#

**EVALUATION OF THE WASTE MANAGEMENT SYSTEM
OF THE CAPITAL CITY OF PRAGUE 1998-2021**

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# Introduction

The evaluation of the municipal waste management system of the Capital City of Prague is prepared in order to inform especially the citizens of the capital city about the possibilities of handing over individual types of waste, about the results of collection through analyses of the weights of waste handed in over the years and the financial costs of individual services provided for citizens through the Department of Waste of the Environmental Protection Department of the Prague City Hall (hereinafter also referred to as the "EPD PCH").

The weights of waste stated in the evaluation represent the waste handed in by the citizens of the Capital City to locations designated by the City. For the sake of completeness, the weights are, in some cases, supplemented by the weights of waste handed in by citizens to the locations designated by the individual municipal districts as well as by waste generated by the city but not by citizens (e.g. these include waste produced by the employees in the Prague City Hall’s buildings, waste produced by the Prague Municipal Police, or waste from cleaning of roads and public spaces, etc.). The captions of the accompanying tables and charts always specify, which wastes are included in each chapter.

**Legislative framework**

The Capital City of Prague, as a waste generator, fulfils its obligations under the Waste Act as amended. One of these obligations is to evaluate the Waste Management Plan of the municipality (hereinafter referred to as the "Municipality WMP" or the "WMP"), as a waste generator. This obligation was imposed on the City by the previous Waste Act No. 185/2001 Coll., valid until the end of 2020. As a certain extension to the annual evaluation of the Municipality WMP, the Department of Waste of the EPD PCH also prepares an annual evaluation of the municipality's waste management system, which is based on the same data, but focuses on a more detailed description of the setup of the system of collection of individual types of waste collected from citizens and the evaluation of this system.

The new Waste Act No. 541/2020 Coll., which took effect on 1 January 2021 and which replaced the previous Act, explicitly stipulates in Section 60(4) the obligation for municipalities to publish the quantified results of the municipality's waste management, including the costs of operating the municipal waste system. The publication of the data stated below thus fulfils this obligation. Selected data is also published at:

<http://portalzp.praha.eu/jnp/cz/odpady/souhrnne_informace/index.html>

The evaluation of the system, as well as the WMP Evaluation, is based on the values stated in the Annual Waste Production Report of the Capital City of Prague for the relevant year and on the individual codes for utilisation or disposal of these wastes. Information on the methods of utilisation and disposal of waste is provided to the City by waste collection companies as contractual partners, which take over the wastes in question from the City. In the case of wastes with more than one utilisation or disposal method, the ratios between them may differ slightly in the system evaluation and the WMP Evaluation. Waste utilisation and disposal ratios are always only approximate in the case of evaluation at the municipal level, as exact values can only be determined at the regional level on the basis of the methodology issued by the Ministry of the Environment using the so-called ISOH working database, i.e. in the case of wastes from all generators in the territory of the Capital City of Prague and not only the municipality generator, i.e. wastes from citizens handed in at places designated by the municipality, including the City Hall buildings, Municipality Police of the Capital City of Prague, etc.).

# Evaluation of the overall data

From the perspective of the waste management hierarchy, given by the Waste Act No. 541/2020 Coll., the priority is to **prevent the generation of waste**; if the generation of waste cannot be prevented, then its **preparation for reuse**, **recycling**, **other utilisation**, including energy utilisation, follows. If the waste cannot be utilised for energy, then its **disposal** follows. The content of this chapter is to distinguish how waste from citizens and other waste generated by the Capital City of Prague is utilised or disposed of.

In the years 1998-2012, only the weight of waste handed in **by citizens to places designated by the municipality** was included in the total weight of the waste generated (see Table No. 1). Since 2013, the total weight of waste has been the same as the weight reported by the City in the Annual Waste Report, which is sent annually to the ISPOP system on the basis of an explicit legal obligation. Since 2013, the total amount includes, for example, **street litter or waste from the authority's buildings**. The reason for the change in the waste being included was the effort and need to unify the total amounts of waste reported in the evaluation and other documents such as the City’s Waste Management Plan Evaluation.

Table No. 1 Data for the system evaluation 1998-2012

|  |  |  |  |
| --- | --- | --- | --- |
| *Year* | *Total amount of waste \* (kt)* | *Disposal (kt)* | *Utilisation (kt)* |
|  | *Total* | *Energy* | *Material* |
| *Sorted out* | *Fe – from cinder* |
| *1998* | *231.6* | *94.5* | *138.0* | *129.1* | *8.0* | *2.0* |
| *1999* | *240.9* | *31.3* | *209.6* | *193.6* | *16.0* | *3.1* |
| *2000* | *251.1* | *59.2* | *191.9* | *166.9* | *25.0* | *2.9* |
| *2001* | *257.2* | *31.9* | *225.3* | *196.3* | *29.0* | *2.9* |
| *2002* | *281.8* | *42.5* | *239.3* | *202.0* | *37.3* | *3.3* |
| *2003* | *292.9* | *43.4* | *249.5* | *205.4* | *44.1* | *3.6* |
| *2004* | *305.0* | *42.4* | *262.6* | *208.1* | *54.5* | *2.8* |
| *2005* | *319.1* | *54.0* | *265.1* | *201.2* | *63.9* | *3.4* |
| *2006* | *326.4* | *53.7* | *272.7* | *200.5* | *72.2* | *3.3* |
| *2007* | *340.5* | *62.9* | *277.6* | *197.3* | *80.3* | *3.1* |
| *2008* | *360.2* | *72.3* | *287.9* | *190.8* | *97.1* | *3.1* |
| *2009* | *382.7* | *78.6* | *304.1* | *191.2* | *112.9* | *3.1* |
| *2010* | *385.3* | *68.3* | *317.0* | *200.4* | *116.6* | *3.2* |
| *2011* | *395.9* | *53.4* | *342.5* | *220.6* | *121.9* | *2.1* |
| *2012* | *385.1* | *35.7* | *349.4* | *228.5* | *120.9* | *3.2* |

\* weight of the wastes handed in by citizens of the City to places designated by the municipality, including construction waste

Table No. 2 Data for the system evaluation since 2013

|  |  |  |  |
| --- | --- | --- | --- |
| *Year* | *Total amount of waste (kt)* | *Disposal (kt)* | *Utilisation (kt)* |
| *Landfill*  | *Other disposal* | *Thermal* | *Energy* | *Material* | *Total**Utilisation* |
| *2013* | *400.9\** | *77.5* |  | *1.8* | *226.6* | *95.0* | *321.4* |
| *2014* | *405.8* | *65.7* |  | *0.5* | *241.9* | *97.8* | *339.7* |
| *2015* | *408.2* | *55.7* |  | *0.1* | *251.7* | *100.0* | *351.9* |
| *2016* |  *423.5\*\** | *50.8* | *13.2* | *0.6* | *245.9* | *113.0* | *358.9* |
| *2017* | *430.3* | *54.8* | *16.9* | *0.6* | *241.3* | *116.7* | *358.1* |
| *2018* | *432.8* | *62.7* | *7.7* | *0.7* | *245.3* | *116.4* | *361.7* |
| *2019* | *440.9* | *63.8* | *7.5* | *0.7* | *249.1* | *119.6* | *368.6* |
| *2020* | *451.8* | *64.3* | *10.7* | *0.1* | *251.3* | *125.5* | *376.8* |
| *2021* | *446.0* | *84.3\*\*\** | *0.01* | *0.1* | *233.7\*\*\** | *127.9* | *361.6* |

*In the evaluation since 2013, the methodology has changed, see text above. The evaluations are based on the values stated in the Annual Waste Production Report of the Capital City of Prague for the relevant year. The total amount of waste includes waste deposited by citizens in places designated by the municipality, i.e. the Prague City Hall, and since 2016, on the basis of the recommendation of the Czech Environmental Inspectorate, also waste from citizens deposited in places designated by the municipal districts’ authorities. In addition, waste generated under the contract for road maintenance between TSK and Pražské služby a.s. (since 2021 onwards, this waste has been reported by Pražské služby), waste from the City Hall's buildings and waste from the activities of the Municipal Police (from the police stations and from the collection of syringes from public spaces) were included here until 2020.*

\*In 2013, the records also included flood waste that was landfilled, which totalled 4,221 tonnes.

\*\*Beginning of the records of waste from citizens deposited in places designated by the municipal districts’ authorities.

\*\*\*Due to a fire at ZEVO Malešice (Equipment for energy utilisation of waste) in 2021, operations were restricted and a part of the mixed municipal waste, that would have been used for energy utilisation here, had to be landfilled. This led to an increase in landfilled waste and a decrease in the amount of waste used for energy utilisation.

Table No. 3 Waste from citizens deposited at places designated by municipal districts (municipal and construction waste)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *Year* | *2016* | *2017* | *2018* | *2019* | *2020* | *2021* |
| *Weight (t)* | *6,161* | *8,610* | *11,851* | *8,343* | *8,968* | *9,334* |

Table No. 4 Material and energy utilisation of produced waste

|  |  |  |
| --- | --- | --- |
| *Year* | ***Sorting efficiency****material utilisation only**(% of weight)* | ***Percentage of utilised waste****material and energy utilisation**(% of weight)* |
|  *1997\** | *0.5* | *0.5* |
| *1998* | *4.3* | *43* |
| *1999* | *7.8* | *63* |
| *2000* | *11.0* | *57* |
| *2001* | *12.3* | *77* |
| *2002* | *14.3* | *73* |
| *2003* | *16.3* | *84* |
| *2004* | *18.6* | *86* |
| *2005* | *21.1* | *83* |
| *2006* | *23.1* | *83* |
| *2007* | *24.5* | *82* |
| *2008* | *27.8* | *81* |
| *2009* | *30.3* | *80* |
| *2010* | *31.1* | *83* |
| *2011* | *31.3* | *87* |
| *2012* | *32.2* | *91* |
|  *2013\*\** | *23.7* | *80.2* |
| *2014* | *24.1* | *83.7* |
| *2015* | *24.6* | *86.2* |
| *2016* | *26.7* | *84.8* |
| *2017* | *27.1* | *83.1* |
| *2018* | *26.9* | *83.5* |
| *2019* | *27.1* | *83.6* |
| *2020* | *27.8* | *83.4* |
| *2021* | *28.7* | *81.1* |

\* *before project implementation see below*

*\*\* the methodology changed in 2013 (see Table No. 2)*

Energy utilisation means the use of waste in a manner similar to that of fuel, for its energy content or otherwise for the production of energy. In this method of utilisation, the condition, that the waste used does not need another supporting fuel for incineration after ignition and that the heat generated must be used for the needs of the user or other persons, has to be met as well. These conditions are met in the case of incineration of mixed waste in the facility for energy utilisation of waste ZEVO Malešice.

Since 2002, cinder and ash from the energy utilisation process have been deposited in the landfill under the TSF regime. The cinder is currently deposited in the landfill in Benátky nad Jizerou, operated by AVE CZ company, the ash is disposed of, after its solidification, in other landfills in the Czech Republic.

Chart No. 1 Management of all wastes generated by the Capital City of Prague, in 2021



Landfill

19%

Material utilisation

29%

Energy utilisation

52%

Most of the waste produced is **used for energy utilisation** in the Facility for Energy Utilisation of Waste. This is mainly mixed municipal waste, which accounts for 60% of the total waste generated. In 2021, 86% of this waste was utilised as energy and, as a result, the overall energy utilisation rate of all waste is high. A part of bulky waste and street litter is also used for energy utilisation. Food waste is also used for energy purposes, specifically at the biogas station in Pribyšice u Benešova. The proportion of the **material utilisation** of all waste generated by the City reached 29% in 2021. Since 1998, the share of material utilisation has gradually increased, but unfortunately in recent years the amount of materially utilised waste is rather stagnating (see Table No. 4). In order to increase the material utilisation of municipal waste, the City is introducing new collection methods, such as the collection of bio-waste of plant origin directly in households or the collection of food waste.

Only about 19% of reported waste was **landfilled** in 2021. This is part of the production of mixed waste, bulky waste and construction waste. The remaining 0.04% of all wastes was disposed of in other ways, of which about 0.03% was disposed of thermally, this is the disposal of hazardous waste handed in by citizens at the collection yards of the Capital City of Prague during mobile collection of hazardous waste or collection of medicines from pharmacies and injection needles collected during the activities of the Municipal Police.

# Waste handover options, waste production prevention and take-back

Since 1998, the Waste Management Project has been implemented in the territory of the Capital City of Prague, which was approved by resolution of the City Council of the Capital City of Prague No. 47 of 16 January 1996, the content of which was the gradual implementation of an all-over comprehensive system of sorting municipal waste and construction waste. Since 1998, the citizens of the City have thus been able to deposit basic types of waste at locations designated by the municipality. In recent years, the possibilities of individual wastes handover have been expanded and pilot projects have been implemented to test the possibility of collecting specific wastes, in order to make waste handover as easy and accessible as possible for the citizens of the City. The number of sorted waste station is being expanded, which are already equipped with a container for the collection of small metal waste, the collection of bio-waste from Prague households has been introduced, a pilot project for the collection of food waste is underway as well as a project for the collection of food oils in the City streets. The system of collecting municipal and construction waste from citizens is defined by generally binding Decree No. 5/2007 Coll., of the Capital City of Prague, as amended by Decree No. 22/2017 Coll., of the Capital City of Prague. In 2021, the following types of wastes and other commodities were collected separately:

Municipal waste

1. paper and cardboard
2. coloured glass
3. clear glass
4. mixed plastics
5. beverage cartons
6. biodegradable waste
7. food waste (within the pilot project)
8. used food oil and fat (as of 31 December 2021, a total of 485 collection containers were placed at sorted waste stations)
9. wood waste
10. ferrous and non-ferrous metals, since 1 August 2016, in addition to collection at collection yards, also through collection containers in the streets (as of 31 December 2021, a total of 1,671 sorted waste stations were equipped with metal collection containers , i.e. approximately 48% of the outdoor stations)
11. hazardous components of municipal waste
12. bulky waste
13. mixed waste remaining after sorting of the above components

In addition to municipal waste, citizens can also hand in

1. construction waste without hazardous properties
2. tyres
3. take-back products

As part of waste prevention, citizens can hand in

1. worn textiles, clothing and footwear at all collection yards
2. items in so-called re-use centres (three collection yards in operation in 2021)

Citizens can dispose of the individual components of their municipal waste in the following way:

* **paper and cardboard, beverage cartons, glass, plastics and smaller metal waste** into collection containers intended for these usable components of municipal waste, located directly in the streets or in residential buildings (especially in the Prague heritage site), these wastes can also be deposited in the City's collection yards;
* **bio-waste of plant origin** into large-volume containers designed for the collection of bio-waste, located in the streets at regular intervals according to approved schedules; this waste can also be deposited at the City's collection yards and mobile collection yards, as well as at the stable collection point in Prague 10, Malešice, and, since 2017, also in the composting plant of the Capital City of Prague in Slivenec;
* **ferrous and non-ferrous metals at** the City's collection yards, smaller metal waste also into containers at the sorted waste stations;
* **wood waste** at the City's collection yards and mobile collection yards;
* **bulky waste** into large-volume containers located in the streets at regular intervals, or it can be deposited at the City's collection yards, including mobile collection yards;
* **hazardous waste** (solvents, acids, alkalis, photochemicals, pesticides, fluorescent lamps and other mercury-containing waste, oil and fat (except edible), paints, printing inks, glues, resins, detergents, unusable cytostatics and medicines, batteries and accumulators) in mobile hazardous waste collection, at the City's collection yards and stable collection points, in pharmacies (unusable medicines);
* **mixed waste** into collection containers located in the household equipment of each building, or on the road;
* **construction debris, tyres** and **take-back products** at the City's collection yards;since July 2015, construction debris has also been collected within mobile collection yards; small electrical items and batteries can be handed in into red containers in the streets;
* **worn-out textiles, clothes and footwear** at the City's collection yards in cooperation with Broumov diaconia and into containers placed in the streets by individual municipal districts;
* **used food oil and fat** at the City's collection yards, as part of the mobile collection of hazardous waste and newly (since April 2020) through modified collection containers located at selected sorted waste stations in cooperation with the company Viking group, s.r.o.

The above collection methods, which are organised by the Prague City Hall and paid by the City budget, may be supplemented in the individual municipal districts by additional services at the initiative of the municipal districts’ authorities. Some municipal districts operate their own collection yard (Prague 4, Prague 6), organise the delivery of large-volume containers for bulky waste or bio-waste, arrange the placement of collection containers for textiles under the waste prevention scheme, or the placement of containers for edible oils on the basis of their own contract with a selected company. However, the originator of the waste handed in by citizens at the places ensured by the municipal districts’ authorities is the Capital City of Prague. Since 2016, the weights of these wastes have been included in the Annual Report of the Capital City of Prague, and they are also stated in this Evaluation. The costs of these services are not included in the evaluation.

*Figure No. 1 Diagram of the options for handing over waste, take-back products and movables in the framework of waste prevention*

|  |  |  |  |
| --- | --- | --- | --- |
| Municipal waste(Group 20CatalogueWaste) | Paper, plastic, glass, beverage cartons, metal packagingBio-wasteFood wasteFood oil and fatMetalsWoodHazardous wasteBulky wasteMixed municipal waste | Šipka doprava se souvislou výplníŠipka doprava se souvislou výplníŠipka doprava se souvislou výplníŠipka doprava se souvislou výplníŠipka doprava se souvislou výplníŠipka doprava se souvislou výplníŠipka doprava se souvislou výplníŠipka doprava se souvislou výplníŠipka doprava se souvislou výplní | Containers in the streets and in household equipment, collection yardsContainers in household equipment, Slivenec composting plant, Malešice collection point, collection yards and mobile collection yards, large-volume containersContainers in household equipment within the pilot projectCollection yards, mobile collection, sorted waste stationsCollection yards and street containers for metal packaging and smaller metal objectsCollection yards and mobile collection yardsCollection yards, mobile collection, medicines in pharmaciesLarge-volume containers, collection yards and mobile collection yardsContainers located in the household equipment or located in the streets  |
| Other waste | Construction waste without hazardous propertiesTyres | Šipka doprava se souvislou výplníŠipka doprava se souvislou výplní | Collection yards, mobile collection yardsCollection yards |
| Take -back | Electrical appliances, batteries and accumulators, fluorescent lamps | Šipka doprava se souvislou výplní | Collection yards, small electrics and batteries into red containers in the streets |
| Waste generation prevention | Textiles, footwearMovables such as furniture, toys and other | Šipka doprava se souvislou výplníŠipka doprava se souvislou výplní | Collection yards, containers in the streets located on the basis of municipal districts’ contractsRe-use centres at selected collection yards |

## Mixed waste

The following chapters will describe in more detail the method of collection of selected types of waste from the citizens of the City. The waste weights stated in the tables and charts do not include waste from other sources, such as collections organised by municipality districts or waste from authority buildings.

The citizens of the City may hand in their mixed municipal waste exclusively into containers intended for this waste, which are located in the household equipment or in front of the house (hereinafter also referred to as "mixed municipal waste containers"). The owners of the buildings are, in the conditions of the Capital City of Prague, obliged to ensure, for residential buildings, sufficient volume (capacity) of collection containers for mixed municipal waste, based on generally binding Decree No. 5/2007 Coll., of the Capital City of Prague, as amended by Decree No. 22/2017 Coll., of the Capital City of Prague, so as to prevent overfilling of these containers. It is therefore necessary to choose a sufficient volume and frequency of collection according to the number of people occupying the property in question, which is a family or residential building. In the case of consistent sorting of the usable components of municipal waste, the sufficient volume of collection containers can be optimised so that the costs associated with the collection of mixed waste for individual buildings are as low as possible. The current number of collection containers for mixed municipal waste in the City is 122,580 (as of 31 December 2021).

The average volume of the mixed municipal waste per capita per week based on the current number of collection containers at a given frequency has varied over the years, from 36.4 litres in 1998 to 37.3 litres in 2001. Following the introduction of the so-called capitation payment” (per capita fee) in 2002, this average volume increased in response to residents’ demand, reaching 42.6 litres per person per week in mid-2002 and rising to 43.8 litres per person per week by the end of 2002. In 2003, when payment according to the volume and frequency of collection was reintroduced, the volume of collection containers was again adjusted by property owners. At the end of 2003, an average of 42.3 litres per person per week was served. This average is currently maintained at this level.

The amount of the fee for mixed municipal waste depends on the volume of the collection container and the frequency of its collection. If this volume is not sufficient, it is necessary to order a larger volume, or in the case of one-off overfilling, it is possible to order a collection by the collection company at your own expense. The municipality is obliged to ensure that only the quantity of mixed waste corresponding to the volume of the container is managed. The fee is determined in the general binding decree of the Capital City of Prague and will be the subject of a separate chapter in more detail.

Table No. 5 Production of the mixed municipal waste by citizens from containers in the household equipment or in front of the house

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Year | Waste amount in thousands of tonnes | Year-on-year increase | Population | *Landfill (kt)* | *Energy utilisation (kt)* |
| 1998 | 210.5 | - | 1,193,270 | 81.4 | 129.1 |
| 1999 | 208.6 | -0.85% | 1,186,855 | 15 | 193.6 |
| 2000 | 209.9 | 0.57% | 1,170,476 | 43.1 | 166.8 |
| 2001 | 211.8 | 0.95% | 1,160,118 | 15.5 | 196.3 |
| 2002 | 226.7 | 6.99% | 1,161,938 | 25.6 | 201.1 |
| 2003 | 230.2 | 1.54% | 1,165,581 | 26.6 | 203.6 |
| 2004 | 231.0 | 0.35% | 1,170,571 | 24.8 | 206.2 |
| 2005 | 234.7 | 1.02% | 1,181,610 | 33.5 | 201.2 |
| 2006 | 237.7 | 1.29% | 1,188,126 | 35.7 | 200.5 |
| 2007 | 240.3 | 1.11% | 1,212,097 | 43 | 197.3 |
| 2008 | 243.1 | 1.16% | 1,233,211 | 52.3 | 190.8 |
| 2009 | 244.6 | 0.62% | 1,249,026 | 53.4 | 191.2 |
| 2010 | 245.1 | 0.20% | 1,234,037 | 44.7 | 200.4 |
| 2011 | 246.8 | 0.69% | 1,241,664 | 26.2 | 220.6 |
| 2012 | 247.3 | 0.20% | 1,246,780 | 21 | 226.3 |
| 2013 | 246.3 | -0.41% | 1,243,201 | 24.2 | 222.1 |
| 2014 | 246.2 | -0.04% | 1,259,079 | 11.4 | 234.8 |
| 2015 | 247.2 | 0.40% | 1,267,449 | 3.6 | 243.6 |
| 2016 | 249.2 | 0.80% | 1,280,508 | 12.5 | 236.8 |
| 2017 | 250.2 | 0.40% | 1,294,513 | 19.6 | 230.6 |
| 2018 | 253.8 | 1.42% | 1,308,632 | 17.6 | 236.2 |
| 2019 | 255.5 | 0.67% | 1,324,277 | 14.8 | 240.7 |
| 2020 | 257.8 | 0.90% | 1,335,084 | 18.3 | 239.4 |
| 2021 | 260.5 | 1.05% | 1,274,562 | 32.5 | 228.0 |

Chart No. 2 Development of the amount of the mixed municipal waste and population

|  |
| --- |
|  |
| Waste amount in thousands of tonnes |

|  |
| --- |
|  |
| Population in thousands |

The amount of mixed municipal waste handed in to the mixed municipal waste containers has increased over the years from 210,500 tonnes in 1998 to 260,547 tonnes in 2021. Until 2020, the increase in the weight of mixed municipal waste handed in correlated with the increase in the population of Prague.

Mixed municipal waste is mainly used for energy utilisation. In 2021, a total of 228,002 tonnes of mixed municipal waste handed in by citizens to mixed municipal waste containers, i.e. 87.5% of this waste, was processed in the facility for energy utilisation of waste.

In addition to the mixed waste from citizens from containers in household equipment or in the streets, i.e. the mixed waste that is subject to the fee, the Capital City of Prague was the generator of mixed waste from tradesmen involved in the City's system (2,116 tonnes in 2021), as well as mixed waste from the buildings of the City Hall and the Municipal Police and from the bins of the municipal districts. A total of 3,119.1 tonnes of this mixed municipal waste was recorded in 2021. The total amount of mixed waste reported in 2021 was therefore 265,782.6 tonnes.

**Christmas tree collection as part of the mixed waste collection**

Christmas trees can be put off by residents during Christmas period and at the beginning of the New Year (December – February) next to the collection containers for mixed municipal waste. Some of the Christmas trees, which are e.g. contaminated with the remains of Christmas decorations, are included in the mixed municipal waste and used for energy utilisation. The rest is handed over to the composting plant. In 2021, a total of 279.1 tonnes of Christmas trees were handed over to the composting plant. Since 2016, the costs of collection and removal of Christmas trees under the catalogue number of mixed waste have been included in the price for the collection and energy utilisation of mixed municipal waste.

## Sorted waste stations

As of the end of 2021, a total of **6,105** sorted waste stations were set up in the City, including so-called "home" stations located in residential buildings, mostly in the territory of the Prague heritage site. These stations are used for sorting paper, glass, plastics, beverage cartons, small metal waste and, as part of a pilot project from 2020, also for sorting edible oils at selected stations.

Approximately **3,453 collection points, including 136 underground container stations**, **are installed** directly in the **City streets.** As of 31 December 2021, one collection point served 369 residents of the Capital City of Prague (per capita calculation). In the **delivery system**, i.e. in the streets, collection containers with a volume of 240 – 5,000 litres, with top or bottom discharge, are used within the City system; 240-litre collection containers are mainly used for the collection of beverage cartons and metal waste. In addition, since 1998, the so-called **collection system** has been applied in the Prague heritage site (hereinafter referred to as PHS) in combination with the delivery system, where collection containers with a volume of 120 and 240 litres are placed directly in residential buildings. These so-called home sorted waste stations are **located in 2,652 buildings.** In 2017-2018, in cooperation with the authorities of Prague 7 and Prague 8 municipal districts, pilot projects were carried out in these municipal districts to support the establishment of home stations. Both projects have been evaluated very positively and for this reason the establishment of home stations is supported in other municipalities as well, especially in those with predominant apartment buildings, such as the defined area of Prague 3, 5, 6 or Prague 9 municipal districts. After taking into account the household stations, there is 1 sorted waste collection point for 209 residents. This fulfils the objective set out in the Municipality WMP to provide 1 collection point for a maximum of 300 catchment residents.

The actual location of the collection points is determined by the respective municipal districts in consultation with the collection companies. The Environmental Protection Department of the Prague City Hall aims to optimise the number of collection points and to adapt the number and frequency of collection to the number of residents and the type of development in a given locality. Each collection point has its own so-called registration sheet and is established on the basis of a valid consent to special use of the road (if it is located on the road – on the roadway, on the pavement, etc.).

In 2019, a pilot project was launched in the Prague – Štěrboholy municipal district to test the possibility of multi-commodity collection in the household equipment of family houses development, testing the possibility of collecting multiple commodities (plastic, beverage cartons and metal packaging) in one container and comparing the cleanliness and quality of this collection against collection from publicly available stations. In the case of the construction of a new optical sorting line, which will be able to sort the material generated by this method of collection very efficiently according to the requirements of individual customers, the possible introduction of multi-commodity collection in some levels of the municipal system would lead to lower emissions, less traffic load caused by the collection of sorted waste and ideally to a reduction in the costs incurred by the City to ensure the collection of sorted waste.

A pilot project to collect edible oils and fats through collection containers placed at selected sorted waste stations in the streets has been running since April 2020. Based on the positive response to this project, the City has proceeded to further expansion of the collection network, and by the end of 2021, a total of 485 stations have already been equipped with containers and this number is likely to continue to grow.

Another option is to hand in the above-mentioned waste at the collection yards, see the following chapter.

Table No. 6 Results of sorted collection from collection containers in the streets and in household equipment in tonnes

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year | Paper | Coloured glass | Clear glass | Plastics | Beverage cartons | Metals | Edible oils | Total |
| 1998 | 3,983 | 2,248 |  | 684 |  |  |  | 6,915 |
| 1999 | 8,205 | 3,018 |  | 2,172 |  |  |  | 13,395 |
| 2000 | 11,152 | 5,039 |  | 3,586 |  |  |  | 19,777 |
| 2001 | 11,501 | 6,016 |  | 4,623 |  |  |  | 22,140 |
| 2002 | 13,738 | 6,711 |  | 5,081 |  |  |  | 25,530 |
| 2003 | 16,097 | 7,436 |  | 6,040 |  |  |  | 29,573 |
| 2004 | 18,003 | 7,909 | 2 | 6,596 | 9 |  |  | 32,519 |
| 2005 | 19,214 | 8,399 | 432 | 7,164 | 171 |  |  | 35,380 |
| 2006 | 22,244 | 9,119 | 828 | 8,114 | 424 |  |  | 40,729 |
| 2007 | 23,711 | 10,425 | 996 | 9,643 | 536 |  |  | 45,311 |
| 2008 | 26,732 | 11,805 | 1,529 | 10,609 | 701 |  |  | 51,376 |
| 2009 | 28,128 | 11,615 | 2,206 | 10,675 | 794 |  |  | 53,418 |
| 2010 | 26,162 | 12,090 | 2,509 | 10,956 | 835 |  |  | 52,552 |
| 2011 | 22,636 | 11,955 | 3,235 | 11,594 | 828 |  |  | 50,248 |
| 2012 | 22,360 | 12,367 | 3,490 | 11,904 | 814 |  |  | 50,935 |
| 2013 | 22,299 | 12,451 | 3,490 | 12,042 | 870 |  |  | 51,152 |
| 2014 | 21,207 | 11,771 | 3,464 | 11,950 | 897 |  |  | 49,289 |
| 2015 | 20,633 | 11,851 | 3,572 | 12,546 | 895 |  |  | 49,497 |
| 2016 | 21,426 | 13,282 | 3,402 | 12,827 | 937 | 21 |  | 51,895 |
| 2017 | 22,488 | 13,181 | 3,436 | 13,897 | 981 | 144 |  | 54,127 |
| 2018 | 23,602 | 13,931 | 3,465 | 14,689 | 1,000 | 262 |  | 56,949 |
| 2019 | 24,703 | 15,033 | 3,397 | 15,677 | 1,081 | 421 |  | 60,312 |
| 2020 | 23,947 | 15,069 | 3,368 | 15,458 | 1,120 | 629 | 6 | 59,597 |
| 2021 | 24,729 | 14,363 | 4,685 | 16,039 | 1,116 | 757 | 180 | 61,869 |

Chart No. 3 Development of waste collection at sorted waste stations

|  |
| --- |
|  |
| Paper  | Coloured glass | Clear glass | Plastics | Beverage cartons | Edible oils | Metal packaging |

All the waste listed in this chapter has been sent for material utilisation.

## Collection yards

One of the outputs of the Waste Management Project in the Capital City of Prague is also "**Sorted waste collection through the City's collection yards**". The project stipulated that approximately 20 collection yards should be established and operated in the City and this objective was met during 2015-2018. In 2018, at the request of one of the operators, a collection yard in the territory of the Prague 14 municipality district was closed, so now citizens can deposit the following types of waste at 19 collection yards:

bulky waste, bio-waste of plant origin, wood, construction waste without hazardous properties up to 1 m3 per person per month, metal waste, paper, glass, plastics, beverage cartons, hazardous components of municipal waste and tyres.

In November 2016, collection of used food oils and fats was also introduced at collection yards. The new service is gaining in popularity, as evidenced by the records of received amounts, see table below. Citizens can also hand in electrical appliances and commodities at collection yards, as part of the take-back, under the waste prevention scheme, see the following chapters.

### Waste prevention at collection yards

#### Textiles

In the waste management hierarchy, waste prevention comes first. Within cooperation with the Broumov diaconia, the collection of worn-out textiles, clothing and footwear has been taking place at all of collection yards of the Capital City of Prague since 2015.  In 2021, a total of 58.7 tonnes of old textiles were collected at collection yards.98% of all textiles are meaningfully used for material aid. The unsuitable material for humanitarian purposes is made into cleaning sheets and 5% is used as alternative fuel for cement plants. Containers for used textiles are also placed in the streets of the City, on the basis of contracts concluded between the companies collecting used textiles and the municipal districts’ authorities.

#### Print cartridges

Since the beginning of 2020, citizens have been able to hand in used print cartridges at three collection yards in the City, specifically in Zakrytá Street in Prague 4, Pod Šancemi Street in Prague 9 and Generála Šišky Street in Prague 12. The collection is organised in cooperation with the Asociací renovátorů tonerů, z.s. (Toner Refurbishers Association). These collection yards are equipped with a separate 240-litre red collection container exclusively for the collection of used printing consumables. Both original and compatible or refurbished toner and ink cartridges can be placed in the collection containers. Returned cartridges are processed by toner and ink cartridge refurbishing companies. Original and previously refurbished original print cartridges are professionally refurbished and enabled to be fully reused. In 2021, a total of 3,101 toner cartridges were collected at the collection yards, of which 1,041 toner cartridges were suitable for refurbishment and 2,060 toner cartridges, that do not allow the refurbishment process, were sent for disposal by incineration.

#### Furniture, sports equipment, books and other

In October 2020, two **re-use points** were put into operation at the City's collection yards in Zakrytá Street in Prague 4 and Pod Šancemi Street in Prague 9 as part of a pilot project. These collection yards are equipped with a special closed large-volume container for depositing bulky items (furniture, sports equipment, prams, medical aids, etc.) and a construction cell for storing small items (dishes, books, toys, etc.). Trained staff will assess the items, document them and ensure they are stored correctly. It then enters them into the "Nevyhazujto.cz" (“Don't throw it away”) application, where they are first offered to partner organisations – non-profit organisations, the city furniture bank, the City's social departments and others. Items that are not used by these organisations can then be booked by people in the publicly accessible area of the app and subsequently collected free of charge. In November 2020, the Prague 20 municipality district also opened a re-use point, within the City's collection yard in Chvalkovická Street. In 2022, another re-use point is planned to open at the General Šiška collection yard in the Prague 12 municipal district. People can also use the <https://praho.nevyhazujto.cz/> web application directly to offer items for reuse.

Alternative ways of handling items that are still in good condition is to bring them to events such as Reuse Day, which was organised by the Prague City Hall in 2021 and whose number of events will increase in 2022. Undamaged furniture or furniture requiring only minor repairs can be handed in to the Furniture Bank in Prague. The furniture bank does not accept upholstered furniture!

Table No. 7 Results of sorted collection at the CY of the Capital City of Prague

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Year |  |  |  | Constructionwaste | Bulky waste | Wood | Metals | Bio | Tyre | HW\*\* | Paper | Glass | Plastic | Beverage carton | Edible oil | Total |
|  | Number of collection yards (CY) | Number of visits  | Handover of electrical waste and HW\* | Waste amount in tonnes |
| 2001 | 4 | 23,234 |  | 2,602 | 1,417 | 398 | 195 | 552 | 8 | 137 |  |  |  |  |  | 5,309 |
| 2002 | 4 | 34,073 |  | 4,587 | 2,212 | 528 | 227 | 1,665 | 18 | 195 |  |  |  |  |  | 9,432 |
| 2003 | 6 | 56,547 |  | 5,387 | 3,150 | 860 | 339 | 2,173 | 33 | 295 |  |  |  |  |  | 12,237 |
| 2004 | 7 | 84,286 |  | 7,606 | 6,891 | 1,319 | 344 | 3,106 | 55 | 525 | 89 |  |  |  |  | 19,935 |
| 2005 | 9 | 107,239 |  | 10,171 | 9,923 | 1,350 | 360 | 4,642 | 59 | 677 | 100 |  |  |  |  | 27,282 |
| 2006 | 11 | 144,938 |  | 11,550 | 13,900 | 2,347 | 433 | 4,447 | 45 | 367 | 95 |  |  |  |  | 33,184 |
| 2007 | 10 | 150,881 |  | 11,595 | 12,259 | 2,913 | 453 | 5,464 | 130 | 261 | 104 |  |  |  |  | 33,179 |
| 2008 | 12 | 252,307 |  | 16,363 | 17,767 | 3,792 | 563 | 5,964 | 232 | 301 | 162 |  |  |  |  | 45,144 |
| 2009 | 12 | 295,021 |  | 17,948 | 25,107 | 5,992 | 1,110 | 6,268 | 216 | 301 | 192 |  |  |  |  | 57,134 |
| 2010 | 13 | 307,358 |  | 20,504 | 26,042 | 6,239 | 989 | 7,535 | 235 | 298 | 243 | 12 |  | 103 |  | 62,200 |
| 2011 | 14 | 348,938 |  | 25,315 | 26,144 | 7,882 | 980 | 8,085 | 316 | 353 | 253 | 2 |  | 5 |  | 69,335 |
| 2012 | 17 | 345,560 |  | 27,292 | 23,753 | 9,723 | 835 | 5,782 | 334 | 364 | 262 | 18 | 36 | 3 |  | 68,402 |
| 2013 | 16 | 297,935 | 44,995 | 25,730 | 18,741 | 9,539 | 818 | 4,520 | 285 | 355 | 571 | 319 | 59 | 0.4 |  | 60,937 |
| 2014 | 17 | 335,959 | 40,541 | 29,097 | 22,023 | 10,431 | 763 | 5,267 | 279 | 388 | 408 | 299 | 65 | 1 |  | 69,021 |
| 2015 | 20 | 350,556 | 38,880 | 27,398 | 23,665 | 11,512 | 1,154 | 5,503 | 275 | 409 | 405 | 197 | 120 | 1 |  | 70,639 |
| 2016 | 20 | 375,218 | 49,583 | 28,684 | 25,180 | 12,192 | 1,783 | 7,651 | 260 | 490 | 467 | 184 | 131 | 2 | 0.16 | 77,024 |
| 2017 | 20 | 388,602 | 48,846 | 26,855 | 26,562 | 12,774 | 1,816 | 6,976 | 285 | 532 | 452 | 189 | 112 | 1 | 5 | 76,559 |
| 2018 | 19 | 391,079 | 48,343 | 25,952 | 30,174 | 13,239 | 1,838 | 6,477 | 246 | 515 | 465 | 197 | 122 | 3 | 8 | 79,236 |
| 2019 | 19 | 424,411 | 49,357 | 27,234 | 33,538 | 13,565 | 2,020 | 7,466 | 254 | 549 | 522 | 207 | 122 | 1.5 | 9 | 85,488 |
| 2020 | 19 | 429,409 | 50,594 | 28,814 | 36,394 | 10,931 | 2,266 | 6,729 | 241 | 563 | 599 | 225 | 131 | 4.6 | 13 | 86,911 |
| 2021 | 19 | 392,040 | 46,636 | 29,420 | 37,624 | 11,016 | 2,299 | 8,027 | 241 | 539 | 625 | 230 | 140 | 5.2 | 15.5 | 89,641 |

Note: \* visits involving the handover of take-back products and hazardous waste

 \*\* hazardous waste handed in by citizens to the CY of the Capital City of Prague and stable collection points of the Capital City of Prague

Table No. 8 Items selected as part of waste prevention

|  |  |  |  |
| --- | --- | --- | --- |
|  | Textile at collection yards  | Toners at collection yards | Re-use at collection yards |
| Year | Selected textiles in tonnes | Selected pieces | Refurbished pcs | Selected pieces | Handed in pcs |
| 2020 | 68.4 | 2 645 | 1 011 | 316 | 264 |
| 2021 | 58.7 | 3 101 | 1 041 | 4725 | 3962 |

### Mobile collection yards

Constraints for the construction of stable collection yards are caused in the central parts of Prague, especially in some municipal districts, by the historical buildings and very limited layout possibilities (e.g. Prague 1, Prague 7). In these areas, until mid-2021, so-called **mobile collection yards** (hereinafter also referred to as the "MCY") were organised as a possible alternative to stable collection yards – i.e. several large-volume containers (hereinafter also referred to as the "LVC") were brought in at a specified time and place with professional waste sorting provided by the present attendant. The implementation of the mobile collection yards started on 1 July 2012. This service was intended mainly for municipal districts that do not have a stable collection yard in their territory or in its vicinity. Mobile collection yards were implemented in larger, suitable areas (e.g. parking lots), where it was possible to place more LVC for different (designated) types of waste. MCY were implemented for the period of 6 hours (on weekdays in the afternoon, on weekends both in the morning and afternoon) at locations designated by the municipal districts’ authorities in cooperation with the collection company and approved by the Prague City Hall. Within the MCY, LVC were delivered for the following types of waste: bulky waste, wood waste, bio-waste and, since 2015, construction waste instead of metals in limited amounts (free of charge up to 1 m3 per month within the MCY and CY). The mobile collection yard organisation service was discontinued in June 2021 due to low public interest in this service. The municipal districts of the Capital City of Prague were recommended that the service could continue to be organised at local level in cooperation with the relevant collection companies in the number and on the dates appropriate for each particular municipal district. If interested, the collection companies are able to meet the needs of all the municipal districts interested in the service.

Table No. 9 Generation of waste deposited within MCY in tonnes

|  |  |  |
| --- | --- | --- |
|  |  | Weights of handed in waste in tonnes |
| Year | Number of MCY per year | Bulky waste | Wood | Bio-waste | Metals | Construction waste | Total |
| 2012 | 52 | 25.95 | 14.53 | 29.15 | 1.47 |  | 71.10 |
| 2013 | 91 | 836.67 | 288.05 | 15.59 | 17.65 |  | 1157.96 |
| 2014 | 89 | 60.28 | 28.05 | 56.22 | 3.33 |  | 147.88 |
| 2015 | 95 | 59.41 | 33.07 | 85.54 | 3.89 | 44.18 | 226.09 |
| 2016 | 95 | 55.17 | 29.39 | 57.38 |  | 78.05 | 219.99 |
| 2017 | 66 | 45.82 | 29.2 | 34.86 |  | 53.34 | 163.22 |
| 2018 | 63 | 52.09 | 33.06 | 43.35 |  | 63.51 | 192.01 |
| 2019 | 82 | 72.22 | 29.08 | 42.00 |  | 92.65 | 235.95 |
| 2020 | 71 | 76.26 | 38.65 | 53.13 |  | 91.38 | 259.42 |
| 2021 | 26 | 35.62 | 23.51 | 20.82 |  | 46.41 | 126.36 |

In addition to bulky waste, the waste handed in at the mobile collection yards is used for material recovery. Bulky waste is landfilled, see information in the following chapter.

In addition to the stable and mobile collection yards of the Capital City of Prague (listed in the tables), some municipal districts’ authorities ensure collection yard facilities that are intended exclusively for the citizens of the municipal district. This is the collection yard of the Prague 4 municipal district (Durychova Street) and the collection yard of the Prague 6 municipal district (Jednořadá Street).

## Bulky waste

Citizens can hand in bulky waste into large-volume containers with a minimum volume of 10 m3 placed in the streets of the City. In the past years, the Capital City of Prague has paid for the placing of approximately 9,000 large-volume containers per year. As the number of collection yards increases, the Capital City of Prague reduces the number of LVC, with a total of 2,500 containers added in 2021. LVC are allocated to the municipal districts according to the number of residents, with each municipal district having a minimum of 10 LVC per year as a prevention of black landfill formation. The municipal districts themselves decide on the locations and dates of the addition according to their own needs. Some municipal districts add additional LVC at their own expense at their discretion. Other options for handing in bulky waste are collection yards.

 With effect from 1 July 2021, on the basis of contract no. INO/54/11/020675/2021 concluded between the Capital City of Prague and the company Pražské služby, a.s., a new principle of managing bulky waste collected within the LVC delivery service has been set. Unfortunately, in the past, all bulky waste collected from LVC used to be only landfilled, but now the authorised person is obliged to ensure that bulky waste is prioritised for utilisation, so that the utilisation ratio of bulky waste is at least 40% each year, i.e. that no more than 60% of the actual weight of bulky waste handed in LVC can be disposed of by landfilling.

Table No. 10 Production of bulky waste in tonnes

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Year | LVC | CY | MCY | Total |
| 1998 | 13,128 | 129 |  | 13,257 |
| 1999 | 16,095 | 673 |  | 16,768 |
| 2000 | 16,150 | 916 |  | 17,066 |
| 2001 | 16,282 | 1,417 |  | 17,699 |
| 2002 | 16,525 | 2,212 |  | 18,737 |
| 2003 | 16,902 | 3,149 |  | 20,051 |
| 2004 | 17,601 | 6,891 |  | 24,492 |
| 2005 | 20,527 | 9,923 |  | 30,450 |
| 2006 | 17,991 | 13,900 |  | 31,891 |
| 2007 | 19,892 | 12,259 |  | 32,151 |
| 2008 | 20,003 | 17,769 |  | 37,771 |
| 2009 | 20,193 | 25,107 |  | 45,300 |
| 2010 | 18,500 | 26,042 |  | 44,542 |
| 2011 | 18,355 | 26,125 |  | 44,480 |
| 2012 | 11,273 | 23,753 | 26 | 35,026 |
| 2013 | 6,899 | 18,741 | 837 | 26,477 |
| 2014 | 6,387 | 22,023 | 60 | 28,740 |
| 2015 | 5,122 | 24,039 | 59 | 29,220 |
| 2016 | 4,258 | 25,019 | 55 | 29,658 |
| 2017 | 4,238 | 26,562 | 46 | 30,846 |
| 2018 | 3,979 | 30,174 | 52 | 34,205 |
| 2019 | 3,975 | 33,538 | 72 | 37,585 |
| 2020 | 4,157 | 36,394 | 76 | 40,627 |
| 2021 | 2,145 | 37,624 | 36 | 39,805 |

The table does not include the amount of bulky waste collected as part of services provided by the authorities of the municipal districts of the Capital City of Prague, which amounted to 2,714 tonnes in 2021. Furthermore, the City reports bulky waste from the buildings of the Prague City Hall (60 tonnes) and bulky waste from cleaning around sorted waste stations, which amounted to 7,130 tonnes in 2021.

## Bio-waste

The reduction in the number of delivered containers for bulky waste has also enabled the introduction of separate collection of bio-waste of plant origin through marked LVC. In 2021, a total of 1,131 units were delivered for the collection of bio-waste and a total of 849 tonnes of bio-waste were collected. Other ways to dispose of bio-waste are the City's collection yards, the stable collection point in Prague 10 Malešice, and since 2017 also the composting plant of the Capital City of Prague in Slivenec. The first Prague composting plant was launched on 3 July 2017. Bio-waste from citizens of the Capital City of Prague is accepted here free of charge in a maximum amount of 250 kg per person/month.

In 2017 and 2018, two pilot projects were carried out to test the possibilities of collecting bio-waste (especially of kitchen origin) in the conditions of the Capital City of Prague. One of the projects was carried out in the territory of the Prague 13 municipal district in a development of tenement apartment buildings, where brown collection containers with a volume of 120 and 240 litres for biodegradable waste of plant origin were added. The second pilot project took place in Prague 15 and focused on the collection of bio-waste in residential development. The results and experience from the project served as a further basis for the introduction of a full-scale container collection of biodegradable municipal waste of plant origin in the territory of the Capital City of Prague, which was launched in the territory of the City on 1 January 2020 on the basis of amendment no. 4 to contract no. INO/54/11/010585/2016 concluded between the Capital City of Prague and Pražské odpady (Prague Waste) 2016–2025 consortium. As of 31 December 2021, a total of 3,402 containers were being collected year-round, and 16,065 containers were being collected seasonally (1 April - 30 November).

Table No. 11 Bio-waste production in tonnes

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| year | Bio LVC | CY of the City | Composting plant – Slivenec | Stable place – Malešice | MCY | Containers at the house | Food waste | Total |
| 2001 |  | 552 |  |  |  |  |  | 552 |
| 2002 |  | 1,665 |  |  |  |  |  | 1,665 |
| 2003 |  | 2,173 |  |  |  |  |  | 2,173, |
| 2004 |  | 3,106 |  |  |  |  |  | 3,106 |
| 2005 |  | 4,642 |  | 166 |  |  |  | 4,808 |
| 2006 |  | 4,447 |  | 300 |  |  |  | 4,747 |
| 2007 |  | 5,464 |  | 254 |  |  |  | 5,718 |
| 2008 |  | 5,964 |  | 306 |  |  |  | 6,270 |
| 2009 |  | 6,268 |  | 501 |  |  |  | 6,769 |
| 2010 | 331\* | 7,535 |  | 527 |  |  |  | 8,393 |
| 2011 | 660 | 8,085 |  | 669 |  |  |  | 9,414 |
| 2012 | 830 | 5,782 |  | 626 | 29 |  |  | 7,267 |
| 2013 | 949 | 4,520 |  | 779 | 16 |  |  | 6,264 |
| 2014 | 576 | 5,256 |  | 872 | 56 |  |  | 6,760 |
| 2015 | 578 | 5,503 |  | 865 | 86 |  |  | 7,032 |
| 2016 | 1,008 | 7,651 |  | 959 | 57 |  |  | 9,675 |
| 2017 | 1,202 | 6,976 | 140 | 1,016 | 35 | 27 |  | 9,396 |
| 2018 | 1,058 | 6,477 | 411 | 866 | 43 | 85 |  | 8,940 |
| 2019 | 1,280 | 7,466 | 631 | 1,181 | 42 |  | 1 | 10,601 |
| 2020 | 1,268 | 6,729 | 699 | 1,063 | 53 | 4,994 | 41 | 14,847 |
| 2021 | 849 | 8,027 | 648 | 1,380 | 21 | 6,714 | 42 | 17,648 |

\* in 2010, the service of delivering bio LVC was only available from 1 September to 30 November 2010

The table above does not include bio-waste collected within the services organised by the municipal districts’ authorities in the amount of 2,563 tonnes as well as bio-waste from the buildings of the Prague City Hall and the Municipal Police in the amount of 6.6 tonnes.

**PILOT PROJECTS FOR THE COLLECTION OF HOUSEHOLD FOOD WASTE IN RESIDENTIAL BUILDINGS**

In December 2019, a pilot project was launched in the territory of Prague 5, 6 and 7 municipal districts to test the possibility of collecting kitchen waste from Prague households, so-called “Kitchen leftovers” (cat. no. 20 01 08). The City aims to increase the sorting, utilisation and recycling of usable components of municipal waste and to gradually reduce the amount of mixed municipal waste.

The consistent separation of kitchen leftovers reduces the volume of the so-called wet component of mixed municipal waste and increases the efficiency of energy utilisation of the mixed municipal waste at ZEVO Malešice. Kitchen leftovers collected within the pilot project were taken to the biogas plant in Pribyšice u Benešova for further utilisation.

The project was completed on 31 December 2021. During its duration, 75 apartment buildings with approximately 1,000 households were involved. During the project, 39.59 t of kitchen leftovers were collected.

Another project organised by the City is the collection of food waste from canteens of school facilities, whose founder is the Prague City Hall. Since October 2021, 28 schools have been provided with free collection of food waste from school canteens. For 2021, 52.39 t of food waste was transported, which was also utilised in the biogas plant in Pribyšice.

**PREVENTION OF BIO-WASTE**

In 2017, the City applied for a subsidy to purchase composters from the Operational Programme for the Environment. The subsidy was awarded by the State Environmental Fund in 2018 and the project implementation started. The implementation of this project prevented the production of 1,165 t of greenery waste per year. As of the end of 2019, all 1,750 composters were lent to property owners.

As part of waste prevention, a community composting plant is operated in the municipal district of Prague 20 Horní Počernice. The composting plant is operated by the municipal district and serves exclusively the citizens of Prague 20 municipal district.

## Hazardous waste

The **collection of hazardous waste** (hereinafter referred to as the "HW"), namely solvents, acids, alkalis, photochemicals, pesticides, fluorescent lamps and other mercury-containing waste, oils and fats (except edible), paints, printing inks, glues, resins, detergents, cytostatics and medicines, batteries and accumulators is carried out in the territory of the Capital City of Prague in several levels:

* **mobile collection** – atotal of 309 routes with an average of 8 stops were implemented in 2021
* **stable collection** – a total of 21 stable HW collection stations were in operation in 2021
* **collection of unusable medicines** – as of 31 December 2021, 323 pharmacies were involved in the City system

**Mobile collection** is operated annually between February and November. The collection of HW is mainly carried out from 3:00 p.m. to 7:00 p.m., but at the request of the municipal districts it is also carried out from 8:00 a.m. to 12:00 noon in some locations. Citizens can hand in selected types of HW in this way. In individual municipal districts, collection is carried out at least 3 times a year, according to a fixed schedule. The number of collection routes and stops corresponds to the number of residents of the respective municipal district and is also adapted to the interest of citizens in this service in previous years. At designated stops, the vehicle crew collects all the above-mentioned hazardous waste from citizens at the appointed time, and now also edible oils and fats as an additional service.

**Stable collection** was ensured in 2021 at 21 stable collection points with year-round operation, where citizens can hand in HW. Of these, 19 stable collection facilities were set up as part of the collection yards, the operation of which is paid for by the Capital City of Prague.

**Collection of unusable medicines** is carried out in all pharmacies in the City. Pharmacies can register in the City's system and thus use the City's contractor for the collection of medicines from pharmacies. In 2021, a total of 323 pharmacies were registered in the City's system. This system provides the City with an overview of the amount of medicines handed in at participating pharmacies. Medicines can also be handed in at collection yards and during mobile collection of hazardous waste. These two services should be used by citizens whenever they accumulate large quantities of medicines in their household.

The **collection of syringes** has been carried out since 2017 as an additional service, in particular to facilitate the work of the Municipal Police in ensuring order in public spaces. Members of the Municipal Police are equipped with collection equipment and can drop off the collected syringes at the premises of a company authorised to handle this waste, with which the City has a contract for this service. This is the collection of syringes from drug addicts found e.g. in parks, children’s playgrounds, etc. Citizens can hand in syringes, insulin pens, etc. to the doctor who prescribed the treatment that generated this waste. The doctor in question is legally obliged to accept such waste.

Table No. 12 Production of hazardous waste in tonnes

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Stable collection | Mobile collection | Pharmacies | Collection of syringes by the MP | Total |
| 1998 |  | 117 |  |  | 117 |
| 1999 | 63 | 112 | 22 |  | 197 |
| 2000 | 85 | 93 | 32 |  | 210 |
| 2001 | 81 | 83 | 31 |  | 195 |
| 2002 | 131 | 107 | 34 |  | 272 |
| 2003 | 196 | 92 | 36 |  | 324 |
| 2004 | 236 | 82 | 33 |  | 351 |
| 2005 | 271 | 46 | 48 |  | 365 |
| 2006 | 391 | 32 | 45 |  | 468 |
| 2007 | 288 | 34 | 47 |  | 369 |
| 2008 | 322 | 80 | 68 |  | 470 |
| 2009 | 322 | 123 | 57 |  | 502 |
| 2010 | 311 | 101 | 57 |  | 469 |
| 2011 | 366 | 64 | 56 |  | 486 |
| 2012 | 378 | 14\* | 61 |  | 453 |
| 2013 | 367 | 39 | 69 |  | 475 |
| 2014 | 413 | 27 | 79 |  | 519 |
| 2015 | 424 | 29 | 87 |  | 540 |
| 2016 | 512 | 34 | 95 |  | 641 |
| 2017 | 532 | 30 | 107 | 0.3 | 669.3 |
| 2018 | 515 | 32 | 173 | 0.4 | 720.4 |
| 2019 | 549 | 20 | 149 | 0.5 | 718.5 |
| 2020 | 563 | 16\*\* | 123 | 0.6 | 702.6 |
| 2021 | 539 | 20 | 123 | 0.4 | 682.4 |

*\* in 2012, mobile collection took place only in February, March, October and November*

*\*\* in 2020, the amount of hazardous waste handed in via mobile collection was lower due to lower attendance caused by the pandemic situation*

Chart No. 4 Representation of hazardous waste in 2021

Table No. 13 Amount of hazardous waste handed in in 2021

|  |  |  |  |
| --- | --- | --- | --- |
| **Waste code** | **Waste name** | **Weight (t)** | **%** |
| 200113 | Solvents | 42.727 | 6.69 |
| 200114 | Acids | 8.923 | 1.31 |
| 200115 | Alkalis | 3.992 | 0.53 |
| 200117 | Photochemicals | 1.645 | 0.1 |
| 200119 | Pesticides | 2.885 | 0.45 |
| 200121 | Fluorescent lamps and other mercury-containing waste | 0.213 | 0.03 |
| 200126 | Oil and fat other than those mentioned under no. 20 01 25 | 39.812 | 1.35 |
| 200127 | Paints, printing inks, adhesives and resins containing dangerous substances | 423.317 | 67.32 |
| 200129 | Detergents containing hazardous substances | 34.846 | 4.49 |
| 200132 | Other unusable medicines not listed under no. 20 01 31 | 123.938 | 17.62 |
| 200133 | Batteries and accumulators classified under no. 16 06 01, 16 06 02 or 16 06 03, and unsorted batteries and accumulators containing these batteries | 0.164 | 0.06 |

The representation of individual hazardous wastes has not changed over the years, with the highest amount of handed in waste being clearly represented by waste classified under catalogue no. 200127 Paints, printing inks, adhesives and resins.

## Take-back

Until the end of 2020, the take-back of electrical equipment was part of Act No. 185/2001 Coll., on Waste. Since 1 January 2021, new Act No. 542/2020 Coll., on End-of-Life Products (hereinafter referred to as "ELP") is in force. This Act regulates the rules for the prevention of the generation of waste from ELP - electrical equipment, batteries or accumulators, tyres and vehicles, the regulation of the content of hazardous substances in ELP, the obligations of producers when placing ELP on the market, the take-back or collection of ELP in order to ensure the highest possible proportion of their reuse and recycling, special rules for handling ELP, including their utilisation and disposal, and the obligations of persons when handling ELP.

Table No. 14 Overview of products handed in for take-back until 2012

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |  |
| portable batteries (t) | 6 | 7 | 9.6 | 6.3 | 11.5 | 5.7 | no data | 10.5 |
| televisions and monitors (t) | 83 | 442 | 776 | 1,346 | 1,735 | 1,525 | 1,486 | 1,660 |
| refrigerators (t) | 171 | 635 | 837 | 1,021 | 1,170 | 1,032 | 1,799 | 1,574 |
| light sources (t) |  | 0.8 | 3.8 | 7.2 | 10.0 | 10.4 | 11.5 | 13.7 |
| total handed in (t) | 260 | 1,085 | 1,626 | 2,380 | 2,926 | 2,573 | 3,297 | 3,258 |

As part of a comprehensive system of municipal waste management in the territory of the Capital City of Prague, it is possible to hand in the take-back products at the collection yards of the Capital City of Prague and since 2012 also into stationary containers located in the streets of the City. In 2020, 293 containers for small electrical equipment were deployed in the streets of the City. At the end of 2021, the number of these slightly increased to a total of 306.

In 2013, the information on the amount of collected take-back products was expanded, therefore the data is presented in a new format. As part of the take-back, the below-stated amount of equipment and products, in tonnes, was handed in at the collection yards of the Capital City of Prague in the period of 2013-2021:

Table No. 15 Overview of products handed in for take-back since 2013

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Type of equipment, products | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 |
| TV and monitors | 925 | 1,584.4 | 923.9 | 891.7 | 819.6 | 805.7 |
| other electrical equipment | 407.5 | 769 | 563.5 | 325.5 | 415.6 | 377.1 |
| light sources | 14.9 | 15.7 | 19.7 | 21.9 | 22.8 | 20.7 |
| Refrigerators | 933 | 822.7 | 855.7 | 889.2 | 882.4 | 880.8 |
| Large and small appliances | 668.4 | 659.1 | 798.1 | 999.4 | 1,228.4 | 1,296.6 |
| Batteries | 6.4 | 18.4 | 20.4 | 34.7 | 37.6 | 45.9 |
| **Total** | **1,353.8** | **3,869.3** | **3,181.3** | **3,162.4** | **3,406.4** | **3,426.8** |

|  |  |  |  |
| --- | --- | --- | --- |
| Type of equipment, products | 2019 | 2020 | 2021 |
| TV and monitors | 970.4 | 899.2 | 628.4 |
| other electrical equipment -  | 365.5 | 392.2 | 0.0 |
| light sources | 19.7 | 17.9 | 19.1 |
| Refrigerators | 916.9 | 905.7 | 915.8 |
| Large and small appliances  | 1,527.6 | 1,791.0 | 2,137.7 |
| Batteries | 40.3 | 43.2 | 44.8 |
| **Total** | **3,804.4** | **4,049.2** | **3,745.8** |

The amount of small electrical equipment collected in red containers placed in the streets:

|  |  |
| --- | --- |
| Year | Amount (t) |
| 2012 | 94.5 |
| 2013 | 108.0 |
| 2014 | 143.1 |
| 2015 | 178.9 |
| 2016 | 243.1 |
| 2017 | 224.9 |
| 2018 | 330.0 |
| 2019 | 306.1 |
| 2020 | 432.5 |
| 2021 | 329.5 |

# Cost of the system for managing waste handed in by citizens

## Cost of mixed municipal waste

The municipal waste fee (hereinafter referred to as the "fee") was regulated for 2020 by Act No. 185/2001 Coll., on Waste, Act No. 280/2009 Coll., Tax Code, as amended, and generally binding Decree No. 2/2005 Coll., of the Capital City of Prague laying down the municipal waste fee. The payer of the fee is the property owner. The fee payer has a reporting and registration obligation, which is fulfilled by delivering a "Fee Payer Declaration" to the fee administrator, completed by the collection company providing municipal waste collection in the given collection area**.**

During 1998–2020, the following systems of payments from residents were applied in the Capital City of Prague based on changes in the legislation in the field of waste management:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Payment type | Contributor | Payer | The payment is collected by | Number of payers |
| 1 January 1998 – 29 February 2000 **contractual price** (determined according to the number, volume and frequency of servicing collection containers) budgeted for individual users of apartments by the owner (administrator) of the apartment building | Natural person using the apartment | Owner/administratorof the apartment building | Pražské služby (based on the contract with the City) | 85 thousand |
| 1 March 2000 – 31 December 2001 **waste fee** (determined according to the number, volume and frequency of servicing collection containers) budgeted for individual users of apartments by the owner (administrator) of the apartment building | Natural person using the apartment | Owner/administratorof the apartment building | Capital City of Prague – Property and Investments Department of the Prague City Hall | 85 thousand |
| 1 January 2002 – 31 December 2002 **local fee** (per capita - capitation payment)  | Natural person with permanent residence |  | Capital City of Prague – Property and Investments Department of the Prague City Hall | 1,200 thousand |
| 1 January 2003 – 31 December 2021**municipal waste fee** (determined according to the number, volume and frequency of servicing collection containers) budgeted for individual users of apartments by the owner (administrator) of the apartment building | Natural person using the apartment | Owner/administratorof the apartment building | Capital City of Prague – DPC of the Prague City Hall | 85 thousand |

In 2019, on the basis of Resolution No. 10/20 of 17 October 2019, the City Council of the Capital City of Prague approved an amendment to General Binding Decree No. 15/2019 Coll., of the Capital City of Prague, which amended General Binding Decree No. 2/2005 Coll., of the Capital City of Prague, setting the municipal waste fee. The amendment to the decree increased the municipal waste fee by 30% after 15 years and also introduced a new fee for the collection of biological waste in Prague. With effect from 1 January 2020, the monthly rate of the municipal waste fee was applicable as follows:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Frequency/week | 1x per 14 days | 1x per week | 2x per week | 3x per week | 4x per week | 5x per week | 6x per week | 7x per week |
| 70 litres | 112 | 199 | 373 |  |  |  |  |  |
| 80 litres | 112 | 199 | 368 |  |  | 896 |  |  |
| 110 litres | 134 | 242 | 454 | 667 | 878 |  | 1,307 |  |
| 120 litres | 133 | 242 | 436 | 655 | 883 | 1,043 | 1,242 | 1,440 |
| 240 litres | 212 | 394 | 762 | 1,078 | 1,431 | 1,671 | 2,071 | 2,471 |
| 360 litres | 304 | 555 | 1,030 | 1,503 | 1,997 | 2,480 |  |  |
| 660 litres | 553 | 998 | 1,890 | 2,782 | 3,673 |  |  |  |
| 1,100 litres | 770 | 1,388 | 2,601 | 3,838 | 5,060 | 5,915 | 7,458 | 9,001 |

The rate of the fee for the collection of biological waste is as follows from 1 January 2020:

|  |  |  |  |
| --- | --- | --- | --- |
| Volume/Frequency of collection | 1x per 2 weeks | 1x per week | 2x per week |
| 120 l | 56 | 112 | 224 |
| 240 l | 90 | 179 | 359 |

The following table and chart show the amount of the prescribed municipal waste fee, the actual collected payments, the costs of collection, utilisation and disposal of mixed waste which is subject to the fee, and the calculated City subsidy, i.e. the costs not covered by the collected fee. The year 2002 is not comparable, as a capitation payment (a flat fee per person) was made.

Table No. 16 Development of the costs of mixed municipal waste during 1998–2021

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Year | Total mixed waste (t) | Prescription (CZK million) | Actual fee collected (CZK million) | Costs of mixed waste (CZK million) including VAT | Costs of bio-waste (CZK million) including VAT | City subsidy (CZK million) | % subsidy of costs |
| **1998** | 210.5 | 321.8 | Not available | 396.7 |  | 74.9 | 18.9 |
| **1999** | 208.6 | Not available | Not available | 501.6 |  |  |  |
| **2000** | 209.9 | 385.0 | Not available | 505.0 |  | 120.0 | 23.8 |
| **2001** | 211.8 | 405.1 | 397.2 | 532.4 |  | 135.2 | 25.4 |
| **2002** | 226.7 | 543.0 | Not available | 563.6 |  | 20.6 | 3.7 |
| **2003** | 230.2 | 537.5 | 497.2 | 583.8 |  | 86.6 | 14.8 |
| **2004** | 231.0 | 567.1 | 581.2 | 644.7 |  | 63.5 | 9.8 |
| **2005** | 234.7 | 650.3 | 645.7 | 697.8 |  | 52.1 | 7.5 |
| **2006** | 236.2 | 654.0 | 653.3 | 717.8 |  | 64.5 | 9.0 |
| **2007** | 240.3 | 674.2 | 697.2 | 740.9 |  | 43.7 | 5.9 |
| **2008** | 243.1 | 686.2 | 685.3 | 767.4 |  | 82.1 | 10.7 |
| **2009** | 244.6 | 690.0 | 691.0 | 735.0 |  | 44.0 | 6.0 |
| **2010** | 245.1 | 697.8 | 700.7 | 747.2 |  | 46.5 | 6.2 |
| **2011** | 246.8 | 699.6 | 703.4 | 760.0 |  | 56.6 | 7.4 |
| **2012** | 247.3 | 697.2 | 688.1 | 805.0 |  | 116.5 | 14.5 |
| **2013** | 246.3 | 696.8 | 705.3\* | 808.6 |  | 103.3 | 12.8 |
| **2014** | 246.2 | 696.9 | 699.7 | 818.0 |  | 118.2 | 14.5 |
| **2015** | 247.2 | 699.1 | 701.8 | 808.7 |  | 106.9 | 13.2 |
| **2016** | 249.3 | 703.7 | 700.1 | 864.6 |  | 164.5 | 19.0 |
| **2017** | 250.2 | 707.0 | 710.9 | 958.9 |  | 248.0 | 25.9 |
| **2018** | 253.8 | 720.9 | 723.0 | 977.1 |  | 254.1 | 26.0 |
| **2019** | 255.5 | 728.6 | 725.8 | 989.3 |  | 263.5 | 26.6 |
| **2020** | 257.8 | 957.9 | 951.4\*\* | 999.8 | 25.2 | 73.6 | 7.2 |
| **2021** | 260.5 | 969.4 | 967.6\*\* | 1,011.7 | 33.8 | 77.9 | 7.5 |

\*In the evaluations since 2013, the actual collection of the fee has been stated, which differs from the prescription and better reflects the subsidy from the City and thus shows more accurately the overall financing of the mixed municipal waste. In 2021, data on actual fee collections were also supplemented for the years 1998-2012, and the City's subsidy amount was updated in those years according to this supplemented data.

\*\*Since 2020 onwards, the costs of not only the collection and management of mixed municipal waste, but also the costs of collection and utilisation of bio-waste collected directly from households (this service has been provided since 1 January 2020 under contract no. INO/54/11/010585/2016) have been included in the actual costs of the City.

Chart No. 5 Funding of mixed municipal waste during 2003-2019 and of mixed municipal waste and bio-waste in household equipment in 2020 and 2021

|  |
| --- |
|  |
| Fee income (CZK million) |  City subsidy (CZK million) | Mixed waste (t) |

## Total costs

|  |
| --- |
| **Total costs in CZK thousand including VAT** |
| Year | Sorted collection in total1 | LVC + MCY | Mixedwaste2 | Bio containers | Hazardous waste | BIO3(LVC, SSM, composting plant, food waste, VIN AGRO) | Collectionyards | **TOTAL** |
| 2013 | 321,976 | 20,644 | 808,534 |  | 7,523 | 2,151 | 59,900 | **1,220,728** |
| 2014 | 335,154 | 18,993 | 818,006 |  | 5,796 | 1,396 | 64,393 | **1,243,738** |
| 2015 | 321,227 | 16,616 | 808,704 |  | 5,469 | 1,360 | 65,139 | **1,218,515** |
| 2016 | 365,076 | 15,718 | 864,581 |  | 5,541 | 3,617 | 66,536 | **1,321,069** |
| 2017 | 430,459 | 15,464 | 958,884 |  | 5,329 | 4,759 | 72,376 | **1,487,271** |
| 2018 | 441,892 | 21,839 | 977,138 |  | 4,926 | 5,084 | 79,149 | **1,530,028** |
| 2019 | 474,060 | 29,656 | 989,279 |  | 6,754 | 7,778 | 93,386 | **1,600,913** |
| 2020 | 516,138 | 29,318 | 999,843 | 25,162 | 7,349 | 9,297 | 130,470 | **1,717,577** |
| 2021 | 550,207 | 15,328 | 1,011,688 | 33,804 | 7,508 | 6,822 | 156,315 | **1,781,672** |
| **Total revenues in CZK thousand** |
| Year | Sorted collection in total4 | LVC + MCY | Municipal waste fee | Hazardous waste5 | BIO(LVC, SSM, composting plant) | Collectionyards | Edible oils  | **TOTAL** |
| 2013 | 162,444 |  | 705,297 | 1,345 |  |  |  | **869,086** |
| 2014 | 128,714 |  | 699,700 | 1,055 |  |  |  | **829,469** |
| 2015 | 133,656 |  | 701,763 | 981 |  |  |  | **836,400** |
| 2016 | 140,847 |  | 700,079 | 1,096 |  |  | 1 | **842,023** |
| 2017 | 150,176 |  | 710,935 | 908 |  |  | 17 | **862,036** |
| 2018 | 159,534 |  | 722,990 | 1,261 |  |  | 29 | **883,814** |
| 2019 | 172,009 |  | 725,806 | 1,568 |  |  | 40 | **899,423** |
| 2020 | 172,317 |  | 951,381 | 1,548 |  |  | 50 | **1,125,296** |
| 2021 | 208,669 |  | 967,578 | 1,657 |  |  | 54 | **1,177,958** |

1 *Cost of paper, glass, plastics, beverage cartons and metals less proceeds from the sale of sorted commodities*

*2 The total costs of mixed waste includes the costs of operating the call centre and contact points*

*3 The costs for bio-waste until 2016 include the costs of collecting bio-waste through the LVC and collection at the stable collection point in Malešice. In 2017 and 2018, costs for the pilot project for the collection of bio-waste in Prague 13 and 15 were added, and since 2019, costs for the collection of food waste have been added.*

*4 In addition to the contribution from the company EKO-KOM, the annual income from the trades involved in the City's system, which contractually used some of the outdoor sorted waste stations, was also included in the income for sorted waste until 2016. Since 2017, tradesmen have not been able to use the sorted waste stations in the streets anymore, they have only been able to have their own containers. The payment for this service is used to cover the costs of the collection company.*

*5 Subsidy for collection of unusable medicines from pharmacies from the Ministry of Finance.*

Chart No. 6 Costs of managing wastes from citizens in 2021

|  |  |  |
| --- | --- | --- |
|  |  | Cost of mixed wasteCost of bio-wasteCosts of separation stationsCost of collection yardsCost of LVC and MCYCosts of collecting bio-waste from householdsCost of hazardous waste |

As can be seen from the chart above, costs of ensuring collection and utilisation or disposal of mixed municipal waste account for more than half of the costs of managing waste from citizens handed in places provided by the Prague City Hall. Further 31% of the costs are needed to ensure the management of waste handed in by citizens at the sorted waste stations. Among other costs, the most significant item is the financing of the operation of 19 collection yards of the Capital City of Prague, which accounts for approximately 9% of the total costs.

Chart No. 7 Total costs of managing waste from citizens to total revenue in CZK thousand during 2013-2021

|  |  |  |
| --- | --- | --- |
|  |  | Cost of hazardous wasteCosts of collecting bio-waste from householdsCost of LVC and MCYCost of collection yardsCosts of separation stationsCost of bio-wasteCost of mixed wasteIncome from the municipal waste feeTotal incomes |

As can be seen from the chart above, there was a significant increase in the costs of mixed and sorted municipal waste management in 2017. This increase was due to the conclusion of a new contract for the management of the wastes in question. The previous contract was terminated in July 2016. With effect from 1 August 2016, a contract was concluded between the City and the Pražské odpady (Prague Waste) Consortium 2016-2025 for "Ensuring a comprehensive system of municipal waste management in the territory of the Capital City of Prague" during 2016-2025". The contract was concluded for a period of 10 years, i.e. until July 2026.

The increase in income in 2020 compared to 2019 was due to the increase in the municipal waste fee by 30% and the introduction of a fee for the collection of biological waste on the basis of Resolution No. 10/20 of the Capital City of Prague of 17 October 2019, which amended Decree No. 2/2005 Coll. of the Capital City of Prague setting the municipal waste fee with effect from 1 January 2020.

The difference between the actual costs of ensuring the system of managing municipal waste from the citizens and the income from the collected waste is covered by the Prague City Hall from its budget.

**Contribution of EKO-KOM, a.s.**

The sorted usable components of municipal wastes also contain used packaging and over time this packaging waste has become a significant component of the contents of coloured collection containers. A municipality, that operates sorted collection of municipal waste, can join the EKO‑KOM system on the basis of a contract for ensuring the take-back and utilisation of packaging waste. On the basis of this contract, the municipality is then entitled to a remuneration for ensuring the take-back and subsequent utilisation of packaging waste. The remuneration is calculated on the basis of regular quarterly reporting on the amount, types and methods of management of usable components of municipal waste. The amount of the remuneration depends mainly on the amount of waste sorted and increases with the efficiency of the collection system for usable components of the municipal waste. The remuneration reduces the costs associated with the operation of the system for the collection of usable components of the municipal waste.

|  |  |
| --- | --- |
| Year | Remuneration of EKO-KOM, a.s. (in CZK thousand) |
| 2001 | 22,899 |
| 2002 | 39,531 |
| 2003 | 70,788 |
| 2004 | 71,093 |
| 2005 | 81,887 |
| 2006 | 90,575 |
| 2007 | 100,857 |
| 2008 | 119,742 |
| 2009 | 136,456 |
| 2010 | 159,368 |
| 2011 | 156,410 |
| 2012 | 143,698 |
| 2013 | 160,677 |
| 2014 | 126,925 |
| 2015 | 131,799 |
| 2016 | 140,009 |
| 2017 | 150,176 |
| 2018 | 159,534 |
| 2019 | 172,009 |
| 2020 | 172,317 |
| 2021 | 208,669 |

**Reimbursement of costs associated with the collection and disposal of medicines by the Ministry of Finance of the Czech Republic**

Based on the amendment to the Medicines Act, since January 2003 the Ministry of Finance has been reimbursing 100% of the costs associated with the collection and disposal of medicines from pharmacies.

# **Calculation of fulfilment of the objective of separate concentration of municipal waste**

Pursuant to paragraph 3 of Section 59 of Act No. 541/2020 Coll., on Waste, the municipality isobliged to ensure that separately sorted recyclable components of municipal waste account for at least 60% of the total amount of municipal waste generated by it in the calendar year 2025 and subsequent years, at least 65% in the calendar year 2030 and subsequent years, and at least 70% in the calendar year 2035 and subsequent years. Separately concentrated recyclable components of municipal waste generated in the territory of the municipality by the activities of non-business natural persons that are not transferred to the municipal system,of which it is the generator, may also be included in the calculation of the ratio. Decree No. 273/2021 Coll., on details of waste management, further specifies the method of calculation of this objective in Annex No. 19.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Period of time | Total weight of municipal waste within the municipal system (t) | Weight of separately concentrated recyclable municipal waste component collected within the municipal system (t) | Weight of municipal waste generated in the territory of the municipality by the activities of non-business natural persons transferred outside the municipal system (t) | Weight of separately concentrated recyclable component of municipal waste generated in the territory of the municipality by the activities of non-business natural persons, transferred outside the municipal system (t) |
| Year 2021 | 407,461.7 | 98,987.38 | 26,257.48 | 23,699.87 |

|  |  |  |  |
| --- | --- | --- | --- |
| Calculation of the objective achievement: | (98,987.38 + 23,699.87) | x 100 | = 28.29% |
| (407,461.7 + 26,257.48) |

The data on municipal waste handed over by natural persons outside the municipal system were obtained from the reports of operators of waste collection facilities. Some of the reports were sent to the Prague City Hall from the establishments of very distant municipalities and it can therefore be concluded that these are erroneous reports, where the operator entered as the municipality of waste generation the place of permanent residence on the citizen's ID card and not the actual place of waste generation.

If we were to exclude the weights from such reports and include only data from the territory of the Capital City of Prague, the resulting value would be 27.43%.