Stockholms stad

Climate Action Plan 2030

A just transition for a Stockholm with no global carbon footprint

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Leading the world in a just climate transition

Humanity and the planet are facing a profoundly serious crisis for the climate, and that crisis requires action. The City of Stockholm aims to demonstrate global leadership through a rapid phasing out of fossil energy and a significantly reduced carbon footprint from consumption.

If the ambitious climate goals are to be achieved, society needs to undergo a rapid transition. This transition must be just, and it must take place with due consideration of people's different situations. One important principle is that those who emit the most need to accept greater responsibility and reduce their emissions the most. In the City of Stockholm, we want to accelerate a just transition, because the negative effects of a transition that is slowed down or simply does not happen result in increased injustice, with vulnerable groups suffering the most. Residents must be given an opportunity to be involved in work on the transition.

The City of Stockholm's Environment Programme 2030 sets out the goals, and the Climate Action Plan 2030 describes concrete measures to achieve them. This Climate Action Plan includes approximately 150 measures in five areas of transition. The plan is designed to mobilise the City's huge organisation to meet the ambitious climate goals through concrete action. At the same time, new opportunities to move faster will be explored all the time, using communication and innovation as important lubricants.

Stockholm has made a lot of progress in its work to reduce greenhouse gas emissions through targeted measures and a broad level of engagement. This not only contributes to a more sustainable planet, but also makes our city more attractive and vibrant. Through high ambitions and initiatives to reduce emissions, Stockholm is becoming an even better place in which to live and work, while also inspiring other cities to follow our example.

But this work is far from over. To truly be at the forefront and be a role model, additional effort and collaboration are required. We are facing a challenge where our climate goals need to be translated into concrete action at all levels.

Collaboration has never been more important. The City's well-established partnerships with academia, business, civil society and residents must be further enhanced. Together, we make a rapid and just transition possible.

Karin Wanngård — Mayor of Stockholm

Åsa Lindhagen — Vice Mayor for Environment and Climate

Summary

Climate change is a serious, growing threat to humanity. The climate crisis is closely linked to the loss of biodiversity, and these issues therefore need to be addressed together. Stockholm is a city that assumes responsibility for reducing its global carbon footprint. This applies not only to emissions that occur in Stockholm, but also those that occur outside the city and are caused by consumption. The City has high ambitions, while local emissions are affected by decisions made by a number of actors at national, EU and global levels.

The City's Environment Programme 2030 sets out the climate goals that have to be achieved for Stockholm's climate transition. The overarching climate goals are *A just, inclusive transition* and *A Stockholm with no global carbon footprint*. There are also milestones under these. Climate Action Plan 2030 is a policy document for the entire organisation of the City of Stockholm that concretises how the climate-related goals in the Environment Programme can be achieved.

A Stockholm with no global carbon footprint means that greenhouse gas emissions within the City's geographical area must be reduced significantly, while carbon dioxide needs to be captured and stored instead of circulating. It also entails a responsibility to reduce those emissions that occur in other parts of the world as a consequence of consumption from operations and residents in Stockholm. Consumption must be reduced to sustainable levels and behaviour, choices of material, consumption patterns and business models need to be developed and changed to enable circular flows. The City of Stockholm also aims to be a role model for a just, inclusive climate transition.

The City of Stockholm has long been working successfully on the climate issue. Since 1990, greenhouse gas emissions from energy use and transport within Stockholm's geographical area have decreased by approximately 70% per resident. Major challenges remain in making the transition in the transport sector, phasing out fossil plastics, and capturing and storing carbon dioxide that would otherwise circulate in the atmosphere. In addition, the City of Stockholm is further raising its ambitions by increasing the focus on reducing consumption-based emissions. Emissions associated with consumption are more than five times greater than emissions from energy use and transport in Stockholm.

To manage climate change and be a role model, changes must take place across a broad area. Technology, infrastructure, regulatory

frameworks, behaviour and business models need to be developed, in collaboration with business, academia, civil society and residents.

The City's climate work is to take place in five designated *transition areas*, which are:

- Work to achieve a just, inclusive transition.
- Develop a climate-positive energy system.
- Encourage sustainable, fossil-free transport.
- Plan, build and develop the City in a circular and sustainable way.
- Promote consumption with a low climate impact in the City's own organisation.

These areas have been identified based on the City's work processes and aim to achieve the necessary pooling of resources required to achieve the climate goals. One of the purposes of working in transition areas is to develop and enhance collaboration between the relevant councils, committees and executive boards within the City's organisation. There also needs to be collaboration with business, academia, other public sector actors and civil society in order to achieve the ambitious climate goals.

Each of the transition areas is described in a dedicated section. At the back of the action plan, there is a list of around 150 measures, divided into the five transition areas, which aim to contribute to achieving the climate goals by 2030. Councils, committees and executive boards are designated to assume responsibility for each measure. As the City's climate goals are extremely ambitious, and the world at large is changing, the portfolio of measures needs to be further developed on an ongoing basis. New measures will be gradually generated in the five transition areas. The measures described in this Climate Action Plan are dealt with in the City's budget and follow-up process, as are suggestions for additional measures.

The climate transition involves major investments in the transport sector, waste management, urban development, and energy, water and wastewater systems. The City needs to work actively to seek external sources of funding from the state and the EU, especially in cases where investments cannot be funded by higher revenues or lower costs. The aim is that the City shall achieve its ambitious climate goals, but will also be an international role model that inspires other cities.

The climate is changing – the situation is urgent

The climate is changing, and this affects us both in Stockholm and globally. In Stockholm, residents may experience not only longer heatwaves and periods of drought, but also flooding due to high flows, heavy rainfall and rising sea levels. There may also be indirect impacts in areas such as food safety, the economy and migration. Globally, climate change is having a particular impact on people in parts of the world that are already poor and vulnerable.

The Paris Agreement saw the countries of the world agree that the global temperature increase must be kept below 2°C, with the aim of limiting it to max. 1.5°C. At current global emission levels, the limit of 1.5°C warming will be reached by 2030. The situation is urgent and it requires all countries and cities to do their utmost to make a rapid transition.

Stockholm's global carbon footprint

Climate change is a serious, growing threat to humanity. Stockholm is a city that accepts responsibility for reducing its global carbon footprint and enables everyone in the city to live sustainably and participate in the climate transition based on their ability and life situation. The Climate Action Plan describes Stockholm's climate transition from now until 2030.

A Stockholm with no global carbon footprint means that greenhouse gas emissions[1] within the city's geographical area will be reduced significantly, while carbon dioxide needs to be captured at the source of emissions so that it is not released into the atmosphere. It also entails a responsibility to reduce emissions that occur in other parts of the world as a consequence of consumption from businesses and residents in Stockholm. The City of Stockholm also aims to be a role model for a just, inclusive climate transition.

Stockholm is part of a growing and innovative region. And while Stockholm is growing and developing, emissions need to be reduced. Growth needs to be based on renewable energy and a resource-efficient, circular economy. Stockholm's emissions are largely affected by decisions made by other actors at national, EU and global levels.

Climate change requires the entire city to work together in new ways. Clear leadership and continuous skills development are crucial. There is a need for innovation in technology, regulatory and infrastructural development, and changes in behaviour and consumption patterns if the climate goals are to be achieved. Close collaboration between the City and residents, businesses, other public bodies, academia and civil society is a necessary precondition for success.

Stockholm must be a city where climate action is combined with long-term economic stability. Business models and regulatory frameworks should reward consumers and producers who reduce their carbon footprint. Climate transition involves major investments. Resources will be required to boost skills and develop new ways of working. In cases where investments cannot be financed by higher revenues or lower costs, the City must actively seek external sources of funding from the state and the EU.

[1] Greenhouse gas emissions are expressed in carbon dioxide equivalents (CO_2e), which is a unit to measure the overall climate impact of different greenhouse gas emissions (such as carbon dioxide, methane and nitrous oxide).

Stockholm is affected by climate goals and legislation in both Sweden and the EU. Being at the forefront makes Stockholm a role model that drives the development of tougher goals, thereby contributing to faster reductions in emissions nationally, within the EU and globally.

The City, the City of Stockholm or Stockholm – what's the difference?

The City or the City of Stockholm refers to the municipal organisation.

Stockholm refers to everything within the geographical area of the City of Stockholm and its residents.

The City of Stockholm's climate goals

The City's Environment Programme 2030 sets out the City's environmental goals. The Climate Action Plan shows the way to achieve the climate-related goals (goal 1 *A just, inclusive transition* and goal 2 *A Stockholm with no global carbon footprint*).

Different aspects of Stockholm's climate impact are captured through a total of seven milestones. There is, however, some overlap between the goals. Towards the end of the action plan there is a more detailed description of the emissions included in the various milestones, as well as how accounting of negative emissions through bio-CCS should be done in order to ensure integrity between actors.

There are other goals in the Environment Programme that have a close link to the climate goals, including the Environment Programme's goal 5 *A resource-efficient, circular Stockholm*. Working with goal 5 is a precondition for achieving the climate goals.

The climate goals should also be viewed in relation to the Environment Programme's goal 3 *A Stockholm with viable ecosystems* and goal 4 *A resilient Stockholm*. There are opportunities for synergies here, especially through the green structure of the city being able to sequester carbon dioxide and also alleviate the effects of heavy rainfall and heatwaves. Risks associated with climate change need to be analysed on an ongoing basis, for example in terms of infrastructure vulnerability. Work on climate adaptation is described in a specially adopted action plan for climate adaptation.

Climate goals in Environment Programme 2030	
Goal 1. A just, inclusive transition	
Milestone 1.1 **The City's** operations reinforce a just transition	This milestone means that the City's operations are structured to promote the transition to a more sustainable, resource-efficient society that takes the justice perspective into account. The measures implemented shall contribute to a more inclusive and equal society, and not create greater injustices between different individuals and groups. Vulnerable groups must be protected.
Milestone 1.2 Stockholmers are involved in the transition	This milestone means that the City shall enhance the opportunities for residents to participate and engage in the climate transition. The City needs to ensure that all groups in society have the opportunity to participate in and influence sustainable development.
Goal 2. A Stockholm with no global carbon footprint	
Milestone 2.1 A Stockholm that is climate-positive by 2030 and fossil-free by 2040	By 2030, the remaining emissions in Stockholm's geographical area shall not exceed 0.6 tonnes carbon dioxide equivalents (CO_2e) per resident. Negative emissions must be greater than the remaining emissions.
Milestone 2.2 Reduced climate impact from the transport sector	Emissions from the transport sector in Stockholm's geographical area shall be reduced by 80% by 2030 (compared with 2010).
Milestone 2.3 A fossil-free organisation in 2030	Fossil fuels shall be phased out of the City's own and procured operations.
Milestone 2.4 A halving of emissions from consumption	Consumption-based greenhouse gas emissions in Stockholm shall be halved by 2030 compared with 2019.
Milestone 2.5 Reduced climate impact from food	This milestone involves a rapid transition in the way meals served in the City of Stockholm's operations are planned, procured and followed up in order to reduce their climate impact. The City shall create the conditions for Stockholmers to eat good, healthy and climate-smart food.

Emission budget sets the pace in reducing emissions

An emissions budget is one way of illustrating the total volume of greenhouse gases that can be emitted into the atmosphere for the Earth to remain below a given temperature increase. The UN's Intergovernmental Panel on Climate Change (IPCC) has developed global emissions budgets to keep the global temperature increase to a maximum of 1.5 degrees (with different levels of likelihood).

This action plan defines a local emissions budget for Stockholm as a complement to milestone 2.1 *A Stockholm that is climate-positive by 2030 and fossil-free by 2040*. The budget complements the climate goal by describing the total volume of emissions in carbon dioxide equivalents (CO_2e) that may be emitted on the way to achieving the goal. Stockholm's emissions budget 2024–2040 states that a maximum of 9 million tonnes CO_2e may be emitted for the period 2024–2040. This is a raising of ambitions compared with the City's previous Climate Action Plan. If emissions are not reduced according to defined emission goals for specific goal years, even greater reductions will be required at a later stage to meet the carbon budget.

The budget also visualises the trend in negative emissions that needs to take place if Stockholm is to be climate-positive by 2030. Negative emissions mean that carbon dioxide is actively removed from the atmosphere.

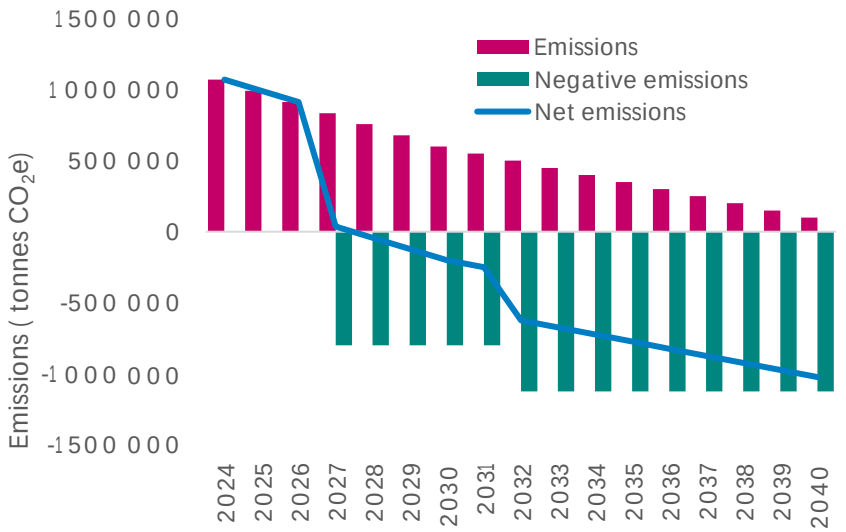

Figure 1. Stockholm's emissions budget 2024–2040 based on milestone 2.1 *A Stockholm that is climate-positive by 2030 and fossil-free by 2040*.[2]

Climate justice from several perspectives

Goal 1 *A just, inclusive transition* in Environment Programme 2030 is about the City's work on climate justice at a local level, where the City of Stockholm aims to lead a just, inclusive climate transition. Goal 2 *A Stockholm with no global carbon footprint* is about how the City aims to assume a just responsibility to reduce emissions at a global level.

Climate transition cannot be viewed in isolation, it actually affects all parts of society. If Stockholm is to be climate-positive, it must be achieved in a way that does not deepen existing social and economic injustices. Measures and instruments must be designed in synergy with the City's other goals. This will enable the climate transition to take place locally in a just way. In the City of Stockholm, we want to accelerate a just transition, because the negative effects of a transition that is slowed down or simply does not happen result in increased injustice, with vulnerable groups suffering the most. Climate justice is also about all residents and operations needing to contribute, and those that use the most natural

[2] The emissions budget presents a schematic view of the trend in annual emission reductions, assuming a linear reduction in emissions. The increase in negative emissions is expected to take place in stages, as the trend is strongly linked to the commissioning of large facilities for capture and storage of carbon dioxide at the City's biofuel-fired CHP plants. The precise commissioning dates are uncertain. Additional carbon capture may come from CHP production from waste which, if introduced, may result in progressively significant reductions in fossil emissions. This is not, however, reflected in the schematic figure. In addition, there may be potential in creating carbon sinks by co-incinerating sludge and biofuel in CHP plants and then returning the phosphorous-rich ash to the forest, thereby increasing forest growth.

resources and cause the greatest climate impact needing to implement the biggest reductions.

Another aspect of local climate justice is protecting society's most vulnerable[3] groups against climate change, such as the elderly and children, for example by taking action to reduce their vulnerability to heatwaves.

Globally, climate justice means, among other things, that those countries that have historically emitted the most should assume greater responsibility for reducing emissions and helping those most affected by climate change. It is also about protecting future generations and adopting a children's rights perspective.

The UN has decided that climate justice should govern how responsibility for reducing emissions is to be distributed among the countries included in the Paris Agreement. There is, however, no consensus on how climate justice should be interpreted. Researchers at Linköping University have analysed how Stockholm can interpret global climate justice. If justice is to be interpreted strictly based on historical emissions, Sweden and Stockholm have long exhausted their emission space and there is a large emission liability[4]. Stockholm therefore has a responsibility to rapidly reduce emissions.

[3] 'Vulnerable groups' refers to people or population groups who live in a vulnerable situation and may therefore need society to provide special support and protection. These groups may suffer more negative consequences due to, for example, socioeconomic circumstances, disability, age, ethnicity, gender or homelessness.

[4] Klimatansvar i Stockholms stad (Climate responsibility in the City of Stockholm), Linköping University 2023 https://liu.diva-portal.org/smash/get/diva2:1810789/FULLTEXT01.pdf

Did you know that...

The City of Stockholm has signed two climate contracts to become climate-neutral by 2030: a national contract with 22 other cities and six government agencies, and a European contract in which Stockholm is one of 112 cities participating in the EU Mission on Climate-Neutral and Smart Cities 2030.

The EU Commission awarded Stockholm a so-called *Mission Label* in 2023, which represents approval of the City's Climate Action Plan and increased opportunities for EU funding.

The City of Stockholm raises the level of ambition

The City of Stockholm has long been working successfully on the climate issue. Since 1990, greenhouse gas emissions from energy use and transport in Stockholm have fallen by approximately 70% per resident. By increasing the focus on reducing consumption-based emissions, the City of Stockholm is further raising its ambitions.

The climate impact of cities can be described in different ways. The most common way is to monitor the trend in emissions from energy use and transport within a city's geographical area. Historically, Stockholm has focused on reducing these emissions.

A complementary approach is to monitor the trend in so-called consumption-based emissions, which refers to all emissions from the consumption of residents, no matter where in the world the emissions take place. Consumption-based emissions are generally more challenging for a municipality to work with and monitor.

Emissions from energy use and transport in Stockholm

Emissions from energy use and transport were 1.2 tonnes CO_2e per resident in 2023[5], which corresponds to total emissions of just under 1,200,000 tonnes CO_2e. By 2030, the aim is that emissions will continue to fall, while carbon dioxide is captured and stored permanently, achieving negative emission levels within Stockholm's geographical territory.

In addition to Stockholm being climate-positive by 2030, Stockholm also aims to be fossil-free by 2040 (milestone 2.1). In 2023, about one fifth of energy used in Stockholm was fossil-based. The biggest proportion of fossil fuels is used in the transport sector, followed by fossil plastics in waste incinerated at CHP plants that extract energy.

[5] Emissions covered by milestone 2.1 A Stockholm that is climate-positive by 2030 and fossil-free by 2040.

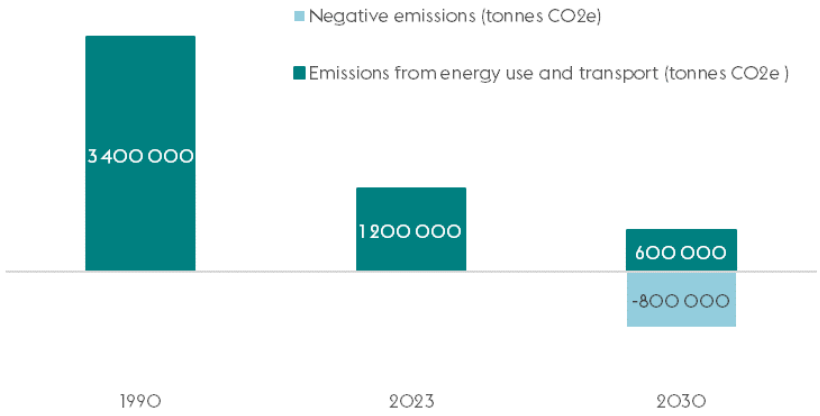

Figure 2. Emissions from energy use and transport in Stockholm in 1990 and 2023. The bar for 2030 is the target based on the City's climate goals (milestone 2.1 A Stockholm that is climate-positive by 2030 and fossil-free by 2040).

The transport sector accounts for about half of the emissions in Stockholm. This is where the biggest reduction in emissions needs to happen. The City has a goal (milestone 2.2) that emissions shall be reduced by 80% by 2030 compared with 2010. The distribution of emissions from energy use and transport in Stockholm is shown in Figure 3 below.

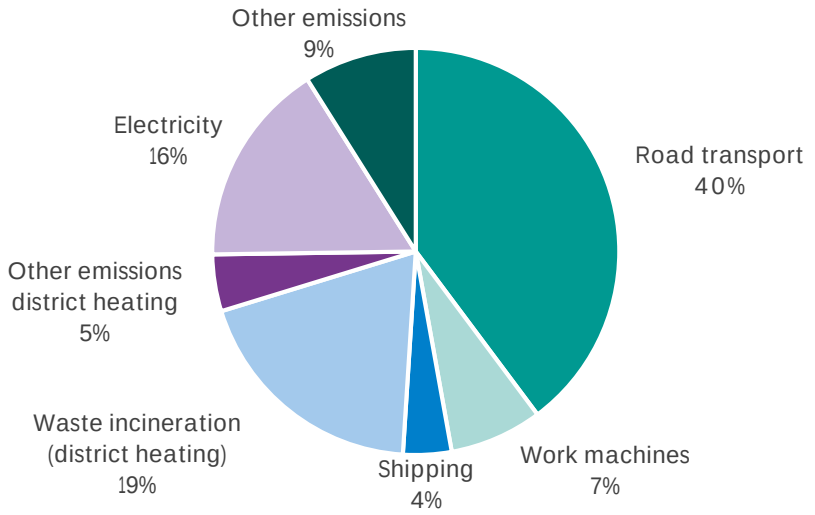

Figure 3. Distribution of emissions included in milestone 2.1. Transport accounts for about 50% of total emissions, with road transport accounting for the majority of these. Emissions from district heating consist largely of fossil plastic in waste incineration. Other emissions include methane and nitrous oxide emissions from the wastewater treatment process, emissions from individual oil boilers and backup power plants, and emissions from gas use.

Climate impact from consumption – a different perspective

Since 2023, the City has raised the level of ambition level in its climate work, by such means as increasing its focus on reducing consumption-based emissions. Consumption-based emissions[6] are the total emissions linked to goods and services that are consumed in Stockholm, no matter where production took place. Emissions from the total consumption of Stockholmers are significantly higher than direct emissions from energy use and transport alone within Stockholm.

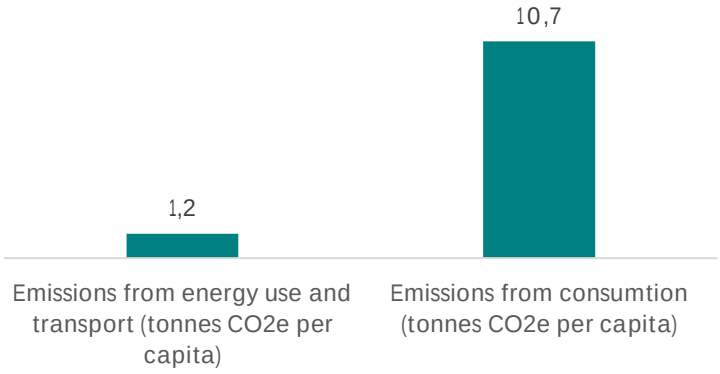

Figure 4. Bar 1 shows emissions from energy use and transport in Stockholm (emission data from 2023) calculated in tonnes per resident. These are emissions included in milestone 2.1. Bar 2 shows emissions from consumption (emission data from 2019) calculated in tonnes per resident. These are emissions included in milestone 2.4.

Consumption-based emissions were 10.7 tonnes CO_2e per resident in Stockholm in 2019.[7] According to the City's milestone 2.4, A halving of emissions from consumption, these emissions must be halved to 5.4 tonnes per resident by 2030.

Most of the emissions, about 65%, come from household consumption. The remaining emissions, about 35%, come from public consumption[8] and emissions linked to public sector and business purchases, as well as investments in areas such as buildings, machinery and roads.

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[6] According to the Swedish Environmental Protection Agency, consumption-based emissions include emissions that take place in Sweden and abroad to satisfy demand in society in the form of household consumption, public sector consumption and investments in society (buildings, infrastructure). The same principle is adopted for Stockholm's consumption-based emissions.

[7] According to data from the Consumption Compass at the Stockholm Environment Institute (SEI).

[8] Public consumption is equivalent to the goods and services that schools, hospitals and government agencies, for example, buy in order to run their operations.

Emissions from the food sector account for around 20–30% of the total global climate impact. In Stockholm, household food consumption accounts for about 15% of consumption-based emissions. There are also emissions from public meals such as those served in schools and elderly care services.

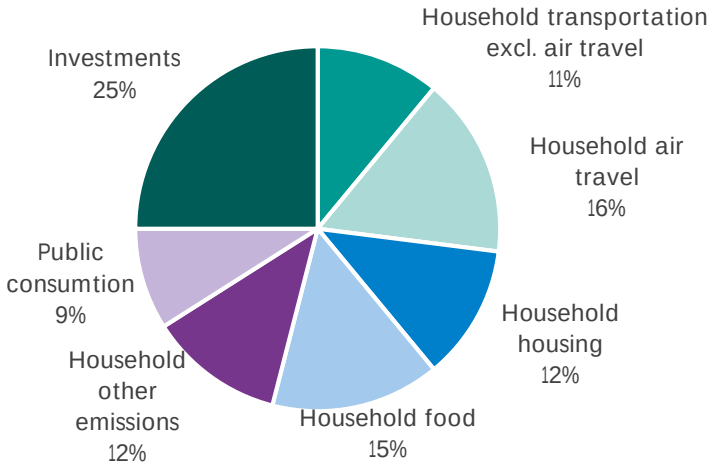


Figure 5. Distribution of emissions from consumption.

Emissions from household consumption differ widely between different postal codes in Stockholm, from four to 18 tonnes per resident on average. This is mainly due to differences in income and thereby differences in consumption space.

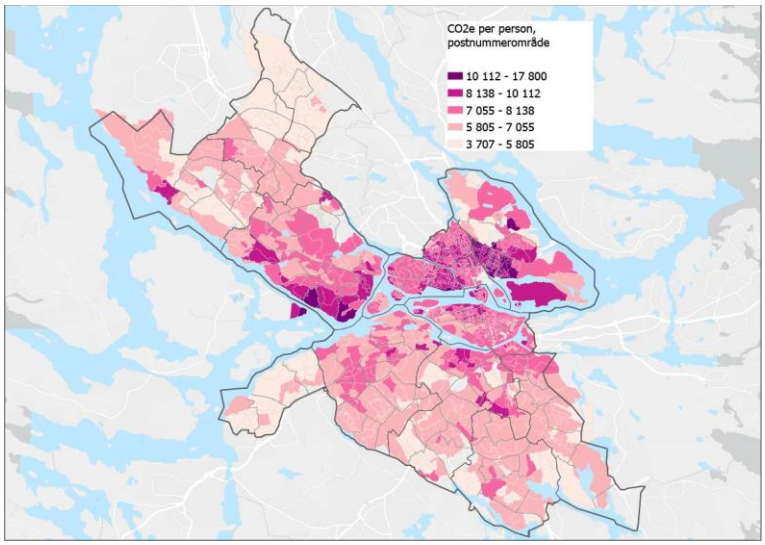


Figure 6. Emissions in (CO_2e) per person, per postal code area in the City of Stockholm. Image based on data from the Consumption Compass at the Stockholm Environment Institute (SEI)[9] 2022.

[9] The statistics in the Consumption Compass are based on a number of different methods and base data in order to enable a breakdown of emissions into different consumption categories (over 110) at postal code level; read more at https://www.sei.org/tools/konsumtionskompassen/

Differences in emissions between postal code areas can serve as a starting point in determining how the City can work towards more sustainable consumption patterns and good living standards throughout Stockholm.

Climate impact from the City of Stockholm's consumption

In order to achieve milestone 2.4 *A halving of emissions from consumption* in Environment Programme 2030, the City's councils, committees and executive boards must strive to achieve a halving of the climate impact from purchasing by actively working with measures linked to the entire purchasing process.

Every year, the City purchases goods, services and construction projects for huge amounts. This means a climate impact that the City is in a very good position to influence, for example by specifying requirements for procurement, increasing resource-efficiency through recycling, sharing and repair services, and selecting goods with a lower climate impact when purchasing from contracts. The climate impact from the City's purchases corresponded to a total of approximately 1,500,000 tonnes CO_2e in 2021, according to an environmental spend analysis.[10] Construction and civil engineering contracts account for about one third of emissions. Emissions from the largest categories are shown in the figure below.

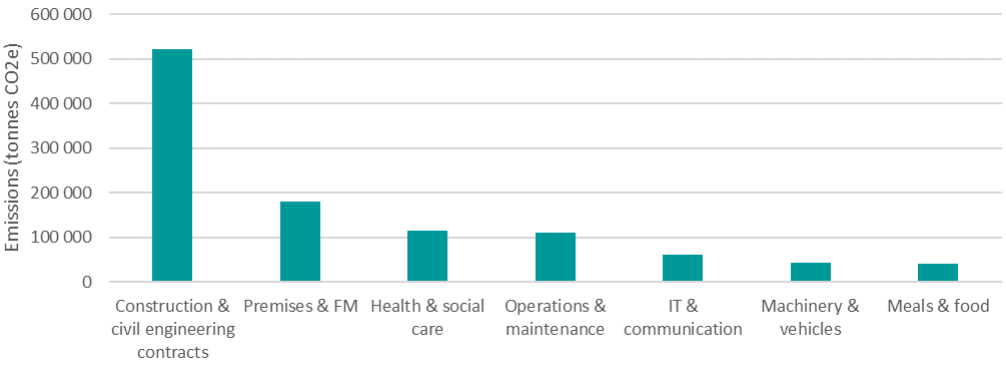


Figure 7. Emissions for each of the largest purchasing categories in 2021. FM stands for Facilities Management and includes the maintenance, management and development of properties. Machinery and vehicles only includes purchases of machinery and vehicles. Other emissions linked to transport are included in all categories.

What is an environmental spend analysis?

The environmental spend analysis is a method for calculating, among other things, the general climate impact from public purchases, and was developed by the Swedish National Agency for Public Procurement. The environmental spend analysis shows the size of the climate impact from different purchasing categories. It is calculated by multiplying every Swedish krona spent in a category by an emission factor.

The method is currently based on general data and therefore provides a general response to climate impact, linked solely to purchasing totals. The method cannot be used for follow-up at present.

[10] The environmental spend analysis is a method for calculating, among other things, the general climate impact from public purchases, and was developed by the Swedish National Agency for Public Procurement.

The climate impact from the City’s purchases broken down by council, committee and executive board according to the environmental spend analysis is described in the chapter on Governance, implementation and follow-up.

Five areas of transition that point the way

The City's climate work is described in five areas of transition. These areas have been identified based on the City's work processes, and the aim is that together they shall create the necessary pooling of resources required to achieve the climate goals.

The purpose of working in transition areas is to develop and enhance collaboration between the councils, committees and executive boards concerned in the City's organisation. There also needs to be collaboration with business, academia, other public sector actors and civil society in order to achieve the ambitious climate goals. The five transition areas are:

1. Work to achieve a just, inclusive climate transition
2. Develop a climate-positive energy system
3. Encourage sustainable, fossil-free transport
4. Plan, build and develop the City in a circular and sustainable way
5. Promote consumption with a low climate impact in the City's own organization

These transition areas are described in more detail in the following sections, while concrete measures for each transition area are described in tables at the end of the action plan. Councils, committees and executive boards are designated as responsible for each measure. As the City's climate goals are extremely ambitious, and the world at large is changing, the portfolio of measures needs to be further developed on an ongoing basis.

The table below lists the milestones in the Environment Programme to which each transition area primarily contributes. Work within one transition area can thus contribute to multiple milestones, and there is not always a clear demarcation between them.

Transition areas	Milestone 1.1 The City's operations reinforce a just transition	Milestone 1.2 Stockholmers are involved in the transition	Milestone 2.1 A Stockholm that is climate-positive by 2030 and fossil-free by 2040	Milestone 2.2 Reduced climate impact from the transport sector	Milestone 2.3 A fossil-free organisation	Milestone 2.4 A halving of emissions from consumption	Milestone 2.5 Reduced climate impact from food
Work to achieve a just, inclusive climate transition	●	●	●	●		●	●
Develop a climate-positive energy system			●				
Encourage sustainable, fossil-free transport	●		●	●	●	●	
Plan, build and develop the City in a circular and sustainable way			●	●		●	
Promote consumption with a low climate impact in the City's own organisation				●		●	●

1. Work to achieve a just, inclusive climate transition

Transition area 1 contributes to these climate goals:

Milestone 1.1 The City's operations reinforce a just transition

Milestone 1.2 Stockholmers are involved in the transition

Milestone 2.1 A Stockholm that is climate-positive by 2030 and fossil-free by 2040

Milestone 2.2 Reduced climate impact from the transport sector

Milestone 2.4 A halving of emissions from consumption

Milestone 2.5 Reduced climate impact from food

It is 2030, and climate work has contributed to a more inclusive and just society. More jobs have been created to promote the transition and urban planning measures have contributed to attractive urban environments. The City's collaboration with business and civil society is characterised by active engagement with the climate issue. In 2030, greenhouse gas emissions from consumption by Stockholmers have been halved. The biggest reductions have been made among those who previously emitted the most.

The City should enhance the opportunities for residents to participate and engage in the climate transition. The local perspective is an important starting point, and the City needs to invite collaboration with residents, civil society and the local business community. An enhanced focus on climate work in city district councils is one of the preconditions for work on the climate transition to succeed at the local level. The City should develop local arenas for collaboration, where the municipality, the business community and civil society work together to implement measures and achieve goals around climate and health more quickly.

A just climate transition with broad societal support and a broad range of perspectives is founded on good communication. There is a need to raise ambitions around communication and dialogue in order to reach more people, including groups that are difficult to reach at present.

The City of Stockholm should use its role as an employer and work to ensure that all employees and managers contribute to the climate transition. The City should support the development of more jobs that promote the green transition, while helping groups in a vulnerable position in terms of work to become established in the labour market. Employers in the green transition include restaurants and food retail outlets, the construction and property industry, repair and rental services, transport services and technological development services.

The City should contribute to boosting climate knowledge at preschool, compulsory school and upper secondary school, and in adult education. The City should also contribute to the demand for skills that the climate transition requires through its educational offering at upper secondary school and in vocational adult education. Together with the business community, the City needs to work actively to attract applicants to such study programmes.

Climate action should promote a more equal society and protect vulnerable groups.[11] For example, the City should take into account the different conditions of different city districts in its urban planning. This is because both climate impact and the consequences for health and social care need to be analysed and considered before decisions are made on new land allocations and local plans are adopted.

It may be beneficial to further develop the City Planning Committee's and the City Development Committee's joint model for social value creation analysis (SVA) with a climate justice perspective, so that it can then be applied in planning and development projects. In the same way, climate impact should be taken into account when investment decisions are made. The City's councils, committees and companies should also consider how investments can be structured to achieve greater climate justice.

In a global perspective, Stockholmers generate high emissions from their consumption. At the same time, there are significant differences in the carbon footprint between residents from different parts of the city. All residents must contribute to the transition, but those residents who cause the greatest climate impact need to contribute more. The City should create opportunities for all Stockholmers to participate in the transition based on their conditions. Many Stockholmers need to make more sustainable choices in their lifestyles about travel, housing and other consumption. The generation of waste needs to be reduced. The business community must also work to produce goods and services with a lower climate impact.

The City is able to some extent to influence the consumption-based emissions of its residents. This involves, for example, building in locations close to public transport when drawing up physical plans, and taking walking distances into account when planning societally important functions and proximity to services. Just access to public transport, walking, cycling and mobility services should remain an important principle in urban planning. The City should also use instruments such as charges, requirements or local regulations to reduce emissions.

Furthermore, the City should create conditions and in some cases operate various services for sharing and reuse, such as rental bikes,

To increase opportunities for recycling throughout the city, there are mobile pop-up recycling services that visit Stockholm's residential areas. These are adapted to people who are on foot or cycling. There is a cargo bike that can be lent to anyone who needs to transport larger items.

The City is striving to involve students at compulsory and upper secondary school in climate work. They have used computer games to compete in developing good solutions for a more sustainable city. This is one way to educate and engage young people in how we can improve the climate.

[11] 'Vulnerable groups' refers to people or population groups who live in a vulnerable situation and may therefore need society to provide special support and protection. These groups may be more likely to suffer negative consequences due to, for example, socioeconomic circumstances, disability, age, ethnicity, gender or homelessness.

repairs and lending of leisure equipment. The City should also promote sustainable and healthy eating and lifestyle habits, organise sustainable events, encourage innovative solutions through procurement and participate in various types of collaborative projects together with business, academia and civil society.

To achie**ve the City's climate goals, the City must, among other** things:
Enhance and develop the opportunities for residents to participate and engage in the climate transition, by such means as enhanced climate work in the city districts.
Ensure that climate justice is integrated into urban planning and investment decisions.
Develop local collaboration in climate and health in collaboration with civil society and the business community.
Strive to offer more opportunities for Stockholmers to rent, repair, exchange, share, borrow or donate.
Develop work to promote consumption patterns that have a low climate impact.
Design labour market and educational initiatives to meet new needs and competences in the labour market as a consequence of the climate transition.

2. Develop a climate-positive energy system

Transition area 2 contributes to this climate goal:

Milestone 2.1 A Stockholm that is climate-positive by 2030 and fossil-free by 2040

It is 2030, and Stockholm has a robust and renewable energy system. The City contributes to this development through innovative energy solutions and more efficient energy use. The capture and storage of carbon dioxide from district heating makes a climate-positive Stockholm possible.

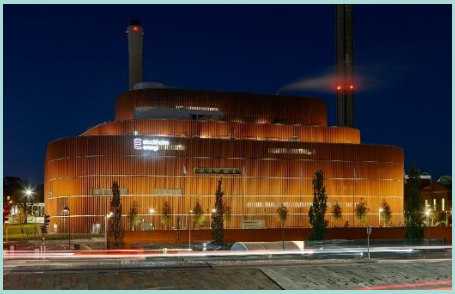
The energy system needs to be constantly adapted and developed to respond to changes in society. Access to renewable energy is the key to the transition for many sectors. The City should promote renewable electricity generation in Stockholm, regionally and nationally. Solar panels should be installed on city roofs where appropriate. The ability to store energy safely in properties and other locations in the city needs to be developed. The City should encourage the expansion of offshore and onshore wind power in the Stockholm area.

Reinforcing and expanding the grid is a precondition for the large-scale electrification of the transport sector. One important addition to Stockholm's electrical power is also the electricity generated in CHP plants in the production of district heating.

District heating plays a crucial role in achieving the City's climate goals, not only by heating buildings, but also by contributing negative emissions. This is achieved as carbon dioxide from the incineration of biofuels in district heating production is captured and stored permanently (bio-CCS/BECCS[12]). Building and commissioning a bio-CCS plant in Stockholm will enable 800,000 tonnes of carbon dioxide to be captured and stored annually.

In Stockholm, district heating and electricity are produced largely through energy recovery from waste in CHP plants. Waste incineration performs an important function by taking care of waste that cannot be disposed of in any other way at present. One major challenge is to reduce the fossil proportion of waste, which consists primarily of plastic. Increased access to sorting at source close to properties makes it easier for residents to sort out plastic. Additional sorting of plastic from the waste is made possible through the post-sorting facility in Högdalen. The amount of plastic in the waste generated by the City's operations also needs to be reduced. The City should focus on technological development and solutions that enable the recycling and reuse of plastics that have to be incinerated at

[12] Bioenergy with Carbon Capture and Storage.



Since 2019, Stockholm Exergi has been running a research facility for bio-CCS (Bio Energy Carbon Capture and Storage). Bio-CCS means that carbon dioxide from the incineration of residual products from forestry is separated from the flue gases and then stored permanently. Planning is under way for a full-scale bio-CCS facility at the Värtaverket plant in Hjorthagen. It is estimated that this facility will be able to capture 800,000 tonnes of biogenic carbon dioxide from the production of electricity and district heating every year.

With the aid of thousands of meters and sensors in more than 150 of the City's schools and preschools, energy use has decreased. The indoor climate has also been improved and there are fewer fault reports. The sensors are part of an operating system that controls, optimises and analyses properties in real time using algorithms and artificial intelligence.

present. Through increased sorting and recycling of plastics, the aim is to phase out the incineration of fossil plastics in district heating as soon as possible, with the goal of ceasing by 2040. The City also needs to ensure that post-sorted household waste is also included under producer responsibility.

Stockholm Exergi's facilities to recover energy through waste incineration have the capacity to incinerate more waste than that generated by Stockholmers. At present, in addition to waste from Stockholm, it is primarily waste from nearby municipalities that is incinerated. It is therefore not enough to reduce the amount of plastic that becomes waste within Stockholm, but the amount of fossil plastic also needs to be reduced outside the municipality's borders.

It is expected that fossil plastic will still be included in waste incineration after 2030, even if far-reaching initiatives are implemented. One possible alternative to reduce the remaining emissions from the fossil element of the waste is carbon capture and storage (CCS) from waste incineration. The capture of fossil emissions does not contribute to negative emissions, but the technology does result in net zero emissions, as the fossil emissions that would otherwise have been released are captured and stored. The City needs to investigate the combined effects of introducing CCS for waste incineration and then plan for implementation if necessary. It will be possible to build facilities in 2030 at the earliest. The biogenic[13] element of the waste that is incinerated and captured using CCS technology results in negative emissions. Additional negative emissions after 2030 are based on the creation of carbon sinks, for example through increased carbon sequestration in forests and land, the production and storage of biochar and the construction of CCS facilities at CHP plants that extract energy through waste incineration (waste consists of both fossil and biogenetic material, i.e. biomass).

All firing using fossil oil must have ceased by 2025. Electricity and heat production using fossil oil and gas should not be used unless required to maintain important societal functions. This kind of use is also to be phased out in due course.

In addition to making the transition to renewable energy, energy needs to be used more efficiently. In a first step, the City aims to reduce its relative energy use by 10% by 2026.[14] The City also needs to adapt to increasingly strict EU requirements in areas

[13] That is derived from living organisms such as plants or animals.

[14] Compared with 2022, according to the City of Stockholm's 2024 budget.

including the energy performance of buildings. Strict energy requirements for new construction and requirements in connection with purchases of items such as white goods, IT equipment and lighting are also important for efficient energy use.

The energy system can be made more efficient by such means as recovering excess and waste heat, and developing low-temperature systems in new city districts. The City aims to be a test bed for new, innovative technologies and energy solutions to encourage development. At the same time, work needs to be done to reduce electrical power peaks, for example through load control and energy storage.

The City’s energy and climate counselling and digital services for tenant-owner associations, small and medium sized enterprises and private individuals also contribute to the more efficient use of energy in the city. If there is greater energy awareness among residents and companies, energy use does not need to increase even though Stockholm is growing.

The City should strive to create circular and resource-efficient processes to deal with the climate transition, for example by extracting biogas from sewage sludge and food waste. Measures also need to be taken to reduce greenhouse gas emissions of methane and nitrous oxide from the wastewater treatment process. The City should strive to ensure that co-incineration of sewage sludge and biofuel can be used as a carbon sink, as the phosphorous-rich ash is returned to forestry.

To achieve the City's climate goals, the City must, among other things:
Strive to expand and reinforce the grid to enable, among other things, large-scale electrification of the transport sector.
Strive to establish a full-scale facility for carbon capture (bio-CCS).
Reduce the volume of fossil plastics that go to waste incineration, and investigate the overall effects of carbon capture facilities on remaining fossil emissions in connection with waste incineration (CCS). If necessary and appropriate, CCS should be taken into use.
Plan and test innovative energy solutions.
Continue to reduce energy use in the City's operations and strive to promote reduced energy use in households and private businesses.
Focus on the co-incineration of sewage sludge and biofuel.
Promote increased production and storage of renewable electricity.

3. Encourage sustainable, fossil-free transport

It is 2030, and Stockholm's transport system is an international role model. Walking, cycling and public transport are the norm as the City evolves. The recipe has been clear priorities combined with investments in improved conditions and the use of instruments to encourage sustainable travel. Both road and local maritime traffic are largely electrified, and Stockholm's inner city is completely emission-free.

Stockholm is facing a major transition of the transport sector. Emissions must decrease by 80% by 2030 compared with 2010. At the same time, Stockholm is growing and more people want to live in, work in and visit the city. In the first instance, this requires a change in the way we move around and transport goods, but also a rapid electrification process and an increased proportion of renewable fuels.

Stockholm's transport system is part of a national and regional context that to a large extent controls the possibility of achieving the transition locally in Stockholm. Both national emission goals and legal requirements linked to fuels and vehicles and the use of instruments such as the congestion charge need to be heading in the same direction if local goals are to be achieved. By 2030, the City aims to reduce car traffic by 30% from the 2017 level, which requires strong measures. The land has to be used efficiently, by prioritising accessibility for pedestrians, cyclists and public transport ahead of cars. It needs to be easier and more rational to travel sustainably in all parts of the city, and more of the journeys that are made by car need to use vehicles connected to sharing services. It is believed that approximately half of the desired traffic reduction can be achieved using tools that are in the City's own toolbox. For the rest of the reduction, the City will have to work actively to influence the government and the region to assume responsibility for the necessary climate transition.

Based on targeted regulation, the City can use parking as an instrument to encourage more car pools, and to ensure that more spaces are used by other functions such as other modes of traffic, recreation and green structures. One powerful measure to encourage a reduction in car traffic is a well-considered congestion charge. The City does not have this measure at its disposal, but needs to work towards it and other effective national instruments for sustainable travel.

Investments in the walkway network and increased focus on creating safe and well-designed public environments increase accessibility and allow more people to go to reach their most important target points.

Transition area 3 contributes to these climate goals:

Milestone 1.1 The City's operations reinforce a just transition

Milestone 2.1 A Stockholm that is climate-positive by 2030 and fossil-free by 2040

Milestone 2.2 Reduced climate impact from the transport sector

Milestone 2.3 A fossil-free organisation in 2030

Milestone 2.4 A halving of emissions from consumption

The construction of the new underground generates a major need to transport spoils. Through collaboration between the City and the region, the spoils are being moved from the working tunnel on Blasieholmen by barge rather than by truck to nearby Loudden, where the City is reusing the material in Norra Djurgårdsstaden. This saves 50,000 HGV journeys through the city over three years, which is estimated to reduce carbon dioxide emissions to one third.

The City is investing in safe and secure school roads. With fewer cars and lower speed limits, areas are safer for everyone, both children and adults. At the Sjöängsskolan school, one road was closed for motor vehicle traffic. The environment around the school was adapted to the children's needs, and cycling and walking to school became both easier and safer. The sound and air quality also improved in the area.

The City should continue to invest in making cycling more attractive and safer. The direction is set by the goal that 25% of travel by Stockholmers shall be by bike by 2040 (11% in 2019). A powerful expansion of the bicycle infrastructure combined with a high standard of maintenance and winter operation can make the bicycle a natural element of traffic in the city all year round.

The expansion of public transport needs to continue, with the implementation of planned track investments. This is needed to manage a growing region and ensure that an increased proportion of travel takes place within the public transport system. The City's and the region's joint efforts on both efficient interchanges and accessibility for buses and trams need to be geared up to achieve attractive passenger transport operations with reliable travel times and increased travel, also between areas outside the inner city.

By 2030, rechargeable vehicles may account for up to 80% of the passenger car fleet, and a significant shift to electrification is also expected in freight traffic. By 2030, just over half of light goods vehicles and one fifth of heavy goods vehicles could be electric vehicles.[15] The continued expansion of charging infrastructure for good accessibility throughout the region combined with the development of technology-driven regulations will be important factors to speed up the transition. One example of regulation is the Class 3 Clean Air Zone, which the City is introducing.

The goal of an emission-free inner city by 2030 places high demands on the electrification of freight traffic. Freight transport also needs to continue to become more efficient through a higher degree of coordinated flows and an increased shift to quiet deliveries in the evenings and at nights when the road network is less busy. Large-scale transport operations also need to be shifted from land to water, which will require designated berths for transhipment and guidance from the City in connection with the planning of, for example, construction projects that generate a lot of spoils. Safe and efficient regional storage sites for freight traffic need to be developed in collaboration with Region Stockholm and other municipalities in order to streamline transport, avoid unnecessary journeys and offer efficient charging.

The remaining combustion engines need to be powered by fossil-free fuels, which is considered to be important for long-distance freight transport and shipping, as well as for transport operations linked to civil contingency planning. The blend of fossil-free fuels in petrol and diesel

[15] Long-term scenarios for the introduction of electric vehicles, Energiforsk, 2022.

plays a crucial role until 2030, but will be of less importance later on once a high proportion of the vehicle fleet has been electrified.

In order to electrify shipping, a further expansion of the infrastructure is needed to allow long-distance freight ships, cruise ships and ferries to connect to land-based electricity when the ship is at the quayside. The electrification of archipelago traffic and waterborne public transport powered by electricity requires an expanded charging infrastructure to be able to charge the vessels. For smaller vessels and recreational boats, it is necessary to develop charging infrastructure for those that have switched to electric power, but above all to encourage fuel companies and refuelling stations to provide fossil-free diesel and petrol.

The City aims to be a role model and encourage the development of sustainable transport. This will be done, for example, through a fossil-free fleet of vehicles and by specifying requirements for fossil-free fuels and vehicles when procuring transport operations and work machines. The City also aims to be a test bed to show how new technology and more data-driven processes can contribute to the transition through, for example, increased compliance and targeted traffic management.

To achieve a transition for long-distance travel, Stockholm needs to be developed to become an attractive train destination. The transition to electric vehicles, and a closure of Bromma Airport, will help reduce emissions.

To achieve the City's climate goals, the City must, among other things:
Prioritise pedestrians, cyclists and public transport in accordance with the accessibility strategy.
Prioritise areas along major traffic routes and streets, and regulate parking to reduce car traffic.
Encourage and enable rapid electrification through the expansion of charging infrastructure.
Enable evening and weekend freight deliveries.
Continue to electrify local shipping and connect ships in port to electricity.
Develop, apply and follow up procurement requirements for fossil-free vehicles and fuels.

Transition area 4 contributes to these climate goals:

Milestone 2.1 A Stockholm that is climate-positive by 2030 and fossil-free by 2040

Milestone 2.2 Reduced climate impact from transport

Milestone 2.4 A halving of emissions from consumption

4. Plan, build and develop the city in a circular and sustainable way

It is 2030, Stockholm continues to grow, and the City's development is characterised by a holistic perspective for circular and sustainable construction. The City's strong growth is based on fossil-free energy and resource-efficient circular solutions. Urban environments that are close to public transport, densely populated and socially cohesive allow residents to travel, work and live with a low carbon footprint.

Stockholm is and must be a growing city. The City aims to build 140,000 homes with associated community services by 2035. At the same time, emissions from the construction and civil engineering sector are significant and need to be reduced by 2030, and eventually to be climate-neutral. The complexity of the city's development requires judgements to be made between different goals and interests, while at the same time achieving all dimensions of sustainability.

The climate transition must pervade the planning and development process, from municipal comprehensive planning to land allocation, local plans, design and through to the construction and operation stage. The interrelationships are often complex, and the City needs to develop expertise about what drives climate impact in urban development. Analyses must therefore be conducted within each stage of the planning and development process, to identify climate drivers, and to identify and visualise measures in the implementation phase.

Furthermore, the planning and development of both new and existing areas should contribute to enabling residents and businesses to live and work with the lowest possible carbon footprint. This can be done by such means as energy-efficient buildings or minimising the need for travel by creating proximity to service, workplaces and sustainable mobility. A dense city creates the conditions for lower climate emissions. The urban structure should be flexible, with the possibility of adapting to changing needs in the future and with robustness to face the challenges presented by climate change. Planning must take into account natural carbon storage and natural carbon sinks.

Sustainable urban development also means that the resources in the built environment are better utilised. The resource hierarchy (Figure 9 below) provides general guidance and describes that it is important first of all to evaluate whether the current need, for example for more housing or new offices, can be met using existing

resources. Optimising the use of existing buildings, extending their lifespan through ongoing maintenance, or adapting them for new purposes is critical when it comes to making resource utilisation more efficient. In this perspective, it is also important to include flexibility in planning in order to respond to any changes in future needs.

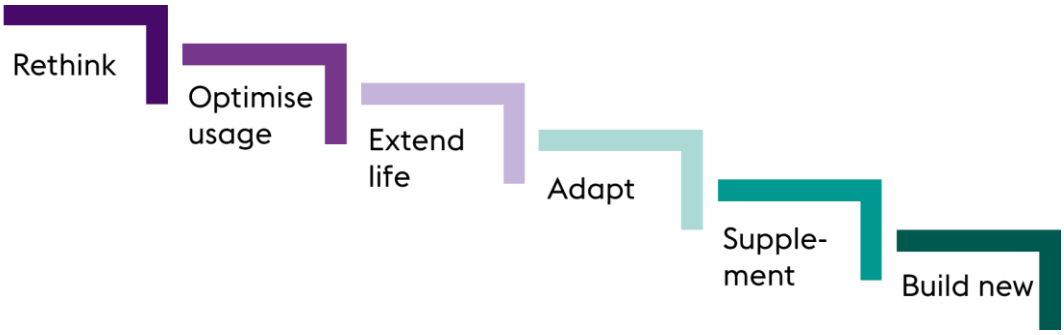


Figure 9. Resource hierarchy for the construction and civil engineering sector, sourced from the Roadmap for fossil free competitiveness, Construction and civil engineering sector.

Urban planning must be adapted to enable circular construction through measures including reuse and sustainable choices of materials. When the City constructs buildings, reused material must be utilised to a greater extent. In connection with demolition, property owners and builders must produce a reuse inventory to identify materials that can be reused on site or in other projects. To facilitate the reuse of construction and civil engineering materials, upcycling centres must be established for intermediate storage. Digital systems need to be developed by the market to provide an overview of the supply and demand of reused materials.

Emissions from civil engineering work on the City's public areas, such as streets, bridges and squares, are also extensive and need to be reduced. Materials such as asphalt, steel and concrete account for the majority of the climate impact in civil engineering projects. Climate requirements for materials and the reuse of materials are important tools here. There also needs to be a transition to fossil-free work machines.

Spoils generated from projects, such as crushed rock, must be handled in a responsible and resource-efficient way. The City must strive to ensure that the generation of unnecessary spoils is avoided, for example through construction that is adapted to the terrain and uses excavation sparingly. Spoils that are generated must be reused or recycled if possible, and there must be more planning for the local handling of surplus spoils, in order to reduce the transport of excavation spoils.

Photo: Volvo Construction Equipment

The machines on Hallvägen in the Slakthus area are now powered entirely by electricity and fossil-free alternatives, and one of the world's first heavy-duty electric excavators is being used here. This is the result of the City Development Department having used a competition-based dialogue in the procurement process. This contributed to extended requirements and better results in work towards the goal of creating a fossil-free construction site.

Since 2018, Norra Djurgårdsstaden has had a spoils logistics centre that handles and recycles contaminated and non-contaminated spoils locally instead of transporting them elsewhere. Thus work has now been scaled up, other urban development projects have joined in, and it is possible to locally sort and reuse up to 80% of rock materials and excavation spoils locally for the new construction of streets, squares and districts.

The City is to be a test bed for innovative solutions for sustainable urban development. Norra Djurgårdsstaden is one area designated as such a test bed. Good solutions should be scaled up and become the standard in developing of the city, which requires advanced working methods.

To achieve the City's climate goals, the City must, among other things:
Plan, design and build the city with a low climate impact, where residents and businesses can live, travel and work with the smallest possible carbon footprint.
Specify climate requirements in the City's own procurement contracts for construction and civil engineering.
Encourage property owners to develop and adapt existing buildings instead of demolition and new production.
Strive to ensure that business operators contribute to making use of surplus energy, such as residual heat from buildings and various business processes.
Create conditions for reuse by such means as establishing reuse centres for construction and civil engineering materials.

5. Promote consumption with a low climate **impact in the City's own organisation**

Transition area 5 contributes to these climate goals:

- Milestone 2.3 A fossil-free organisation in 2030
- Milestone 2.4 A halving of emissions from consumption
- Milestone 2.5 Reduced climate impact from food

It is 2030, and the City of Stockholm has taken the lead in promoting consumption with a low climate impact and serves as a source of inspiration for Stockholmers and for other cities, both in Sweden and all over the world. Circularity is a watchword in this work, and circular strategies pervade the City's purchases. Resource efficiency is a priority and the norm is behaviour that results increased levels of sharing, repair, reuse and recycling.

The City's organisation, as a major purchaser of goods, services and contracts, plays an important role in work to reduce the climate impact of consumption.

By changing the mindset and questioning the traditional way of meeting needs, it is possible to reduce the climate impact of the City's own consumption. The City aims to continue to drive the transition by systematically specifying climate and circularity requirements in procurement contracts and monitoring them. Competence in these issues must increase among everyone in the City's purchasing organisation to achieve this, and the City-wide purchasing process must be further developed. The City must also accelerate work to establish more sustainable and circular working methods and procedures in its operations. With the aid of support, digital tools and guidance, it has to be easier to make sustainable choices when purchasing and in day-to-day work.

There are areas of consumption in which the City's organisation has a major impact on the climate, and there needs to be a special focus on these. Measures to reduce emissions from the City's purchases of energy, transport and construction and civil engineering materials are included in transition areas 2 to 4.

The climate impact of food served in the City's preschools, schools, youth recreation centres, daycare centres, care homes and nursing homes needs to be significantly reduced by 2030. The aim is to achieve this by such means as increasing the proportion of vegetables. Unnecessary catering waste, i.e. food waste, also needs to be significantly reduced.

The City of Stockholm also has an important role to play in reducing the climate impact of plastics, in terms of both packaging and goods. By reducing the use of plastic and ensuring that any plastic that needs to be used is circulated through reuse or recycling, the climate impact should be reduced. The climate impact of

The Väderkvarnen care and nursing home has reduced its use of plastic. This is important, because plastic accounts for a large part of our emissions, as it is often made from fossil oil. At Väderkvarnen, a number of small, simple and resource-smart measures have combined to yield major benefits for the economy, the environment, the work environment and care of the elderly.

Stocket Återbruk is a digital internal marketplace for the reuse of furniture, equipment, plants and other items that are no longer needed in the City's operations. The marketplace is run by the Labour Market Department and also offers repairs and renovations. Stocket means there are fewer purchases, saving both money and environmental resources.

purchasing furniture and equipment, IT equipment and textiles must also be reduced, and there is major potential to adopt a more circular approach in areas such as sharing, reuse, repair and material choices.

The City also needs to ensure that the goods and packaging used can be reused and recycled by creating efficient systems for collection, sorting and reuse or recycling. The City must contribute to reducing the generation of waste, and the City's waste plan is an important tool in scaling up this work.

By reducing the climate impact of the operations' own consumption, the City aims to be a role model and inspire both Stockholmers and the business community to more sustainable and circular consumption.

To achieve the City's climate goals, the City must, among other things:
Map emissions from purchases in each operation so that initiatives can be prioritised and implemented.
Increase knowledge and expertise about climate requirements linked to purchases.
Develop a dialogue with suppliers to enable innovation, and use strategic collaboration with other contracting authorities and academia.
Establish systematic work to reduce the use of plastic consumables.
Reduce the climate impact of public meals by such means as increasing the proportion of vegetables and reducing the amount of food waste.

Governance, implementation and monitoring

The City of Stockholm is a large organisation with broad mandates. Through its many operations, the City can assume overall responsibility for driving the various work processes of the climate transition. All of the City's employees have an important role to play in achieving the climate goals, whether in the area of purchasing, transport, using materials or collaboration with residents, business, academia and civil society.

Governance of the City's climate work is based on the goals set out in Environment Programme 2030, which is in turn integrated into the City's system for management and monitoring of all operations and finances, ILS. Climate Action Plan 2030 is a City-wide policy document adopted by the City Council. It concretises how the climate goals in the Environment Programme can be achieved, providing a basis for councils, committees and executive boards. The City Executive Board is responsible for strategic climate and environmental work and City-wide coordination.

Clear delegation of responsibilities ensures effective progress

This Climate Action Plan delegates responsibilities to councils, committees and executive boards for *transition areas* and for *measures*, based on the City's climate goals. Designated councils, committees and executive boards also have a special responsibility to reduce emissions from their own consumption.

A council, committee or executive board has been assigned responsibility for each transition area. These are tasked with coordinating the City's relevant operations and organising work within the transition area. This does not relieve the designated councils, committees or executive boards of responsibility for their own measures, but aims to enhance collaboration in the transition area in order to achieve the City's climate goals more efficiently.

Work within each transition area includes compiling new knowledge, continuously evaluating the work in progress, and clarifying development needs and possible upscaling potential. It also includes, in collaboration with business, academia, the state, the region and civil society, developing additional proposals for measures required to achieve the climate goals. Work in the transition areas takes place in dialogue with the City Executive

Board and with those responsible for monitoring the goals in the Environment Programme.

Transition area	Responsible for coordination
1. Work to achieve a just, inclusive climate transition	City Executive Board
2. Develop a climate-positive energy system	Stockholms Stadshus AB and Environment and Health Committee
3. Encourage sustainable, fossil-free transport	Transport Committee and Environment and Health Committee
4. Plan, build and develop the City in a circular and sustainable way	City Planning Committee and City Development Committee
5. Promote consumption with a low climate impact **in the City's own** organisation	City Executive Board and Environment and Health Committee

For the climate goals to be achieved, each transition area needs to contribute to reducing emissions. Estimates have been made of the volumes of emission reductions involved in each transition area.

The City's budget and follow-up process concretises and manages the measures presented in this Climate Action Plan, as well as suggestions for additional measures. The analyses and additional suggestions for measures from the various transition areas are compiled annually during the spring, for inclusion in the budget data and approach of the various councils, committees and executive boards for the following year. These then form the basis of the budget adopted by the City Council in the autumn. In this way, work in the transition areas is linked to the City's budget process, which governs the operational plans of councils, committees and executive boards.

Transition area	Emission reduction by 2030*	
	A Stockholm that is climate-positive by 2030 and fossil-free by 2040 (milestones 2.1 and 2.2)	Milestone 2.4
1. Work to achieve a just, inclusive climate transition		340 0,0 0 0 tonnes of CO_2e based on residents' consumption, excluding emissions in transition areas 2, 3 and 4.
2. Developing a climate-positive energy system	150,0 0 0 tonnes CO_2e and negative emissions of at least 80 0,0 0 0 tonnes CO_2	
3. Encourage sustainable, fossil-free transport	450,0 0 0 tonnes CO_2e (milestone 2.2)	
4. Plan, build and develop the City in a circular and sustainable way	-	750,0 0 0 tonnes CO_2e, of which approximately 280,0 0 0 tonnes CO_2e are the City's own (purchases/investments)
5. Promote consumption with a low climate impact in **the City's own** organisation		50 0,0 0 0 tonnes CO_2e (the City's purchases excluding construction and civil engineering)

Table 1: The table shows the transition areas and the distribution of the emission reduction that needs to be achieved in order for the climate goals to be achieved by 2030 (divided into milestones 2.1 and 2.4).

* The division of emission reductions represents estimates based on data mainly from the Swedish National Board of Housing, SEI's Consumption Compass and from an environmental spend analysis for the City's own organisation in 2021.

Companies, councils and committees are responsible for reducing emissions from their consumption

Greenhouse gas emissions from the City's purchases are shown in the table below for councils, committees and executive boards. The figures have been based primarily on a so-called environmental spend analysis that was conducted by the City Executive Board for the City's purchases in 2021. The figures should not be considered exact, but provide an approximate indication of the scale of emissions. According to the City's milestone 2.4, these emissions from purchases are to be halved by 2030.

The table only includes those councils, committees and executive boards that have annual emissions of more than 10,000 tonnes CO_2e

according to the environmental spend analysis. Where executive board, councils and committees have already completed their own mapping of emissions, this is used as base data instead. As councils, committees and executive boards conduct their own mapping exercises, knowledge will be developed and the figures below may change.

Councils, committees and executive boards with the biggest climate impact from purchases	Emissions from the **City's own** purchases in 2021 (tonnes CO_2e)	Base data
Stockholm Vatten och Avfall AB	210,000	Environmental spend analysis
City Development Committee	120,000	The Committee's own mapping exercise
Education Committee	110,000	Environmental spend analysis
Stockholm Exergi AB	100,000	Stockholm Exergi AB
Transport Committee	85,000	Environmental spend analysis
AB Svenska Bostäder	80,000	The company's own mapping exercise
Skolfastigheter i Stockholm AB	73,000	The company's own mapping exercise
AB Familjebostäder	56,000	The company's own mapping exercise
Real Estate Committee	55,000	Environmental spend analysis
AB Stockholmshem	50,000	The company's own mapping exercise
City District Council of Norra innerstaden	34,000	Environmental spend analysis
City District Council of Södermalm	32,000	Environmental spend analysis
Micasa Fastigheter i Stockholm AB	31,000	Environmental spend analysis
City District Council of Hägersten-Älvsjö	30,000	Environmental spend analysis
City Executive Office	30,000	Environmental spend analysis
City District Council of Järva	27,000	Environmental spend analysis
Sports Committee	25,000	Environmental spend analysis
City District Council of Enskede-Årsta-Vantör	24,000	Environmental spend analysis
City District Council of Hässelby-Vällingby	22,000	Environmental spend analysis
Stockholms Hamn AB	19,000	Environmental spend analysis
City District Council of Kungsholmen	19,000	Environmental spend analysis
City District Council of Bromma	17,000	Environmental spend analysis
City District Council of Farsta	17,000	Environmental spend analysis
City District Council of Skarpnäck	13,000	Environmental spend analysis
City District Council of Skärholmen	12,000	Environmental spend analysis
Culture Committee	12,000	Environmental spend analysis
Social Services Committee	11,000	Environmental spend analysis
Stockholms Stads Parkerings AB	10,000	Environmental spend analysis
Cemeteries Committee	10,000	Environmental spend analysis

Annual follow-up for focus on emission reduction

Every year, the City Executive Board, supported by those designated with responsibility for follow-up, carries out a follow-up of Environment Programme 2030. The Climate Action Plan is followed up through the climate-related goals (Goals 1 and 2) within that follow-up process. The City Executive Board is responsible for follow–up on milestones 1.1, 1.2 and 2.5, and the Environment and Health Committee is responsible for milestones 2.1–2.4. Achievement of goals is described in terms of selected indicators and other relevant metrics, and is based on evidence including the annual reports issued by the executive boards of the companies. The follow-up process involves a review and summary of the measures taken to achieve the goals. There is also an annual follow-up on total greenhouse gas emissions (milestones 2.1–2.3 in Environment Programme 2030). The measures within transition area 3 Encourage sustainable, fossil-free transport must be followed up and analysed every year.

Following up on the climate impact of consumption (milestone 2.4) in Environment Programme 2030 is currently problematic, and is largely based on data and statistics collected voluntarily. There is a need for continuous monitoring and development of methods for following up on consumption-based emissions. Some indicators can show whether the City is on the right track in different areas, such as food and meals, construction and civil engineering, plastics, etc. There is also annual follow-up on the measures that have been implemented.

Finance and resources

The major needs of the climate transition need to be financed sustainably. By 2030, Stockholm must be a city that is growing and developing with long-term economic stability. Business models and regulations reward consumers and producers who reduce their carbon footprint.

A successful climate transition is a precondition for achieving the City's objective of a strong, sustainable economy that lays the foundation for a just welfare system. Implementation of the Climate Action Plan is an important element of this work. The plan is gradually is being gradually implemented in the City's councils, committees and executive boards by means of the implementation and funding of the proposed measures being integrated into and adopted in the City's annual budget.

It is important to be aware of and address how increased costs may affect different groups in society. It is therefore important for the justice perspective to be included in the City's investment plans and measures.

Economic consequences

In order to implement Stockholm's climate transition, significant investments are required in infrastructure, urban planning, construction, energy, water and sewage systems, as well as carbon capture systems. The transition needs to be financed partly through the City's own budget. The majority of the investments, however, need to come from business, other public sector actors and residents. The initial estimates indicate that investments in the order of several billion Swedish kronor will be needed in the coming years. This is a joint effort in which the public sector, companies and individuals need to engage to ensure a successful climate transition.

Although the costs of the climate transition may be high initially, this may mean savings in the longer term. It can be done, for example, in the form of lower operating costs, but also in the form of changed cost models. Changes in working methods and procedures can also result in increased costs initially, but offer potential for cost savings in both the short and the long term. It also requires prioritising the development of new business models.

The table below provides an overview of the main investment needs for the measures identified in this Climate Action Plan. Investments

need to be made by the City, residents, the business community and other public sector actors.

Transition area	Investments Large *** > SEK 10 billion Medium ** Small * < SEK 5 billion
1. Work to achieve a just, inclusive climate transition	*
2. Develop a climate-positive energy system	***
3. Encourage sustainable, fossil-free transport	***
4. Plan, build and develop the City in a circular and sustainable way	***
5. Promote consumption with a low climate impact in the City's own organisation	*

Table 2: The table shows a general assessment of the economic impact for each transition area. The assessments are based on general present value calculations for measures within each transition area, the City's investment plan, and public statistics and relevant investigations and reports.

Financing the climate transition

Investments to implement the climate transition must be financed sustainably through a balance between self-financing, loans and external financial support. The City needs to work actively to seek external sources of funding from the state and the EU, especially in cases where investments cannot be funded by higher revenues or lower costs. Many proposed measures are investigations and innovation projects aimed at driving development forward. Innovation projects with untested solutions rarely pay for themselves financially at an initial stage, because they involve high costs and investments, and the long-term economic conditions are uncertain. Investment projects that are not profitable may therefore need to seek external support in order that they can be implemented.

External financing can be applied for from both the EU and from national government agencies such as the Swedish Energy Agency, Vinnova, the Swedish Agency for Regional and Economic Growth, the Swedish Environmental Protection Agency or other financiers. According to the City's investment strategy, all of its councils, committees and executive boards must apply for external co-financing in investment projects. The City needs to develop coordination and facilitate application procedures for external grants from the EU and the state.

Clear economic incentives at European and national level will also be required that reward resource efficiency, low emissions and carbon capture.

Regulations that have an impact

Extensive development work on regulatory frameworks is currently under way at national and EU level to steer capital flows towards sustainable investments, from both an environmental and a social perspective. The Municipal Group's reporting of and follow-up on environmental and climate work will continue to develop in line with the EU Corporate Sustainability Reporting Directive (CSRD)[16], important features of which are the European Sustainability Reporting Standards (ESRS)[17] and the EU Taxonomy for sustainable investments.

The EU Taxonomy is a tool for determining which economic activities should be considered ecologically sustainable under the regulations. It sets out clear criteria to facilitate reporting, promote transparency and sustainability, and support the EU's overarching goals of climate neutrality and a resource-efficient economy. Companies covered by the regulatory framework must identify, quantify and report on their sustainable activities under the Taxonomy. The City's goals can be linked to the global regulatory framework, and reporting can be developed in line with the upcoming requirements.

The City's goals in the Environment Programme	Environmental objectives of the EU Taxonomy
1. A just, inclusive transition	Climate change mitigation, and a minimum level of social protection and good governance and management
2. A Stockholm with no global carbon footprint	Climate change mitigation
5. A resource-efficient, circular Stockholm	Climate change mitigation Transition to a circular economy

Benefits of climate transition

Climate transition can help boost the economy through, for example, the creation of new services and jobs. The development of

[16] Corporate Sustainability Reporting Directive

[17] European Sustainability Reporting Standards

new climate solutions can be scaled up and exported in the longer term. This in turn contributes to research, development and sustainable economic development.

Climate action can often generate positive synergies for society. Through increased investments in pedestrians and cycling, for example, increased health benefits can be achieved for the City's residents in the form of more exercise and better air quality. This can also result in reduced healthcare costs and increased productivity. Being a City that is explicitly investing in climate transition is being a City that prioritises people's well-being.

By assuming a leading role in climate transition, Stockholm becomes an attractive City for companies and investors looking for sustainable opportunities. It creates a positive spiral of economic development and innovation.

Which emissions are included in the climate goals?

The Environment Programme's goal 2 *A Stockholm with no global carbon footprint* consists of five milestones that capture different aspects of Stockholm's climate impact. The goals differ in geographical scope, as does the method for calculating emissions.

This chapter describes the scope and calculation methods for the milestones that have a quantified emission goal, i.e. milestones 2.1, 2.2 and 2.4. Milestone 2.3 *A fossil-free organisation in 2030* focuses on the City as an organisation where fossil fuels are to be phased out of the City's own operations and those that it procures. The milestone does not have a quantified emission goal. Nor does milestone 2.5 *Reduced climate impact from food*; this is included as a subset of milestone 2.4.

Milestones 2.1, 2.2 and 2.4, which do have quantified emission goals, overlap each other in part, which means that the same emissions are included in a number of the milestones. These goals will be followed up separately and the emissions cannot be aggregated.

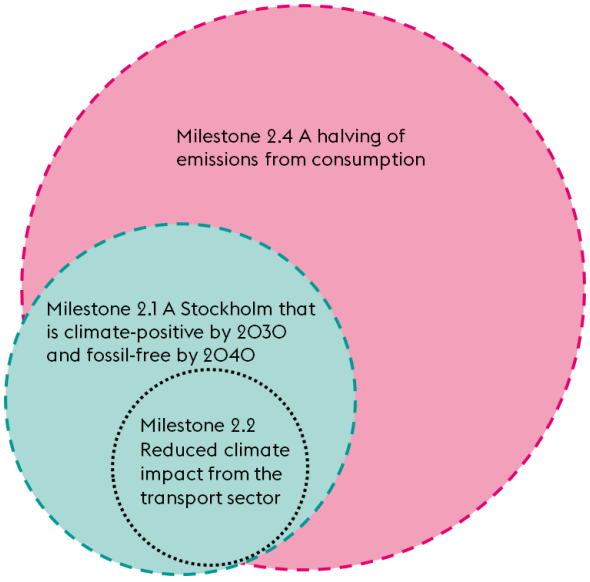


Figure 10. The milestones overlap each other in part. Emissions in milestone 2.2 *Reduced climate impact from transport* are a subset of emissions in milestone 2.1 *A Stockholm that is climate-positive by 2030 and fossil-free by 2040*. The majority of emissions included in milestones 2.1 and 2.2 are also included in milestone 2.4 *A halving of emissions from consumption*. The emissions that are included not in 2.4, but in 2.1, include, for example, emissions from transport activities within Stockholm undertaken by people other than Stockholmers. Milestone 2.4 is emissions that take place (anywhere in the world) as a consequence of the consumption of Stockholmers.

Milestone 2.1 A Stockholm that is climate-positive by 2030 and fossil-free by 2040

By 2030, the remaining emissions in Stockholm's geographical area shall not exceed 0.6 tonnes carbon dioxide equivalents (CO_2e) per resident. Negative emissions shall be greater than remaining emissions.

Emissions covered by this milestone are based on the Basic method according to the internationally accepted Global Protocol for Community-Scale Greenhouse Gas Inventories (GPC),[18] i.e.:

- Direct emissions within the City's geographical boundaries (Scope 1), which includes emissions from road transport, shipping (ports and shipping channels), aviation emissions (take-off and landing at Bromma airport), work machinery, individual oil boilers and leaks from the City's gas grid.
- Direct emissions of methane and nitrous oxide from the wastewater treatment process (Scopes 1 and 3) are based on the contribution of Stockholmers to these emissions, regardless of where the wastewater treatment plants are located.
- Indirect emissions (Scope 2) from grid-based energy used within the City's geographical boundaries (district heating, electricity and district cooling), but where emissions can occur inside or outside Stockholm.

Emissions shall be max. 0.6 tonnes CO_2e per resident by 2030. The goal is based on WWF's OPCC 1.5°C Alignment Method[19], which is based on the ability of a country or city to reduce emissions. The method is approved by the Science-Based Targets Network (SBTN)[20] to evaluate to what extent the climate goals of cities are aligned with the 1.5 degree target.

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[18] As of 2024, this method replaces in full the former so-called Stockholm method for increased clarity and international comparability.

[19] OPCC 1.5°C Alignment Method, based on the Human Development Index (HDI); a metric that describes a country's living conditions and its economic and social development. The HDI is produced by balancing life expectancy, education level and GDP. For Stockholm, it means that emissions must decrease by 65% per resident by 2030 compared with 2018.

[20] Science Based Targets (SBT) is an initiative aimed at providing companies and cities with guidance in setting climate goals that align with what science believes is required to meet the goals of the Paris Agreement. SBT is a collaboration between the UN Global Compact, the World Resource Institute (WRI), WWF and the Carbon Disclosure Project (CDP).

The milestone also includes the aim that negative emissions shall be greater than remaining emissions by 2030. Negative emissions mean that carbon dioxide is actively removed from the atmosphere. The milestone includes negative emissions within the City's geographical boundary (Scope 1).

Emissions budget based on milestone 2.1

The emissions budget that supplements milestone 2.1 by describing how much can be emitted on the way to the goal. Annual maximum emissions in the budget are based on:

- Remaining emissions of a maximum of 600,000 tonnes by 2030 (0.6 tonnes per resident).
- Remaining emissions of 100,000 tonnes by 2040. The level is based on rough estimates of remaining emissions by 2040, i.e. emissions that are very difficult to remove, such as methane and nitrous oxide emissions from the wastewater treatment process.
- A linear emission reduction between goal years.

Negative emissions in the emissions budget assume that a bio-CCS/BECCS plant in connection with the biofuel-fired CHP KVV8 at the Värtaverket plant will be built and taken into operation in 2027. Additional negative emissions after 2030 are based on the creation of carbon sinks, for example through increased carbon sequestration in forests and land, the production and storage of biochar and the construction of CCS plants at CHP plants that extract energy through waste incineration (waste consists of both fossil and biogenetic material, i.e. biomass). CCS stands for Carbon Capture and Storage. Bio-CCS (also known as BECCS) involves carbon capture and storage of biogenic carbon dioxide.

Accounting of negative emissions

Stockholm as a geographical area shall be climate-positive by 2030.

This means that the negative emissions must be greater than the remaining emissions within the municipal boundary. The goal does not, however, mean that each of the City's own councils, committees and executive boards need to become climate-positive. Negative emissions are likely to be partly financed by sales of negative emissions to private actors both inside and outside the City's geographical boundaries. The emission goal includes

negative emissions that occur within the geographical municipality boundary.[21]

Milestone 2.2 Reduced climate impact from the transport sector

Emissions from the transport sector in Stockholm's geographical area shall decrease by 80% by 2030 (compared with 2010).

Milestone 2.2 *Reduced climate impact of the transport sector* puts an extra focus on the transport sector. Emissions in this milestone are also included as a subset in milestone 2.1 *A Stockholm that is climate-positive by 2030 and fossil-free by 2040.*

Emissions from the transport sector include emissions from road transport, working machinery, shipping (ports and shipping channels) and emissions from take-off and landing at Bromma Airport.

Emissions must be a maximum of approximately 165,000 tonnes from the transport sector in Stockholm by 2030.

Milestone 2.4 A halving of emissions from consumption

Consumption-based greenhouse gas emissions in Stockholm shall be halved by 2030 compared with 2019.

Consumption-based emissions include emissions that occur in Stockholm and outside Stockholm (in the rest of Sweden and abroad) to satisfy demand in society in the form of household consumption, public sector consumption and society's investments (buildings and infrastructure).

Consumption-based emissions were 10.7 tonnes CO_2e per resident (in 2019),[22] which corresponds to total emissions of just over 10,000,000 tonnes CO_2e for all residents of the City. A halving by 2030 means emissions of a maximum of 5.4 tonnes per resident by 2030.

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[21] If Sweden as a nation were to sell or transfer the negative emissions produced in Stockholm to another country, Stockholm cannot record/credit these. The same applies to other cities/municipalities; they cannot record the same negative emissions as Stockholm, as it would then constitute a double claim. Private actors who finance negative emissions can credit these in their climate accounting, which is in line with established accounting policies (so-called co-claiming).

[22] According to data from the Consumption Compass at the Stockholm Environment Institute.

Following up on the climate impact of consumption in milestone 2.4 is problematic. There is a need for continuous monitoring and development of methods for monitoring consumption-based emissions.

Tables presenting measures in the transition areas

This section summarises a large number of measures, with councils, committees and executive boards designated to assume responsibility for helping to achieve the climate goals by 2030. In the implementation stage, the operational plans of the councils, committees and executive boards will feature a clarification of the measures. The measures are sorted under the transition areas.

Primary responsibility for a measure means assuming responsibility for the measure being implemented, with the support of those with joint responsibility. Sometimes there are multiple parties with primary responsibility for a measure. This means that all designated councils, committees and executive boards have a separate primary responsibility for implementing the measure. In some cases, a shared primary responsibility is denoted by stating that the measure is to be implemented “in collaboration with”. In this case, the council/committee/company mentioned first is responsible for coordinating the implementation of the measure.

The following tables list approximately 150 measures divided into the five transition areas. For some, a CO_2 impact has been assessed, while others are of a more enabling nature. New measures will be gradually generated within the five transition areas.

Overall governance

Measure no.	Measure	Primary responsibility	Joint responsibility	Collaboration with	Duration	Potential for reduced CO_2e emissions (E=enabler)
0.1	Develop the Municipal Group's reporting in line with the requirements of the CSRD, ESRS and EU Taxonomy for sustainable investments.	Stockholms Stadshus AB	City Executive Board		2024–2030	E
0.2	Develop a City-wide forum for the coordination of applications for external financial support.	City Executive Board	Stockholms Stadshus AB All councils, committees and executive boards		2024–2030	E
0.3	Develop work with digital tools in the climate transition – including IoT and AI, as well as data management, structuring and visualisation.	City Executive Board	All councils, committees and executive boards		2024–2030	E
0.4	Clarify climate measures in the City's regular investment planning and create a climate investment plan that sets out the necessary investments within the City's resources.	City Executive Board			2024–2030	E

Transition area 1: Work to achieve a just, inclusive climate transition

Measures in this area contribute primarily to the following milestones in the Environment Programme: 1.1, 1.2 and 2.4

Measure no.	Measure	Primary responsibility	Joint responsibility	Collaboration with	Duration	Potential for reduced CO_2e emissions (E=enabler)
1.1	Develop the investment strategy and the companies' investments to include climate justice.	City Executive Board in collaboration with Stockholms Stadshus AB	City Development Committee, Transport Committee, Sports Committee, Environment and Health Committee, Real Estate Committee, AB Stockholmshem, AB Svenska Bostäder, AB Familjebostäder, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, Stockholms Hamn AB	Academia	2025–2027	E
1.2	Further develop social value-creating analysis (SVA) linked to the comprehensive plan's urban planning goal "A climate-smart and resilient city" and continue to implement the SVA in all of the City's planning and development projects.	City Planning Committee in collaboration with the City Development Committee	City District Councils, Environment and Health Committee		2024–2030	E
1.3	Develop labour market and education initiatives with a focus on meeting the skills supply needs required by the climate transition.	Labour Market Committee	Environment and Health Committee	Business, academia	2024–2030	E
1.4	Develop skills of the City's workforce to reduce climate impact throughout the organisation.	All councils, committees and executive boards		Academia	2024–2030	E
1.5	Implement initiatives to increase children's and young people's knowledge, engagement and vocational preparation regarding climate transition.	Education Committee, Preschool Committee	Environment and Health Committee, City District Councils	Civil society, academia	2024–2030	E
1.6	Develop local arenas for collaboration, where the municipality, business and civil society collaborate to improve health and reduce climate impact.	Environment and Health Committee	City District Councils, City Executive Board, Transport Committee, AB Svenska Bostäder, AB Stockholmshem, AB Familjebostäder, Micasa Fastigheter i Stockholm AB, Stockholm Vatten och	Academia, civil society, business, property owners	2024–2030	E

			Avfall AB, Skolfastigheter i Stockholm AB, Stockholm Business Region AB			
1.7	Investigate and further develop ways of working on how emissions from residents' consumption can be reduced, focusing on groups with a major climate impact.	Environment and Health Committee	City Executive Board, Transport Committee, Stockholm Vatten och Avfall AB, Culture Committee	Business, academia, civil society	2024–2026	E
1.8	Strengthen and clarify the role of the City District Councils regarding participation and involvement in the climate transition.	City District Councils	City Executive Board, Environment and Health Committee	Civil society, local business	2025	E
1.9	Create extended opportunities for Stockholmers to rent, repair, exchange, share, borrow or give instead of buying new.	AB Familjebostäder, AB Svenska Bostäder, AB Stockholmshem, Stockholm Vatten och Avfall AB, Culture Committee, Sports Committee, City District Councils		Civil society, business	2024–2026	E
1.10	Promote taking local and regional holidays – market Stockholm to Stockholmers.	Stockholm Business Region AB	Culture Committee	Business, civil society	2024–2030	E
1.11	Establish systematic climate work around sustainable events and meetings based on the Guide to Sustainable Events.	City Executive Board	Stockholm Business Region AB, Culture Committee, Environment and Health Committee	Business, civil society	2024–2030	E
1.12	Develop the City as a pioneer in the field of climate-smart food in connection with catering, other purchasing and entertainment.	City Executive Board	All councils, committees and executive boards	Businesses in the meals and restaurant sector	2024–2030	E
1.13	Collaborate with civil society and business to reduce the use of plastics and increase the reuse and recycling of plastics.	Environment and Health Committee, City Executive Board, Stockholm Vatten och Avfall AB	Stockholm Exergi AB	Civil society, business	2024–2030	E
1.14	Boost collaboration with civil society in the climate area in order to achieve the City's climate goals.	City Executive Board		Civil society	2024–2030	E
1.15	Investigate how a citizens' assembly could function and be implemented in the City	City Executive Board			2024–2025	E

Transition area 2: Develop a climate-positive energy system

Measures in this area contribute primarily to the following milestone in the Environment Programme: 2.1						
Measure no.	Measure	Primary responsibility	Joint responsibility	Collaboration with	Duration	Potential for reduced CO_2e emissions (E=enabler)
Electricity grid and electricity generation						
2.1	Strive to strengthen the electricity grid in Stockholm where there is a need for expansion, and coordinate planning between electricity grid companies and the City.	City Executive Board, City Development Committee, City Planning Committee and Transport Committee	Stockholm Stads Parkerings AB, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, Stockholms Hamn AB, Sports Committee, Real Estate Committee, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB	Grid companies	2024–2030	E
2.2	Installation of solar panels based on a cost-efficiency principle on existing and new buildings managed by the City of Stockholm.	Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, Real Estate Committee, Cemeteries Committee, Stockholm Globe Arena Fastigheter AB, Stockholms Hamn AB, Stockholm Vatten och Avfall AB, S:t Erik Markutveckling AB, Stockholms Stads Parkerings AB, Stockholmsmässan AB, City Development Committee, Stadsholmen AB	City Planning Committee, Culture Committee		2024–2030	200–300 tonnes
2.3	By such means as proactive dialogue, advice and clarifications in planning documents, clarify how more permit applications for the installation of solar panels on buildings can be granted with regard to technical and architectural conditions.	City Planning Committee	Environment and Health Committee, Stockholms Stadshus AB, Culture Committee	Stockholm County Administrative Board	2024	E
2.4	Investigate and draw up guidelines for the procurement of solar panels in the City's organisation in order to reduce costs and specify requirements based on justice and climate.	Service Committee in collaboration with Real Estate Committee, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, Skolfastigheter i Stockholm AB	Environment and Health Committee, Stockholms Stadshus AB	Academia, trade associations, Swedish National Agency for Public Procurement	2024–2025	E
District heating and waste management						
2.5	Phasing out fossil oil through conversion to biooil and the development of other technical solutions such as recycling of	Stockholm Exergi AB			2024–2030	50,000 tonnes

	surplus heat and the development of low-temperature systems in new city districts.					
2.6	Commissioning of RUS facility (RUS stands for Resource Extraction Stockholm) for the sorting of food waste, plastic and metal in Högdalen.	Stockholm Vatten och Avfall AB			2024	33,000 tonnes
2.7	Investigate measures to continuously optimise the sorting rate of plastic at the RUS facility in Högdalen.	Stockholm Vatten och Avfall AB		Stockholm Exergi AB, recycling companies	2025–2030	E
2.8	Conduct trials with the co-incineration of sludge and biofuel, and investigate the effect on carbon sequestration when using the ash in forestry.	Stockholm Exergi AB	Stockholms Stadshus AB, Stockholm Vatten och Avfall AB		2024	E
2.9	Investigate how waste heat and surplus heat can be utilised at different levels in energy systems (building, city district and regional level).	Environment and Health Committee	Stockholm Exergi AB, City Development Committee, Stockholm Vatten och Avfall AB, Stockholms Stadshus AB	Business	2024–2025	
Carbon capture and storage						
2.10	Build and commission bio-CCS (Bio Energy Carbon Capture and Storage, BECCS) plant in Värtan.	Stockholm Exergi AB			2027	-800,000 tonnes (negative emissions)
2.11	Work to establish an effective logistics solution for transport and intermediate storage of carbon dioxide at Stockholm Norvik Port.	Stockholms Hamn AB in collaboration with Stockholm Exergi and Stockholms Stadshus AB			2024–2030	E
2.12a	Investigate the overall impact and specification of requirements for CCS/CCU from energy recovery through waste incineration.	Stockholm Vatten och Avfall AB	City Executive Board, Stockholms Stadshus AB, Stockholm Exergi AB		2024–2025	E
2.12b	Investigate the introduction of CCS/CCU from energy recovery through waste incineration. If necessary and appropriate, CCS/CCU is to be introduced in collaboration with other municipalities.	City Executive Board in collaboration with Stockholms Stadshus AB	Stockholm Vatten och Avfall AB, Stockholm Exergi AB	Other municipalities and municipal waste management companies	2024–2030	E

2.13	Implement differentiated reception charge in respect of fossil content for municipal waste, and investigate a safe and viable measurement method for operational waste.	Stockholm Exergi AB		Municipal and private waste management companies	2024–2030	E
2.14	Investigate the City's biochar needs and draw up a plan to establish a large-scale facility for biochar production.	Stockholm Vatten och Avfall AB	City Development Committee, Transport Committee, City District Councils, Stockholms Stadshus AB, Stockholm Exergi AB		2024	E (it is estimated that a large-scale facility will result in a reduction of approximately 10,000 tonnes)
2.15	Investigate and implement measures to create additional negative emissions after 2030, for example through increased carbon sequestration in forests and soil, as well as the production and storage of biochar.	Stockholm Vatten och Avfall AB	Stockholm Exergi AB		2025–2030	
Energy use within the City's organisation						
2.16	Investigate the possibility of developing a method to measure energy used (net energy).	Environment and Health Committee			2025	
2.17a	Reduce the total amount of energy purchased in the City's operations.	All councils, committees and executive boards	Environment and Health Committee		2024–2026	2,000 tonnes
2.17b	Strive to reduce relative energy use in existing buildings and facilities by 10% in the period 2023–2026. (Results in reduced amount of energy purchased in measure 2.17a, but does not cover all of the City's operations, only those that can standardise their energy use, e.g. kWh/m^2.)	Stockholm Vatten och Avfall AB, S:t Erik Markutveckling AB, Stockholm Globe Arena Fastigheter AB, AB Svenska Bostäder, Stockholm Stads Parkerings AB, Stockholmsmässan AB, AB Familjebostäder, Micasa Fastigheter i Stockholm AB, Stadsholmen AB, Skolfastigheter i Stockholm AB, AB Stockholmshem, Cemeteries Committee, Stockholms Hamn AB, Real Estate Committee, Transport Committee	Environment and Health Committee		2024–2026	Included in 2.17a
2.17c	Reduce the consumption of electrical power in the City's operations, with due consideration of a life cycle analysis of the products' climate impact, by such means as	Micasa Fastigheter i Stockholm AB, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, Real Estate Committee, Cemeteries Committee, Stockholm Globe	City Executive Board, Skolfastigheter i Stockholm AB, Stockholms Stadshus AB, Environment and Health Committee		2024–2030	Included in 2.17a

	reducing electricity-based heating of buildings, replacing older lighting, older appliances, kitchen equipment and laundry appliances, avoiding free-standing electric radiators, etc.	Arena Fastigheter AB, Stockholms Hamn AB, Stockholm Vatten och Avfall AB, S:t Erik Markutveckling AB, Stockholms Stads Parkerings AB, Stockholmsmässan AB, Transport Committee, Sports Committee, City District Councils, Education Committee				
2.18a	Develop relevant courses on saving energy for the City's own staff	Environment and Health Committee			2024–2025	E
2.18b	Make sure that staff concerned have the required knowledge of energy-saving measures in their operations.	City Executive Board, Education Committee, City District Councils, Elderly Services Committee, Preschool Committee, Labour Market Committee, Social Services Committee	Environment and Health Committee		2024–2030	E
2.19	Investigate how the City's leases can provide incentives for energy efficiency improvements for both property owners and tenants.	City Executive Board	Stockholms Stadshus AB, Environment and Health Committee, Skolfastigheter i Stockholm AB, Real Estate Committee, Micasa Fastigheter i Stockholm AB, Sports Committee, City District Councils, Education Committee, Elderly Services Committee, Preschool Committee.		2024–2025	E
Energy use in Stockholm						
2.20	Contribute to improving the energy efficiency of existing buildings managed by tenant-owner associations and private individuals by boosting the ongoing advisory activities provided by the Energy and Climate Advisory Service (EKR) to property owners.	Environment and Health Committee		Academia	2024–2030	E
2.21	Phase out fossil oil heating through advice from the Energy and Climate Advisory Service to homeowners and through supervision of commercial property owners under the Swedish Environmental Code.	Environment and Health Committee		Academia	2024–2030	6,000 tonnes
2.22	Map the use of fossil oil for heating in business activities that are subject to supervision under the Swedish	Environment and Health Committee			2024	Potential not estimated

	Environmental Code, to encourage them to phase out the use of oil.					
2.23	Specify requirements in accordance with the City's adopted energy requirements when signing land allocation agreements and agreements to develop the City's land; also applies when the City is building on its own land.	City Development Committee	Environment and Health Committee, City Planning Committee	Builders	2024–2030	2,000–3,000 tonnes
2.24	Provide conditions to prevent increased energy use for cooling by investigating how to avoid overtemperature in buildings, by such means as sunshades, energy-efficient passive cooling or green structure.	City Planning Committee in collaboration with Environment and Health Committee and Transport Committee	Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, Real Estate Committee,	Academia, energy efficiency networks	2024–2026	E
Energy storage						
2.25	Investigate a fossil-free energy system in Loudden, including large-scale energy storage in caverns.	City Development Committee	Environment and Health Committee, Stockholm Exergi AB	Academia, energy companies concerned	2024–2026	E
2.26	Investigate large-scale energy storage by utilising existing district heating system in Ulvsunda.	City Development Committee	Environment and Health Committee, Stockholm Exergi AB	Academia, energy companies concerned	2024–2026	E
2.27	Investigate the conditions for electricity storage by transferring electricity from electric vehicles to buildings.	Stockholms Stads Parkerings AB	AB Familjebostäder, Environment and Health Committee	Business	2024–2025	E
2.28	Investigate electricity storage with batteries in buildings.	Environment and Health Committee	Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, Real Estate Committee	Business	2024–2025	E
Gas production, leaks and use						
2.29	Promote increased production of biogas.	Stockholm Vatten och Avfall AB		Business	2024–2030	E
2.30	Strive to reduce methane leaks from the City's gas grid.	City Executive Board	Environment and Health Committee, Stockholms Stadshus AB	Business	2024–2030	8,000 tonnes
Emissions from wastewater operations						

2.31	Improve and expand measurements of greenhouse gas emissions from wastewater operations.	Stockholm Vatten och Avfall AB			2025–2030	E
2.32	Renovate to reduce methane emissions within the Stockholm's Future Wastewater Treatment project (SFA).	Stockholm Vatten och Avfall AB			2024–2029	5,000 tonnes
2.33	Investigate and implement operating conditions that result in reduced nitrous oxide emissions from the wastewater treatment process.	Stockholm Vatten och Avfall AB			2024–2030	3,500 tonnes
2.34	Investigate pilot in Värtahamnen harbour for sorting wastewater systems and plan for large-scale implementation in Loudden	City Development Committee	Stockholm Vatten och Avfall AB	Business, academia	2024–2030	E

Transition area 3: Encourage sustainable, fossil-free transport

Measures in this area contribute primarily to the following milestones in the Environment Programme: 2.2 (which is a subset of milestone 2.1) and 2.3

The potential for reducing CO_2e emissions relates to emissions from travel within the geographical boundaries of the City (which is included in milestone 2.2 and is a subset of milestone 2.1). It is also considered that the measures will result in reduced emissions from
travel outside the geographical boundaries of the City (included in milestone 2.4), e.g. through increased electrification of the vehicle fleet also used for travel outside the City. The potential for this has not been estimate

Measure no.	Brief description of measure	Primary responsibility	Joint responsibility/supported by	Collaboration with	Duration	Potential for reduced CO2e emissions (E=enabler)
Increased transport efficiency and electrification of road transport The potential for reduced emissions is based on a scenario in which it is estimated that increased transport efficiency and the electrification of road transport can result in a total emission reduction of up to 400,000 tonnes, provided that the goal for reduced road traffic of 30% compared with 2017 is achieved and that an electrification level of 80% of cars, 54% of light goods vehicles and 20% of heavy goods vehicles by 2030 is achieved. It has not been possible to estimate the impact of individual measures. Low scenario: It is estimated that increased transport efficiency and the electrification of road transport can result in a total emission reduction of up to 250,000 tonnes, provided that reduced road traffic of 12% compared with 2017 is achieved and that an electrification level of 60% of cars, 34% of light goods vehicles and 5% of heavy goods vehicles by 2030 is achieved.						*400,000 tonnes (low scenario 250,000 tonnes)
Increased transport efficiency of road transport						
3.1	Adapt road and street infrastructure and regulations for more efficient transport					

3.1a	Convert approach roads to the inner city into city streets in a denser urban environment through a redistribution of spaces and adaptation of regulation and traffic management.	Transport Committee	City Development Committee, City Planning Committee and City District Councils	Swedish Transport Administration, nearby municipalities, property owners	2024–2030	Included in *
3.1b	Redistribute the road space to achieve better public transport connections by bus.	Transport Committee		Transport Department Region Stockholm.	2024–2030	Included in *
3.1c	Develop management in the direction of reduced car traffic.	Transport Committee	City Development Committee, City Planning Committee, Stockholms Stads Parkerings AB, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, City Executive Board	Academia, civil society, mobility companies, parking companies	2024–2030	Included in *
3.1d	Make investments for increased cycle-friendliness in accordance with the cycling plan.	Transport Committee	City Development Committee, City Planning Committee, City District Councils	Region Stockholm, academia, civil society	2024–2030	Included in *
3.1e	Implement investments for increased pedestrian-friendliness in accordance with the walking plan.	Transport Committee	City District Councils, City Development Committee, City Planning Committee		2024–2030	Included in *
3.1f	Implement investments for improved accessibility of surface public transport in accordance with the public transport plan.	Transport Committee, City Development Committee	City Planning Committee	Transport Department Region Stockholm.	2024–2030	Included in *
3.1g	Revise and apply new guidelines for parking in new production.	City Development Committee	Transport Committee, City Planning Committee, Stockholm Stads Parkerings AB, City Executive Board, AB Stockholmshem, AB Svenska Bostäder, AB Familjebostäder		2024	Included in *
3.1h	Develop more attractive bus services with efficient interchanges in line with the City's public transport plan.	Transport Committee		Transport Department Region Stockholm.	2024–2030	Included in *
3.1i	Implement measures in line with the parking plan.	Transport Committee			2024–2030	Included in *
3.1j	Reassign traffic spaces as spaces for recreation, greenery and ecosystem services.	Transport Committee	City Development Committee, City Planning Committee, City District Councils	Transport Department Region Stockholm, property owners	2024–2030	Included in *
3.1k	Investigate the introduction of more urban clean air zones.	Transport Committee			2024–2026	Included in *

3.1l	Develop sustainable and efficient freight transport in accordance with the City's freight transport plan.	Transport Committee	City Development Committee, City Planning Committee, Environment and Health Committee, Stockholms Hamn AB, Stockholm Business Region AB	Business, academia, civil society	2024–2030	Included in *
3.2	Promote other and more efficient instruments for sustainable travel, e.g. development of the congestion charge.	City Executive Board	Environment and Health Committee, Transport Committee	Government, parliament, trade associations and business	2024–2027	Included in *
3.3	**The City's own operations and collaborations with others**					
3.3a	Collaborate with sports clubs on sustainable travel to training sessions and competitions.	Sports Committee	Environment and Health Committee	Civil society, nearby municipalities	2024–2026	Included in *
3.3b	Promote shared mobility services by investigating the conditions and appropriate business models for large-scale shared mobility in a larger area.	AB Stockholmshem, AB Svenska Bostäder, AB Familjebostäder, Stockholms Stads Parkerings AB	Environment and Health Committee, Transport Committee, City Planning Committee	Tenant associations, tenants, business	2024–2026	Included in *
3.3c	Investigate improved conditions for car pools and shared mobility	Transport Committee, Environment and Health Committee, Municipal Executive Board, AB Stockholmshem, AB Svenska Bostäder, AB Familjebostäder, Stockholms Stads Parkerings AB, City Development Committee, Real Estate Committee		Government, parliament, property owners	2024–2025	Included in *
3.3d	Limit access to the City's parking facilities in the Class 3 Clean Air Zone for vehicles that do not meet the requirements.	Stockholms Stads Parkerings AB	Transport Committee, AB Stockholmshem, AB Svenska Bostäder, AB Familjebostäder		2024–2025	Included in *
3.3e	Adopt and apply a new City-wide travel and meeting policy.	City Executive Board	All councils, committees and executive boards		2024–2025	Included in *
3.3f	Expand "cycle-friendly workplace" concept to all of the City's workplaces to encourage employees to choose to cycle to work.	Municipal Executive Board in collaboration with Environment and Health Committee and Real Estate Committee	All councils, committees and executive boards	Civil society	2024–2026	Included in *
Rail						
3.4	Develop Stockholm as a train destination.	City Executive Board, Stockholm Business Region AB		Business, Swedish Transport Administration, other municipalities	2024–2026	Included in *

3.5	Strive to create a stronger railway infrastructure that relieves the road network of freight and passenger traffic	City Executive Board, Transport Committee, City Planning Committee, Stockholm Business Region		Swedish Transport Administration and Region Stockholm	2025–2030	Included in *
Increased electrification of road transport						
3.6	Build adequate and appropriate charging infrastructure throughout the City					
3.6a	Coordinate planned charging infrastructure for equal access, in accordance with quantified goals.	Transport Committee	AB Svenska Bostäder, AB Familjebostäder, AB Stockholmshem, Stockholms Stads Parkerings AB, Real Estate Committee, Skolfastigheter i Stockholm AB	Grid companies and charging operators	2024–2030	Included in *
3.6b	Build charging infrastructure in properties and on parking areas over which City's councils, committees and executive boards have authority, in accordance with quantified goals.	AB Svenska Bostäder, AB Familjebostäder, AB Stockholmshem, Stockholms Stads Parkerings AB, Sports Committee, Real Estate Committee, Stockholms Hamn AB, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB	Transport Committee	Grid companies	2024–2026	Included in *
3.6c	Make it easier for private operators to build public charging infrastructure on the streets where appropriate.	Transport Committee	City Executive Board, City Development Committee	Academia, business, civil society	2024–2030	Included in *
3.6d	Strive to expand charging infrastructure at tenant-owner associations, single-family houses, private landlords and companies, by such means as communication initiatives.	Environment and Health Committee	Transport Committee		2024–2030	Included in *
3.6e	Strive to expand charging infrastructure through land allocations, leases and development agreements.	City Development Committee	Transport Committee	Construction companies	2024–2030	Included in *
3.6f	Strive to expand charging infrastructure for heavy goods vehicles, work machinery and tourist coaches.	Transport Committee	City Executive Board, Stockholms Hamn AB, Environment and Health Committee and City Development Committee	Business, grid companies, the region	2024–2030	Included in *
3.7	Develop and apply requirements in connection with procurement and purchasing that promote electric operations, and improve follow-up.	City Executive Board	Environment and Health Committee, Service Committee, City Development Committee, Transport Committee	Trade associations, business	2024–2030	Included in *
3.8	Implement Class 3 Clean Air Zone according to the City's decision.	Transport Committee			2024–2030	Included in *

3.9	Integrate important electrification perspectives into the City's strategic development work to manage efforts to manage goal conflicts, identify synergies and ensure rapid electrification.	City Executive Board in collaboration with City Planning Committee and Transport Committee	Environment and Health Committee	Business, interest groups, academia	2024–2030	Included in *
3.10	Develop regulation to accelerate the transition to zero-emission transport through off-peak freight transport.	City Executive Board in collaboration with Transport Committee	Environment and Health Committee	Academia, public sector actors, business	2024–2030	Included in *
3.11	Rationalise and coordinate goods deliveries in the City's operations.	Service Committee, Transport Committee, City Executive Board, Education Committee, City District Councils			2024–2030	Included in *
3.12	Encourage the sharing of charging infrastructure.	Transport Committee	City Development Committee, Stockholms Stads Parkerings AB, AB Familjebostäder, AB Stockholmshem, AB Svenska Bostäder, Stockholms Hamn AB, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, Environment and Health Committee, City Executive Board	Grid companies	2024–2030	Included in *
3.13	Coordinate work on electrification within the City's councils, committees and executive boards, and collaborate with actors in the Electrification Pact.	Transport Committee	City Development Committee, Stockholms Stads Parkerings AB, AB Familjebostäder, AB Stockholmshem, AB Svenska Bostäder, Stockholms Hamn AB, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, Environment and Health Committee, City Executive Board, Real Estate Committee	Grid companies	2024–2030	Included in *
3.14	Develop test beds, pilots and innovative working methods that enable rapid electrification.	Transport Committee, City Development Committee	City Executive Board, Environment and Health Committee	Business, academia and civil society.	2024–2030	Included in *
Increased proportion of fossil-free fuels						
3.15a	Specify requirements for fossil-free fuels in procurement processes.	All councils, committees and executive boards	Environment and Health Committee	Business	Started–2030	20,000 tonnes
3.15b	Develop procedures and digital tools for follow-up on vehicle, machine and fuel requirements in procurement. Follow up on each council, committee and executive board.	City Executive Board	Environment and Health Committee, Transport Committee, City Development Committee		2024–2026	Included in 3.15a

3.16	Strive to establish long-term instruments that favour renewable fuels (high content of renewable fuels in petrol and diesel, and promote long-term tax exemption for biogas).	City Executive Board	Environment and Health Committee	EU institutions, government, parliament, business, trade associations	2024–2026	E
3.17	Ensure that the City's own work machines are powered by renewable fuels, and that hand-held work machines are powered by electricity.	All councils, committees and executive boards that have machines and vehicles	Environment and Health Committee		2024–2025	E
Aviation						
3.18	Strive to bring forward the closure of Bromma Airport.	City Executive Board		Government, business	2024	8,000 tonnes (potential effect on flights outside the City's boundaries is not included) Emissions will be reduced when the airport is closed down.
Shipping						
3.19	Continued expansion of the electrical connections for ships at quayside Stockholm.	Stockholms Hamn AB		Shipping customers, other ports, energy companies/grid owners	2024–2030	25,000 tonnes
3.20	Continued development of environmental incentives for shipping customers that do more than is required by the regulatory framework.	Stockholms Hamn AB		Trade associations for ports and shipping, academia.	2024–2030	5,000 tonnes
3.21	Contribute to the electrification of local shipping and public transport on water.	Stockholms Hamn AB	Transport Committee, Environment and Health Committee	Transport Department Region Stockholm, shipping companies, energy companies	2024–2030	5,000 tonnes
3.22	Strive to expand public transport on water.	Stockholms Hamn AB in collaboration with Transport Committee	City District Councils, City Development Committee, City Planning Committee	Traffic Department Region Stockholm.	2024–2030	3,000 tonnes
3.23	Increased transportation of spoils on water within Stockholm.	City Development Committee	City Planning Committee, Transport Committee, Stockholms Hamn AB	Purchasers	2024–2030	7,000 tonnes

3.24	Implementation of measures/investments in infrastructure in the port, or in the vicinity of the port, for renewable fuels/e-fuels for transport activities both on shore and at sea.	Stockholms Hamn AB		Shipping customers, energy/fuel companies, municipalities	2024–2030	Potential not estimated
3.25	Strive to boost inland shipping that relieves the road network, above all of freight transport on land.	Stockholms Hamn AB	Transport Committee	Shipping customers, ports, trade associations, Swedish Maritime Administration, Swedish Transport Administration, Swedish Transport Agency	2024–2030	Potential not estimated
3.26	Creation of green shipping corridors (across the Baltic Sea).	Stockholms Hamn AB		Shipping customers, ports, Swedish Transport Administration, grid companies	2024–2030	3,000 tonnes
3.27	Encourage better use of train transport to and from Stockholm Norvik Port.	Stockholms Hamn AB	Transport Committee	Business, Swedish Transport Administration	2024–2030	Potential not estimated
3.28	Collaborate with civil society and business to reduce the climate impact of pleasure boats.	Sports Committee	Environment and Health Committee	Collaboration with other archipelago municipalities within Stockholm County, associations, business	2024–2030	Potential not estimated

Transition area 4: Plan, build and develop the City in a circular and sustainable way

Measures in this area contribute primarily to the following milestones in the Environment Programme: 2.1 and 2.4

Measure no.	Measure	Primary responsibility	Joint responsibility	Collaboration with	Duration	Potential for reduced CO_2e emissions (E=enabler)
Climate impact in the planning and development process						
4.1	Develop and conduct climate analyses at the different stages of the planning and development process, from comprehensive planning to detailed planning. The analyses must show how different statements of position can contribute to reduced climate impact. They may describe, for example, what conditions the plan creates for	City Planning Committee in collaboration with City Development Committee	Environment and Health Committee, Transport Committee	Construction industry, academia, the region, other municipalities	2025–2030	E

	transport efficiency, green structure, energy use, handling spoils, demolitions and circular construction).					
4.2	Enable resource-efficient use of the built environment by making it easier for builders to adapt existing buildings instead of demolition and new production.	City Planning Committee	Environment and Health Committee, Culture Committee		2024–2030	2,000 – 6,000 tonnes
4.3	Investigate the potential for the rebuilding, extension and expansion of the City's existing buildings when the City needs new functions, to reduce the need for new construction.	Real Estate Committee, AB Svenska Bostäder, AB Stockholmshem, AB Familjebostäder, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB Studentbostäder i Stockholm AB, S:t Eriks Markutveckling AB	City Development Committee, City Planning Committee, Culture Committee, Social Services Committee, City District Councils, Education Committee	Construction industry, academia	2024–2030	E
4.4	Map areas in the City or owned by the City that can be restored and become carbon sinks or preserved as carbon storage, and calculate how much carbon can be sequestrated in these.	Environment and Health Committee	City District Councils, Transport Committee, Real Estate Committee, City Planning Committee, Stockholm Vatten och Avfall AB	Academia	2024–2025	E
4.5	Conduct a review of the governing documents of each council and committee (e.g. building regulations, technical manual, etc.) to identify any needs for revision in order to increase circularity and reduce climate impact.	City Planning Committee, City Development Committee, Transport Committee	Environment and Health Committee, AB Familjebostäder, AB Svenska Bostäder, AB Stockholmshem, Real Estate Committee, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB		2024–2030	E
4.6	Investigate barriers to the reuse of construction materials and take action, such as reducing detailed requirements for buildings that make reuse more difficult	City Planning Committee, City Development Committee, Environment and Health Committee			2024–2025	E
Construction and civil engineering projects						
4.7	Conduct a climate analysis when designing construction and civil engineering projects, and identify and implement measures to reduce emissions. Methods for climate analysis need to be developed and adapted over time.	Transport Committee, Stockholm Vatten och Avfall AB, AB Stokab, Stockholms Hamn AB, City Development Committee, AB Familjebostäder, AB Stockholmshem, AB Svenska Bostäder, Micasa Fastigheter i Stockholm AB, Skolfastigheter i Stockholm AB, Stockholm Stads Parkerings AB, Real Estate Committee, S:t Erik Markutveckling AB, Sports Committee, Stockholm Exergi AB, City District Councils	Environment and Health Committee	Trade associations	2024–2030	A halving of emissions from the construction sector corresponds to a reduction in emissions of approximately 100,000 tonnes

4.8	Further develop climate requirements based on *Joint environmental requirements for contracts* and apply stricter requirements in the procurement of the City's civil engineering projects.	Transport Committee	Stockholm Vatten och Avfall AB, AB Stokab, Stockholms Hamn AB, City Development Committee, AB Familjebostäder, AB Stockholmshem, AB Svenska bostäder, Micasa Fastigheter i Stockholm AB, Skolfastigheter i Stockholm AB, Stockholms Stads Parkerings AB, Real Estate Committee, S:t Erik Markutveckling AB, Sports Committee, Stockholm Exergi AB, City District Councils, Environment and Health Committee	Trade associations	2024–2030	Potential not estimated
4.9a	Plan to specify requirements for limit values for climate impact from new production (A1-A5) when building on the City's land, and where appropriate try to specify stricter requirements than the legislator's.	City Development Committee	City Planning Committee, Environment and Health Committee	Construction industry	2025	E (potential of over 100,000 tonnes when construction is carried out according to specified requirements)
4.9b	Specify requirements for limit values for climate impact from new production (A1-A5), and where appropriate, try to set stricter requirements than the legislator's.	Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, Real Estate Committee	City Planning Committee, Environment and Health Committee	Construction industry	2024–2030	20,000 tonnes
4.10	Develop guidelines/methodology for climate calculations in the renovation and maintenance of buildings, and draw up instructions for requirements for climate calculations.	Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, Real Estate Committee	Environment and Health Committee	Other municipalities, trade associations	2024–2026	E (potential of approximately 50,000 tonnes, assuming a halving of emissions from renovation and maintenance of buildings)
4.11a	Investigate the conditions, plan and implement reuse depots for construction and civil engineering materials for the City's operations.	Environment and Health Committee	AB Familjebostäder, AB Svenska Bostäder, AB Stockholmshem, Real Estate Committee, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, City Planning Committee, City Development Committee St. Erik Markutveckling AB, Stockholm Globe Arena Fastigheter AB, Stockholmsmässan AB, Labour Market Committee,		2024–2025	E

			Stockholm Vatten och Avfall AB, Transport Committee			
4.11b	Investigate the conditions, plan and strive to introduce reuse depots for construction and civil engineering materials for external actors' operations.	Stockholms Stadshus AB	Environment and Health Committee	Business	2024–2030	E
4.12	Strive to ensure that the property sector creates a digital system providing on overview of material used in buildings that are within urban development areas or to be demolished. The system should show what material can be available for reuse and when it becomes available, and investigate how the system can be implemented	Environment and Health Committee	City Development Committee, City Planning Committee, AB Family Housing, AB Svenska Bostäder, AB Stockholmshem, Real Estate Committee, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, S:t Erik Markutveckling AB, Stockholm Globe Arena Fastigheter, Stockholmsmässan AB	Region Stockholm, other municipalities, academia	2024–2027	E
4.13	Investigate financial tools to put a price on the climate impact of investments in construction and civil engineering projects in order to reward alternatives with a lower climate impact.	City Executive Board	Environment and Health Committee	Academia, Swedish Transport Administration	2024–2026	E
4.14	Investigate opportunities for the introduction of a bonus penalty model for requirement specifications in the procurement of construction contracts and in the execution phase of construction projects, in order to reduce climate impact and promote increased reuse.	Real Estate Committee, AB Familjebostäder, AB Svenska Bostäder, AB Stockholmshem, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB	Environment and Health Committee	Other municipalities, Region Stockholm, academia	2024–2025	E
4.15a	Develop a method for monitoring the amount of construction waste.	Environment and Health Committee	AB Familjebostäder, AB Stockholmshem, AB Svenska Bostäder, Micasa Fastigheter AB, Skolfastigheter i Stockholm AB, Stockholm Globe Arena Fastigheter, Stockholms Hamn AB, Stockholm Vatten och Avfall AB, Real Estate Committee, Cemeteries Committee, City Development Committee	Trade associations, business	2024–2025	E
4.15b	Implement method for monitoring construction waste and specify requirements for reduced amount of construction waste.	AB Familjebostäder, AB Stockholmshem, AB Svenska Bostäder, Micasa Fastigheter AB, Skolfastigheter i Stockholm AB, Stockholm Globe Arena Fastigheter, Stockholms Hamn AB, Stockholm Vatten och Avfall AB, Real Estate Committee,	Environment and Health Committee	Trade associations, business	2025	15,000 – 25,000 tonnes

		Cemeteries Committee, City Development Committee				
4.16	Develop and implement organisation-specific renovation and maintenance strategies in order to extend useful life and avoid premature replacement of construction materials in the City's properties.	Real Estate Committee, AB Familjebostäder, AB Svenska Bostäder, AB Stockholmshem, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB	Environment and Health Committee	Tenant associations, property owners	2024–2025	Potential not estimated
4.17	Develop guidelines on how skills requirements for operators can be specified regarding climate and circularity in the procurement of project planning and execution of construction projects.	Environment and Health Committee	AB Familjebostäder, AB Svenska Bostäder, AB Stockholmshem, Real Estate Committee, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, S:t Erik Markutveckling AB, Stockholm Globe Arena Fastigheter, Stockholmsmässan AB	Other municipalities, Region Stockholm	2024–2026	E
4.18	Investigate goal conflicts between energy requirements and reduced climate impact in order to provide base data for prioritising when there is a risk that improving energy efficiency may result in increased climate impact due to the choice of material/technology.	Environment and Health Committee, Stockholms Stadshus AB	Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, AB Stockholmshem, AB Familjebostäder, AB Svenska Bostäder, Real Estate Committee	Academia	2024–2025	E

Transition area 5: Promote consumption with a low climate impact in the City's own organisation

Measures in this area contribute primarily to the following milestones in the Environment Programme: 2.2, 2.4 and 2.5

Measure no.	Measure	Primary responsibility	Joint responsibility	Collaboration with	Duration	Potential for reduced CO2e emissions (E=enabler)
Mapping of emissions for each council, committee and company						
5.1	Conduct mapping and reporting of companies' greenhouse gas emissions from purchases, with the aim of developing measures to halve emissions by 2030.	Stockholm Vatten och Avfall AB, Skolfastigheter i Stockholm AB, AB Familjebostäder, AB Svenska Bostäder, AB Stockholmshem, Skolfastigheter i Stockholm AB, Micasa Fastigheter i Stockholm AB, Stockholms Stads Parkerings AB, Stockholms Hamn AB	Environment and Health Committee		2024–2025	E
5.2	Conduct mapping and reporting of councils' and committees' greenhouse gas emissions from purchases, with the aim of developing measures to halve emissions by 2030.	City Development Committee, Transport Committee, Real Estate Committee, Education Committee, City District Councils, Sports Committee, City Executive Board, Culture Committee, Social Services Committee, Cemeteries Committee, Elderly Services Committee	Environment and Health Committee		2024–2026	E
General measures for the purchasing process						
5.3a	Identify gaps between theory and practice in the City's joint purchasing process in order to achieve reduced climate impact.	City Executive Board	All councils, committees and executive boards	Relevant suppliers, trade associations and other contracting authorities.	2024–2025	E
5.3b	Develop and implement actions to bridge identified gaps.	City Executive Board	Relevant councils, committees and executive boards	Relevant suppliers, trade associations and other contracting authorities.	2026–2030	E
5.4	Develop concepts for developing employees' skills within the City's purchasing organisation to reduce the climate impact of purchasing.	City Executive Board in collaboration with the Environment and Health Committee	All councils, committees and executive boards		2024–2025	E
5.5	Develop purchasing-related measures in operational planning to reduce climate impact.	All councils, committees and executive boards	City Executive Board, Environment and Health Committee	The City's suppliers	2025–2030	E

5.6	Develop requirements and digital tools for reporting climate data from suppliers in connection with procurement.	City Executive Board in collaboration with the Environment and Health Committee and the councils, committee and executive boards that are category owners.	Service Committee	Supplier market, Swedish National Agency for Public Procurement, academia	2024–2030	E
5.7	Develop requirements for sustainability labelling in connection with procurement, as well as system and method support to facilitate climate-smart and resource-smart choices in purchasing.	City Executive Board in collaboration with the Environment and Health Committee	Service Committee		2025–2027	E
Foods and meals purchased in the City's operations						
5.8	Investigate the conditions and organisation, and introduce a City-wide support function for food and meal issues linked to climate, nutritional value, ecology, security of supply and business.	City Executive Board	City District Councils, Education Committee, Elderly Services Committee, Preschool Committee, Social Services Committee, Environment and Health Committee, Service Committee	Business, Swedish Civil Contingencies Agency	2024–2025	E
5.9	Investigate how meals with 1.25 kg of CO_2e per kg of food can be composed for the City's various operations, and investigate what support tools are required.	Education Committee, Elderly Services Committee, Preschool Committee, Social Services Committee	Environment and Health Committee, Service Committee, City District Councils	Business, academia	2024–2025	E
5.10	Update the City's food strategy and include a City-wide food and meal policy in order to provide uniform guidance towards climate goals and aspects relating to nutrition and public health. Develop associated guidance, training materials and training initiatives.	City Executive Board	Service Committee, Environment and Health Committee, Social Services Committee, City District Councils, Education Committee, Elderly Services Committee, Preschool Committee		2024–2025	E
5.11	Implement and establish systematic work to reduce the climate impact of food and meals in the City's operations.	City District Councils, Education Committee, Elderly Services Committee, Preschool Committee, Social Services Committee	Service Committee, Environment and Health Committee		2024–2026	15,000 tonnes
5.12	Implement measures to reduce food waste, and follow up with annual measurement. Each operation reports the measures taken and evaluates their effects.	City District Councils, Education Committee, Elderly Services Committee	Environment and Health Committee, Preschool Committee, Social Services Committee		2024–2030	3,000 tonnes
Reduced use of plastics and increased recycling of plastics from the City of Stockholm's organisation						
5.13	Draw up guidelines and supporting materials to integrate the City of Stockholm's plastics strategy into purchasing work.	Environment and Health Committee	Service Committee, City Executive Board	Swedish National Agency for Public Procurement	2024–2026	E

5.14	Draw up and disseminate guideline materials and support for the City of Stockholm's operations on how they can contribute to a reduced use of plastic consumables and increased sorting of operational waste (including plastic packaging).	Environment and Health Committee	Elderly Services Committee, City District Councils, Education Committee, Social Services Committee, Sports Committee, Preschool Committee, Stockholm Vatten och Avfall AB		2024–2030	E
5.15	Establish systematic work to reduce the use of plastic consumables and increase the sorting of operational waste (including plastic packaging) in the City's operations.	City District Councils, Education Committee, Social Services Committee, Sports Committee, Culture Committee, Elderly Services Committee	Environment and Health Committee, Preschool Committee, Stockholm Vatten och Avfall AB		2024–2030	3,000 – 10,000 tonnes
5.16	Implement systems that reduce and limit plastic use and increase the sorting of operational waste (including plastic packaging) in the City's operations.	City Executive Board			2024–2026	Potential not estimated
Other areas of consumption						
5.17a	Increase the use of the Stocket Återbruk project for increased circularity within the City's operations.	All councils, committees and executive boards	Labour Market Committee		2024–2030	Potential not estimated
5.17b	Develop Stocket Återbruk's product and service offering, as well as system support	Labour Market Committee			2024–2030	E
5.18	Map the City's internal textile flows and identify initiatives to increase circularity.	Environment and Health Committee	Labour Market Committee, Service Committee, City Executive Board	Suppliers and waste contractors procured by the City	2024–2026	Potential not estimated
5.19	Reduce the climate impact of the City's IT equipment through increased circularity.	City Executive Board	Environment and Health Committee, Service Committee	Suppliers of IT equipment and waste contractors procured by the City	2025–2030	10,000 – 20,000 tonnes
5.20	Map the City's prioritised material flows with the aim of identifying where potential exists to increase circularity and reduce climate impact.	Environment and Health Committee	City Executive Board		2024–2026	E

Notes