Stockholms stad

The City of Stockholm's work to address the issue of plastics

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The city of Stockholm's work to address the issue of plastic

We encounter plastics everywhere in our daily life. Plastic is a practical and important material, and is found in many different products. But plastics also represent a challenge for a sustainable society – they contribute to climate change and the presence of microplastics in the natural environment. Plastic can also contain additives that are harmful to health and the environment.

The City of Stockholm takes a proactive approach to become resource-smart, climate-smart and chemical-smart. The creation of non-toxic and circular plastic flows is an important element of this work.

Within the City of Stockholm, environmental work, including the work with plastics, is organised as part of the city's environmental programme. The work is also concretised in the following strategies and action plans:

- The City of Stockholm's plastics strategy
- Action plan for the sustainable use of plastics 2021-2026
- Action plan for the reduced spreading of microplastics 2020-2024

The City of Stockholm's plastics strategy

The City of Stockholm's plastics strategy outlines the direction for how all the city's operations need to work in order to achieve a more sustainable use of plastics. The city also intends to inspire residents and businesses in Stockholm to contribute to sustainable plastic use, with the strategy as a starting point. The strategy is based on the five-step waste hierarchy, which is part of EU and Swedish legislation, and where the step with the highest priority is the prevention of waste.

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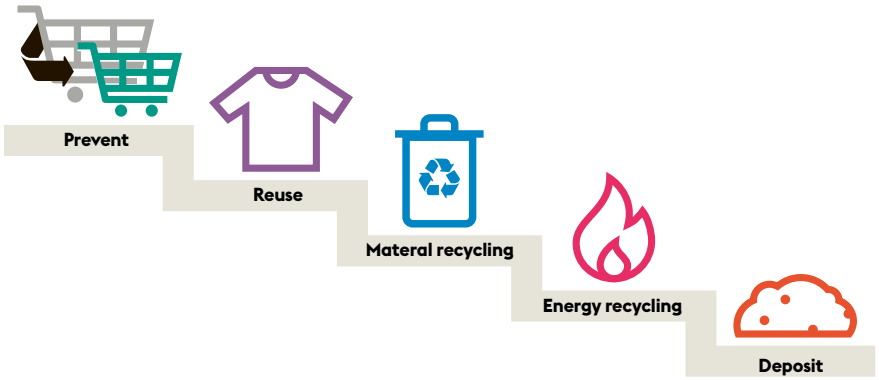
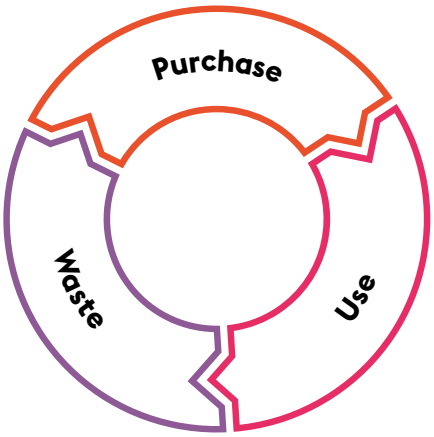


The essence of the plastics strategy is to ensure that decisions are made with as much environmental awareness as possible at every stage of the plastic life cycle: purchasing, usage and waste. The strategy applies to all sorts of plastics, from products and materials to packaging. The strategy involves the following aspects:



Purchasing

It is important to request articles, materials and packaging that are made from the most commonly recycled plastics in order to contribute to circularity of plastic materials.

The purchasing aspect of the plastics strategy provides an important foundation for the strategic purchasing as a tool, since it specifies how priorities should be made. As procurement purchasing affect both and usage and waste management, this phase has a crucial impact on how successful the implementation of the plastic strategy can be.

Environmentally-conscious decisions to make concerning procurement and purchase of plastic:

- Investigate the need for plastics before each procurement
- Replace or complement single-use products with reusable alternatives
- Request products made with materials other than plastics
- Request products made with recycled plastics
- Request products made with bio-based plastics
- Set requirements to ensure that the plastic that is purchased does not contain harmful substances
- Set requirements to ensure that the plastic that is purchased is recyclable
- Avoid compostable plastic

It is important to request articles, materials and packaging that are made from the most commonly recycled plastics, those for which there is a demand from the market, in order to contribute to circularity of plastic materials. One important factor in achieving this is to avoid mixed materials since those are difficult to recycle.

Use

To prevent waste and to reduce the use of plastics, all the city's operations must review their needs and routines before ordering and using plastic items. The list below provides guidance on how to accomplish this, together with suggestions of replacement materials.

Environmentally-conscious decisions to make concerning the use of plastic:

- Investigate the need for plastic prior to use, and avoid unnecessary plastic use
- Choose reusable and returnable alternatives instead of disposable items
- Choose products made with materials other than plastics
- Choose products made with recycled or bio-based plastic
- Ensure that plastic products and materials are only used for their intended purpose
- Ensure that plastic products and materials in outdoor environments do not contribute to littering or the spreading of microplastics
- Sort all plastics at source for recycling

It is still important that plastic products and materials are used where this is required by legislation, regulations or recommendations, such as protective equipment made with single-use plastics to safeguard basic hygiene procedures in health- and social care.

Waste

The goal is that no plastics should be incinerated, if not needed for example due to hazardous chemical content. Robust systems for reuse, as well as for the sorting and collection of plastic packaging and other plastics are needed to accomplish the goal.

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Environmentally-conscious decisions to make concerning waste management of plastic:

- Ensure that reusable plastics are used again
- Set requirements and follow up to ensure that collected plastics are recycled
- Ensure that plastics that contain hazardous substances are not reused or recycled

The city also needs to work at a more centralised level to ensure that systems are in place that enable plastic products and materials to be recycled and reused instead of being thrown away, as long as they do not contain harmful substances.

Action plan for the sustainable use of plastics

The city of Stockholm's action plan for the sustainable use of plastics was passed by the city council in 2022, and applies until 2026.

Every year, the citizens of and operations in Stockholm consume at least 100,000 tons of plastic products and packaging. Packaging represents a major part of this consumption. Other major parts are the plastics that are used in cars, building materials and electronics, as well as synthetic textiles and plastic consumables.

The city's own activities and operations entail significant consumption of plastics. A survey carried out for 2019 shows that at least 2,300 tons of plastic consumables had been purchased by the City of Stockholm. Some of the most common plastic consumables include gloves, diapers and incontinence protection, bags and sacks, single-use aprons, plastic folders, shoe covers and washcloths. Only a small percentage of the plastics purchased were bio-based or made from recycled materials. The main users of plastics within the City of Stockholm are health and social care operations, schools and preschools, as well as operations focused on sports. In addition to this, the city's construction operations use large amounts of plastics in their building and construction projects. Due to difficulties in obtaining information about all the plastic flows within the City of Stockholm's operations, it is not possible to gain a comprehensive picture of the city's consumption of plastics – for example, the amount of plastic packaging that passes through the city's operations is unknown.

Much of the plastics that are consumed every year, whether by Stockholm's residents and businesses or the city's operations, have a short lifespan and quickly become waste after use. Of the plastics that become waste, the majority goes to incineration (whereby it is converted into electricity and heat) and only a fraction of the material is recycled. Sweden has a national system for the collection and recycling of plastic packaging that is based on the concept of producer responsibility, but there are no established systems for most consumables or other plastic articles and materials.

The City of Stockholm's action plan for the sustainable use of plastics was passed by the city council in 2022, and applies until 2026. The 14 measures outlined in the action plan are based on the plastics strategy, and are divided into four chapters:

- procurement and contract management
- usage
- waste
- communication

Each of the measures states which committees or city owned companies are responsible for the respective measure, and the date by which it should be fully implemented.

The measures are primarily focused on consumables and packaging, as these account for a large part of the city's plastic consumption, and the city also has a major opportunity to influence the purchasing, use and disposal of these.

Measures for the sustainable use of plastics

Procurement and contract management

Procurement processes and the following-up of central contracts are key to ensuring a more sustainable use of plastics, which will make it easier for all of the city's operations to become more sustainable.

- Follow the city's plastics strategy in central procurements of consumables and other plastic-intensive article groups
- Follow the city's plastics strategy in order to promote sustainable packaging
- Require smart processing of waste bags
- Report on the purchases of plastic consumables

Usage

In order to achieve a more sustainable use of plastics in the city's operations, the plastics strategy needs to be communicated and increased support provided.

- Develop and communicate guidance material to the City of Stockholm's and independent actors' operations on how they can contribute to the sustainable use of plastics
- Follow the city's plastics strategy in the use of consumables
- As a pilot project, investigate the use of plastics in the building and construction sector in order to identify measures and requirements for sustainable plastic use

Waste

The sustainable use of plastics requires robust systems for the sorting, collection and recycling of all plastics.

- Survey the contractual situation regarding the collection of waste from departments and city owned companies where plastics are included
- Investigate how other plastics (than packaging) can be collected for increased recycling
- Procure central agreement for the collection of waste where plastics are included for use by both departments and city owned companies
- Report how much plastic has been collected for recycling and waste incineration, respectively.

Communication

Communication enables residents and buisnesses in the City of Stockholm to make a greater contribution to the transition to the sustainable use of plastics in society at large.

- Develop a plan and communicate the sustainable use of plastics, with residents as a target group
- Develop a plan and communicate the sustainable use of plastics, with the business sector as a target group

Action plan for the reduced spreading of microplastics

The occurrence of microplastics is higher in Stockholm than in smaller cities and rural areas as a result of urban density, a higher level of activity and a greater number of sources. As part of the work to reduce the spreading of microplastics, a study was conducted to identify the main sources and dissemination pathways for microplastics in the Stockholm area. Although there are uncertainties in a large part of the data that formed the basis for identifying the various sources of microplastics several sources have been quantified for the city.

The occurrence of microplastics is higher in Stockholm than in smaller cities and rural areas as a result of urban density, a higher level of activity and a greater number of sources.

- **Tyre wear** is considered to be the largest source of microplastics, where spreading occurs primarily via surface runoff, sludge and wastewater.
- **Littering** in public spaces and from construction processes is considered to be a major source of microplastics, which are primarily spread via surface run off.
- **Synthetic textiles** wear out when washed and plastic fibres are spread via wastewater and sludge. This wear is regarded as a medium-sized source.
- **Artificial grass sports fields and similar surfaces** are also a medium-sized source. The microplastics are transported via surface runoff, sludge and wastewater.
- **Painted road markings** are considered to be a medium-sized source due to the relatively large amount of paint that is purchased.

The microplastics from Stockholm are transported to the sea via our lakes and waterways, but they also remain in the water close to the city. Studies have shown that microplastics occur in both the sediment and water in Lake Mälaren, which is not only Stockholm's largest lake but also the source of the city's drinking water. Stockholm is a city that is surrounded by water, and it is therefore important to protect the water from any increase in the spreading of microplastics.

The action plan for the reduced spreading of microplastics was passed by city council in 2020, and applies until 2024. The plan includes 50 measures in 13 different areas, and focuses on both the sources of microplastics and the dissemination pathways.

The target group for the action plan is activities and operations within the city's departments and in city owned companies. For each measure, a decision has been made concerning the date by which it shall have been implemented, and stipulating which department, company and/or function will be responsible for its implementation.

Measures for the reduced spreading of microplastics

Tyres and products for road markings

Rubber particles that are worn away from car tyres are considered to be one of the largest sources of microplastics in Stockholm.

- Conduct a feasibility study on the evaluation and development of existing road marking products containing polymers.
- Follow the research and projects conducted by the Swedish National Road and Transport Research Institute and the Swedish Transport Administration, and apply the proposed measures that are relevant to the city.
- Conduct information campaigns regarding ECO driving.

Littering

Littering is considered to be one of the largest sources of microplastics in the environment. Particles are primarily spread via surface runoff, sludge and wastewater.

- Develop existing methods for measuring and estimating the amount of (plastic) litter in the urban environment.
- Reduce the consumption of single-use plastics that generates litter.
- Review the city's procured assortment of single-use plastic products.
- Review and invest in the infrastructure of litter bins.
- Implement and follow up the strategy for increased recycling and reduced littering of plastics in the urban environment.
- Implement awareness-raising measures in schools (including upper secondary schools and preschools), such as litter-picking activities and information campaigns.
- Introduce local clean-up work for students in summer holidays.
- Implement awareness-raising measures featuring 'nudging', and work in collaboration with the Keep Sweden Tidy Foundation
- Employ newly-arrived immigrants and the long-term unemployed as local hosts
- Increase the amount and efficiency of clean-up activities in public spaces.
- Follow up on litter-picking before park maintenance such as mowing the grass.
- Set requirements for events aimed at reducing littering.
- Follow up on the results from the EU project 'BLASTIC: Plastic Waste Pathways into the Baltic Sea'.
- Conduct pilot projects or investigations regarding water-based facilities or barriers for the automatic collection of litter in aquatic environments.

Buildings, infrastructure, maintenance and construction work

Construction, renovation and demolition work generates plastic waste of various kinds, which, if not managed properly, can lead to littering and be released into the environment.

- Arrange seminars on how the unintentional spreading of building materials to the surrounding environment during the construction process can be minimised.
- Set requirements for construction sites to be free of waste.
- Investigate the role of the environmental department in tackling the problem of waste on construction sites.
- Work to promote increased circularity.

Artificial grass, fall-protection surfaces, and other sports and play areas

The rubber granules that are found in artificial grass sports fields are a source of the spreading of microplastics. Granules are also dispersed from cast-in-situ rubber play surfaces, and are found in high concentrations in sediments in surface runoff drains.

- Apply the recommendation for artificial grass, rubber granules and cast-in-situ rubber.
- Contribute to the development of new materials.
- Organise seminars and conduct communication activities on reducing the spread of microplastics from artificial grass and other surfaces coated with plastics.
- Include controls for the spreading of microplastics in inspections.
- Monitor and investigate the spreading of microplastics from artificial grass and other outdoor facilities for sports and play.

Textile washing

Synthetic textile fibres that are released during washing have been shown to be a source of microplastics in the environment.

- Set requirements for materials in procurements of work-clothing and other textiles that will be washed regularly in order to reduce the spreading of microplastics
- Inform the city's residents of how smart laundry management reduces the spreading of microplastics
- Ensure that there are filters that capture microplastics when purchasing new washing machines.

Waste management

Waste management can contribute to the occurrence and spreading of microplastics in several ways.

- Investigate microplastics in leachate/surface runoff water from sorting plants
- Measure microplastics in surface water, ground water and leachate water at the Lövsta waste management facility.
- Test for microplastics in digestate/biofertiliser.

Anti-fouling paint and other sources linked to boating activities

Paint used on boats loses its adhesion either through wear or during maintenance, and contributes to the presence of microplastics.

- Include the issue of microplastics in inspections of boat clubs and marinas.
- Continue to share information with boat clubs and boat owners about how the maintenance of boats can be made more environmentally friendly, and about the possibility of replacing plastic boating equipment with natural materials.
- Work to encourage the installation of closed-system brush washers (collection basin).
- Follow up results from studies and research within the field.
- Follow up the environmental work within commercial shipyards in order to ensure the correct functioning of Sinstalled treatment systems.

Chemical and cosmetic products

Microplastics can exist as additives in both chemical and cosmetic products.

- Apply lessons learned from inspections, and follow national work to increase knowledge about microplastics in chemical and cosmetic products.
- Follow up procured assortments, and review procurement requirements.
- Inform residents about avoiding cosmetic products that contain microplastics.

Plastics management in various operations

Plastic granules can be used, for example, in blasting and tyre washing, and in dishwashers in commercial kitchens. Flakes of plastic paint can be dispersed during the washing of roofs.

- Draw attention to the issue of managing plastics and polymers, and the possible risk of the spreading of these, in the inspection of operations.
- Investigate whether the polymers used in certain operations should be considered to be microplastics, and, if so, how their spreading can be reduced.
- Ensure that plastic granules are not used in graffiti removal, and examine the contents of waxes used in anti-graffiti protection.

- Conduct an information campaign targeted at businesses that perform roof washing, tyre washing and blasting with plastic granules.
- Investigate the use of plastic granules in dishwashers in the city's commercial kitchens.

Surface runoff and strategic overflow

Surface runoff is an important path for the transportation of microplastics in the urban environment.

- Participate in projects where the efficiency of treatment plants for surface runoff water regarding the treatment of microplastics is evaluated.
- Investigate whether, how and where the city's surface runoff water can and needs to be cleaned from microplastics.
- Work to promote a relative reduction in strategic overflows.

Sludge and wastewater treatment plants

Both major and minor sources of microplastics are spread via wastewater and sludge.

- Monitor and follow the ongoing research concerning the environmental effects of microplastics on agricultural land, as well as the development of sludge treatment.

Airborne deposition

Concentrations of microplastics in the air are believed to be higher in urban areas.

- Investigate the amount of microplastics in the air.

Snow management and uptake of grit

Snow and road grit can serve as pathways for microplastics.

- Secure sites that can be used for long-term snow storage, and adapt these so that the spreading of microplastics is avoided.
- Analyse dumped snow and swept-up road grit/sand for the presence of microplastics.
- Follow technological developments and explore the opportunities to treat dumped snow and swept-up grit.

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