



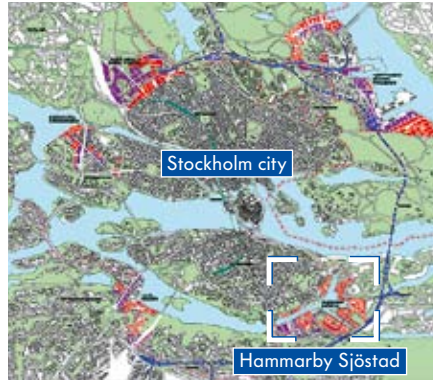
Hammarby Sjöstad

– a new city district with emphasis on water and ecology



Hammarby Sjöstad – an international role model

The water has given its name to the new city district – Hammarby Sjö – the town around the lake where planning work began back in the 1980s. It was here that a unique opportunity to expand Stockholm’s inner city was envisaged, by converting an old industrial and harbour area into a modern city district. The focus throughout the planning work was on water and eco-friendly solutions. Hammarby Sjöstad now welcomes 13,000 visitors a year from all over the world.



tion of a closed, traditional inner city with more modernistic and open planning types. The inner city street dimensions, block sizes, building heights, density and functionality mix are integrated with a new openness, waterfront views, parks and sunlight.

Limited building depths, recessed penthouse flats, maisonettes, large balconies and terraces, big windows, flat roofs and light-coloured rendering on water-facing facades embody different applications of a modernistic architecture programme, as does the focus on sustainable materials, such as glass,



Once completed, Hammarby Sjöstad will have approximately 11,500 apartments for just over 26,000 residents, and a total of around 36,000 people will live and work within the area. The construction and development work are scheduled for completion by around 2018.

Architecture and urban development

Hammarby Sjöstad is Stockholm’s biggest urban development project for many years. The city district will offer a natural expansion of Stockholm’s inner city – a factor that has

influenced the structure, infrastructure, layout and construction design.

The expansion required extensive development of the infrastructure, with traffic barriers removed and the old industrial and terminal areas phased out, concentrated or given a new purpose. Stockholm and Nacka municipalities have agreed on the ways in which the areas on either side of the shared municipal boundary could interact and develop.

Hammarby Sjöstad adds a new “growth ring” to Stockholm’s urban growth – a modern, semi-open block-based city, a combina-

tion of wood, steel and stone.

Traffic and services are concentrated along a three-kilometre avenue linking Hammarby Sjöstad together, from Mårtensdal to Danvikstull.

Parks, quays and walkways have been laid out around Hammarby Sjö itself, while the water areas at the heart of the district comprise a concentrated visual park – the city district’s blue eye.

Taller buildings, facing the water, have been built along both sides of the Hammarby Seaway, in classic city centre style,

– a modern lake town, close to Stockholm City

and interact with large-scale quay facilities and expansive stretches of water.

The milieu at Sickla Udde and alongside Sickla Kanal is more intimate and smaller scale, with its natural beaches. Here, building sizes gradually fade towards the shoreline and then follows the contours of the land as it rises towards the avenues' crown and Sickla Park.

The housing in Sickla Kaj has a more urban style. Large-scale, multi-functional buildings lie along the avenue, while small-scale, detached front and back courtyard buildings



lie between the quays and the Sjöstad parterre, the park promenade.

Hammarby Gård has dense, urban milieus around a lens-shaped park area and a newly created pool.

Lugnet, on the shores of Hammarby Sjö, is home to a waterfront terrace, known as Lugnets Terrass, with jetty decking, pergolas and specially planted areas, adjacent to the avenue. Lugnet is also home to Hammarby Sjöstad's most special feature building in the form of a latticed cube that is double the height of those that surround it.



The Henriksdalshamnen harbour is among the last of the planned areas in Hammarby Sjöstad. Large numbers of quays are being built out into the water to create, among other things, a harbour basin with space for restaurants and small boats.

The plan is to route the heavily-trafficked Värmdöleden highway along a tunnel through Henriksdalsberget, to extend the Tvärbanan light railway towards Slussen, and to extend the avenue all the way up to a new service centre at Danvikstull.

– extensive public transport, close to culture and nature

Substantial investments have been made in public transport as part of the ambition to create an eco-friendly city district. The goal is for 80% of residents' and employees' journeys to be made by public transport, by cycling, or on foot.

The eco-friendly adaptation has also resulted in substantial investments in green spaces, walkways, several large parks, a reed park with wooden jetties, etc.



Light railway, ferry and carpool

The "Tvärbanan" light railway runs through the centre of Hammarby Sjöstad, along the avenue, and carefully designed bus routes provide direct access into Stockholm City.

A ferry traffics Hammarby Sjö throughout the year, from early in the morning until midnight, with an additional ferry operating between Hammarby Sjöstad and Nybroviken in Stockholm City during the summer months.

Residents and those working in the area also have access to three car pools. Around



910 people have currently joined the car pool, which has a total of 46 cars at its disposal. Electric cars can be recharged outside the Glashuset information centre building.

A new traffic link, Södra Länken, has been

adapted in line with the town's environmental requirements, and is a sunken road crossed by two "ecoducts", leading to Hammarbybacken and the Nacka nature reserve.

Services in Hammarby Sjöstad

The town has pre-schools and compulsory level schools, a retirement home alongside Sickla Kanal, and health care facilities located in the centre of the district.

Commercial services have gradually been expanded and the area now offers not only supermarkets but a fairly wide range of other commercial outlets.

Leisure and culture

Sickla Kanal has a quay with mooring space for 100 or so small boats, and a further 80 spaces are being built in the Henrikdalshamnen harbour.

A sports hall, Sjöstadshallen, lies to the east of the oak-covered slope on Sickla Udde. The Nacka nature reserve, Nackareservatet, on the southern side of the Södra Länken traffic



link, has paths for walking, jogging and skiing. In the summer months, Sickla sjö offers wonderful swimming opportunities, while in the winter, the slalom slopes of Hammarbybacken are within walking distance.

There is a library in Luma and a culture and theatre centre in Lugnet. Kulturama and Fryshuset offer both educational facilities and cultural activities aimed primarily at children and youngsters. Sofia parish conducts services in the Sjöstad chapel. The old Diesel factory, which now houses theatrical premises, a library, and puts on concerts and cultural workshops, is located nearby in the Sickla area.

All new construction, whether it involves housing and commercial premises or the outdoor environment, is accessible by disabled persons, in accordance with the City's disability policy.

Hammarby Sjöstad

– with new and integrated environmental solutions

The City of Stockholm has imposed strict environmental requirements on buildings, technical installations and the traffic environment. A special environmental programme was drawn up for Hammarby Sjöstad with the aim of cutting the environmental footprint by half in comparison with an area built in the early 1990s.

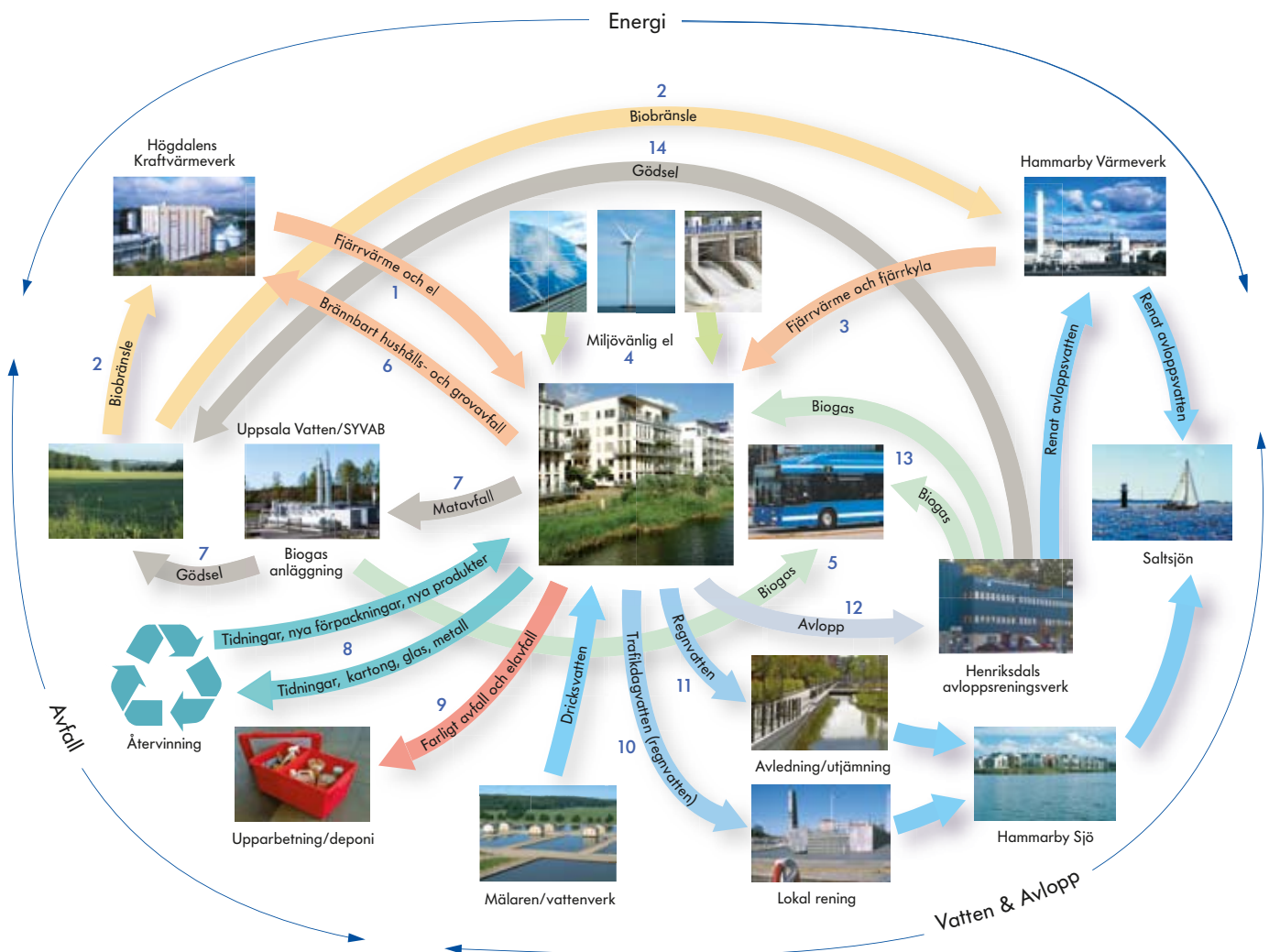
The strict environmental requirements demanded completely new environmental solutions and the Hammarby Sjöstad project office employed a new methodology where-

by officials from the relevant administrations and authorities formed a unified management team, right from the start of the project. The work was conducted on an interdisciplinary basis, and decision-making processes have consequently been greatly speeded up and the entire project has gone very smoothly. The planning process was unique and led to the creation of new and integrated environmental solutions in which the players' individual resources could be shared by all.

The Hammarby model

Hammarby Sjöstad has its own eco-cycle, the Hammarby Model, which describes the environmental solutions used for energy, waste, and water & sewage.

The Swedish Trade Council has developed a model for sustainable towns – Symbiocity – which is based on the experience gained in developing Hammarby Sjöstad. Find out more at www.symbiocity.org.



The Hammarby modell

Energy

1. Combustible waste is used to generate district heating and electricity.
2. Biofuels are used to generate district heating and electricity.
3. District heating and cooling are both produced using the purified wastewater.
4. Solar energy is converted into electrical power or used to heat water. Electricity should bear the Good Environmental Choice label, or equivalent.
5. Biogas is extracted from sewage sludge and food waste.

Waste

6. Combustible waste is converted into district heating and electricity.
7. Food waste is biodegraded to produce biogas that fuels vehicles, whilst the mulch becomes nutrient-rich fertiliser.
8. All material that can be recycled is sent for recycling: newspapers, cardboard, glass, metal, etc.
9. Hazardous waste and electrical waste is recycled or sent to landfill

Water & Sewage

10. Rainwater from the streets is treated locally and hence does not burden the wastewater treatment plant.
11. Rainwater from courtyards and roofs is led off into Hammarby Sjö.
12. Wastewater is treated and then helps in the production of district heating and cooling.
13. Biogas is extracted from biodegraded sewage sludge.
14. The biodegraded sewage sludge is used as fertiliser.

Environmental solutions – Waste

Waste is no longer just waste these days, it is a resource that must be utilised. New products are made from the recycled waste, enabling natural resources to be saved.



Three levels of waste management

Waste management is divided into three separate levels in Hammarby Sjöstad: property-based, block-based, and area-based.

Property-based sorting at source

The waste that is heaviest and generates the biggest volumes – household waste, food waste, newspapers and paper – is sorted and placed in different refuse chutes inside or adjacent to the properties.

Block-based recycling rooms

Waste that does not belong in the property-based refuse chutes can be left in the block-based recycling rooms. This category includes packaging, bulky waste and electrical waste.

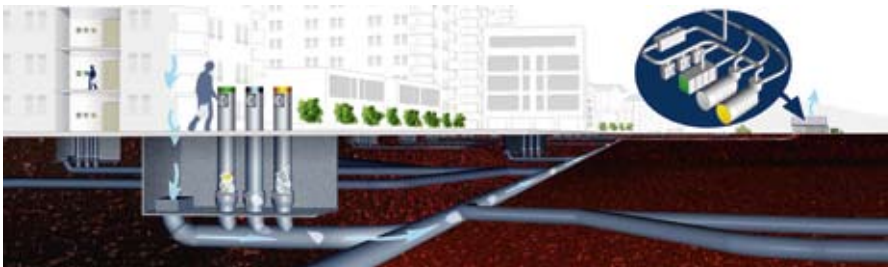


Area-based collection stations

Hazardous waste, such as paint, varnish and glue residues, nail polish, solvents, batteries and chemicals are sorted and handed in to the area collection station.

Automatic waste collection system

The refuse chutes are linked by underground pipes to a central collection station to which the waste is carried by vacuum suction. An advanced control system sends the various fractions to the right containers – one for each fraction. The waste collection trucks can collect the containers without driving into the area and the refuse collectors avoid heavy lifting.



Environmental solutions – Energy

Once construction of Hammarby Sjöstad is completed, the residents will produce 50% of the fuel used to generate the energy they need. Treated wastewater and waste are used in the production of heating, cooling, electrical power and biogas. The area also uses new energy technology, such as solar cells and solar panels.

District heating and District cooling

The Högdalen district thermal plant uses combustible waste to produce district heating and electricity, while the Hammarby heating power plant uses the heat in the treated wastewater from the Henriksdal wastewater treatment plant to produce district heating.



The wastewater, which is now cooled, can be used to cool the water circulating in the district cooling network in Hammarby Sjöstad and throughout the city.

Biogas and fertiliser

Food waste and sewage sludge are biodegrades to produce biogas, which is used by the Stockholm city buses, and digested mulch, which is used as fertiliser.

Solar cells, solar panels

The sun's luminous energy is converted to electrical energy in solar cells. Solar cells have been installed on several facades and roofs, e.g. on Sickla Kanalgata. Two buildings have been fitted with solar cells that provide the electricity needed for the buildings' communal areas.

390 m² of solar panels have been installed on the roof of the Viken block and use solar heat to warm water, producing half of the building's annual hot water requirements.



Environmental solutions – Water and sewage

One of Hammarby Sjöstad's environmental goals is to halve water consumption. Stockholm residents use 200 litres of water/person/day. The goal in Hammarby Sjöstad is 100 litres, and thanks to eco-friendly installations, consumption levels are currently at around 150 litres.

Cleaner wastewater is another goal: the quantities of environmentally harmful substances reaching the archipelago via the treated wastewater shall be reduced and the aim is also to recycle cleaner sewage sludge to the agricultural sector. The level of hazardous substances shall be reduced by 50 % and 95 % of the phosphorus shall be separated out and recycled for use on farms.

Cutting edge technology evaluated

Sjöstadsverket, a test treatment plant for wastewater from the equivalent of 600 people in Hammarby Sjöstad, has been built in order to evaluate new technology. The four treatment lines being tested use chemical, physical and biological processes. The wastewater sent to the local treatment plant comes exclusively from the residential units in the area and not from surface water and industries, and the levels of contaminant it contains are, therefore, hopefully minimal.



Biogas extracted from sewage sludge

The sewage sludge from the treatment plants is biodigested and biogas extracted. Biogas, the most eco-friendly fuel currently available, is used by buses and approximately 1,000 gas stoves in Hammarby Sjöstad. The sludge is then used as fertiliser.



Storm water

Storm water, rainwater and melt water are all processed locally.

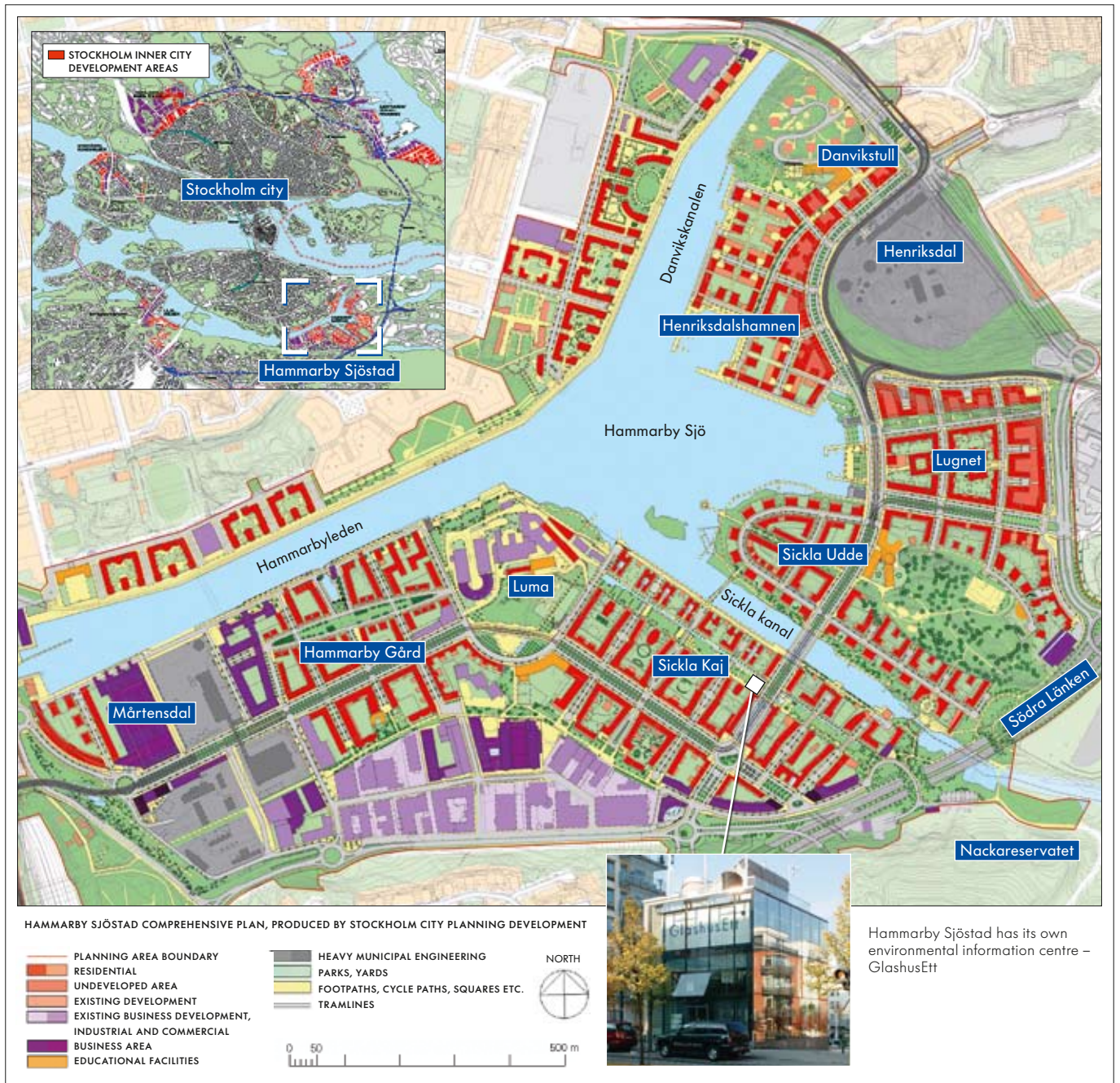
Storm water from city block ground is infiltrated into the soil or channelled to Sickla Kanal, Hammarby Kanal or Danvikskanal. A storm water canal that conducts water from courtyards, via numerous small gutters, runs through the Sjöstad parterre, from where it is carried on into Hammarby Sjö through the water ladder designed by artist, Dag Birke-land.

Storm water from roads is treated in open or closed treatment plants and then carried out into Hammarby Sjö.

Green roofs

The green roofs covered in sedum plants visible on several buildings are designed to collect rainwater, delay it, and then shed it. The plants also help provide heat insulation and, at the same time, create living green areas in the townscape.





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