will be carried out by March 2023 at the latest.

MAJOR IMPACTS OF THE INVESTMENT ON THE ENVIRONMENT

The facility will not have any special impacts on the environment, or rather these impacts will be within the permitted limits. Therefore, no special measures for reducing impacts are envisaged.

Ecological islands are already located in the areas, but with the implementation of the project, they will be less disturbing to the surroundings, as they will be perfectly integrated into the environment due to their shape. Due to the design of the underground containers, stench in the surroundings will be prevented, and the positive impact on the environment will be contributed most by the equipment of the containers, which will allow control of the filling of the containers, thus efficient, cost-effective and environmentally friendly waste collection.

By installing fullness sensors (measuring the actual fullness of each container and sending real-time status data to the municipal server), the utility company has the option of emptying the containers according to the actual fullness (dynamic waste collection) and there is no longer a need for predetermined time interval emptying (static waste collection). . The system enables great savings in the removal system, as the container is only emptied with the help of this technology when it is actually full.