



Helsinki City Transport – a key player in a sustainable city



Environmental awareness is intrinsic to HKL's values

HKL has a major impact on the environment



Matti Lahdenranta
Managing Director

Public transport provides an environmentally acceptable way of getting around. In Helsinki both political decision-makers and the authorities are cooperating closely to promote and improve public transport.

Environmental work is an inherent part of Helsinki City Transport's – HKL – everyday operations. HKL production units are working on an environmental management system in compliance with the ISO 14001 standard. HKL Bus received quality and environmental management certification back in 1998 and was the first public body to do so. HKL Tram and HKL Metro are also committed to the principles enshrined in the ISO standard. The Administration and Finances Unit and Planning Unit put in place a WWF Green Office environmental management system in 2001. The Head Office was audited in 2002 and granted the right to use the WWF Green Office label.

This brochure provides information about HKL's most significant environmental impacts and describes the work HKL is doing to protect the environment.



HKL's environmental policy is underpinned by the four principles below:

- Favouring public transport
- Environmentally sound vehicles, technology and fuels
- Motivating personnel and promoting a good driving culture
- Traffic planning

HKL's environmental policy

- We promote the use of public transport and operate public transport services to ensure the smooth functioning of the city and help protect the environment.
- We ensure that our own production of transport services, infrastructure construction and maintenance as well as purchases are environmentally sound and comply with the principles of sustainable development.
- We take environmental matters into consideration in staff training and encourage our staff to put environmental work into practice.
- We cooperate with the authorities and various organisations on the national and international level. Audits and self-assessment ensure our operations and services are environmentally efficient and economical.
- We pursue an active policy of providing our passengers, staff and other stakeholders with information on environmental matters.

Using public transport is an environmental statement

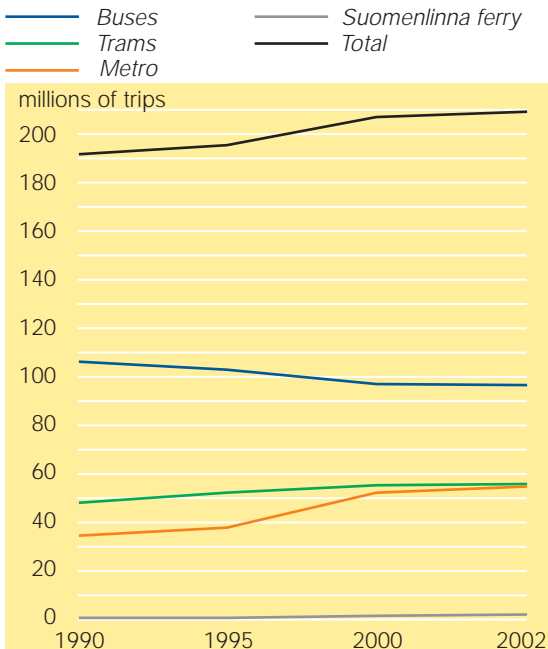
Traffic emissions have the greatest impact on local air quality. Using buses, trams and metros does not give rise to as many adverse environmental impacts as use of a private car.

Public transport currently caters for over 70 per cent of rush hour traffic to and from downtown Helsinki. The aim is for three out of every four journeys to and from the centre to be made by public transport.

Carbon dioxide and transport

Carbon dioxide is a greenhouse gas that contributes to climate change. The amount of carbon dioxide emitted by various forms of transport is in direct correlation to their energy consumption. Vehicles account for about 20 per cent of total carbon dioxide emissions in the Helsinki Metropolitan Area. Of this, buses account for 8 per cent and trams for 2 per cent. Passenger cars produce roughly 60 per cent of vehicular carbon dioxide emissions, goods transport accounting for about 30 per cent.

Journeys by public transport within Helsinki in 1990 - 2002



Given the amount of space used, public transport is far superior to private motoring. Efficient and competitive public transport reduces emissions, saves street space and thereby improves the urban environment.

A bus with 70 passengers equals 55 cars (1.3 passengers per car)



A metro train equals 700 cars



Public transport and sustainable development

Buses

The most harmful substances from the perspective of the environment and health are the particulates emitted by motor vehicles. The use of natural gas buses reduces these emissions, because natural gas produces considerably fewer harmful particles and oxides of nitrogen than diesel fuel. An earlier switch to the use of CityDiesel had already reduced sulphur dioxide emissions from buses.

The consumption of diesel fuels totalled 10 million litres in 2002 (10.2 million litres in 2001).

Trams and the Metro

The environmental impacts of tram and Metro traffic are noise and street dust as well as the emissions pro-

duced in generating the electricity to power these services. HKL purchases the electricity used by trams and the Metro from Helsinki Energy.

HKL Tram used 22.5 GWh of electricity to drive vehicles and heat points in 2002 (21.2 GWh in 2001). Consumption per passenger-kilometre was 0.19 kWh (0.68 MJ).

Including points heating, the Metro used 39.8 GWh of electricity in 2002 (32.2 GWh in 2001).

Consumption per passenger-kilometre was 0.10 kWh (0.36 MJ). Consumption has been increasing with the introduction of new trains, which accelerate faster, weigh more and have air-conditioned driver's compartments.



Increasing the share of public transport improves air purity in the city centre and reduces particulate emissions and the greenhouse gas carbon dioxide.

"We promote the use of public transport and operate public transport services to ensure the smooth functioning of the city and help protect the environment."

HKL's environmental policy

Year	Consumption		
	million litres	litre/100 km	litre/passenger-km
1998	10.6	50.4	0.039
1999	10.4	46.5	0.040
2000	10.1	46.4	0.039
2001	10.2	48.3	0.046
2002	10.0	48.1	0.046

Consumption/passenger-kilometre means the amount of energy needed to transport one passenger one kilometre.



Bus emissions in 2002	Emissions (tonnes)	Reduction since 1990 (%)
Carbon monoxide	25.0	50.5
Hydrocarbons	12.0	44.2
Oxides of nitrogen	197.0	35.2
Particulates	4.0	53.5
Sulphur oxides	0.3	98.8



Total emissions caused by generation of the electricity used by trams and the Metro in 2002	Trams tonnes	Metro tonnes
	Carbon oxide	6,525
Sulphur oxides	5.6	9.9
Oxides of nitrogen	8.3	14.7
Particulates	0.4	0.8

Helsinki Energy's product declaration 2002,
Helsinki Energy's air pollution control load 2002

"It's so quick and convenient to get to work by public transport. Instead of sitting pointlessly in a car in a traffic jam, I can think about work matters at my leisure," says Jari Jakonen, a project manager and regular HKL passenger.



Public transport and sustainable development

Depots and Metro stations have their own environmental impacts

In 2002, the total amount of electricity used by depots, Metro stations and other properties was 37.5 GWh (37.3 GWh in 2001).

Waste created in production units, such as oil waste, solvents, filters, light bulbs, metals, paper and

cardboard are sorted and taken to their own collection points for forwarding for recycling or treatment at special facilities. Depots are being repaired and refurbished all the time. Contaminated soil is removed and cleaned. Underground fuel storage tanks are regularly inspected.



Surveys are conducted to determine the amount of energy that buildings consume. A follow-up system is being developed, and retrofitting to improve energy efficiency is done in conjunction with annual renovations.

“We ensure that our own production of transport services, infrastructure construction and maintenance as well as purchases are environmentally sound and comply with the principles of sustainable development.”

HKL's environmental policy



New stops and vehicles as well as care to ensure tidiness make Helsinki a pleasant place to travel. Removing graffiti and repairing the damage that vandalism causes costs an average of € 1,700 a day.

HKL has invested in facilities to recycle washing water at Metro depots and the bus depot in Vartiokylä. This saves a large amount of water; only 10-15 per cent of the water used to wash vehicles is clean water from the mains. Successful recycling demands regular washes to prevent malodorous micro organisms from developing in the water.



“The service life of bus tyres is prolonged by retreading them. A tyre can be retreaded 2.7 times on average. About 1,500 are retreaded each year. HKL Bus buys about 500 tyres each year and as many are withdrawn from service and sent for recycling and further processing. Retreading saves about € 160,000 each year,” says Jorma Toivonen, a tyre fitter.



The impacts of new technical solutions are soon noticeable



Natural gas vehicles reduce the environmental loading caused by bus traffic, because natural gas produces fewer emissions than diesel does.

Buses

Bus traffic is constantly switching over to vehicles with lower environmental costs. Reducing emissions of oxides of nitrogen and particulates from diesel buses saves city residents' health costs as well as costs arising through corrosion and damage to plants. HKL has 454 buses, of which 61 are natural gas-fuelled. Natural gas buses are being acquired mainly for routes in the inner city.

Catalytic converters and regular bus servicing and maintenance have a marked impact on consumption and emissions. The average age of buses is about 6.8 years.

Trams and the Metro

A life-cycle approach is used when purchasing trams, which are expected to have a service life of 40 years. In the new trams, the electricity generated when the brakes are applied can be fed back into the overhead power conduit and used by other trams. Air-conditioning units and floor heating increase energy consumption, but improve passenger comfort. Most of the braking energy produced is used to heat the interiors of the cars.

ways also cause noise. In keeping with the wishes of city residents, every effort is being made to do this work during the day rather than at night.

Grit to assist braking must be applied to tram rails during the autumn, when wet leaves create slippery conditions. A total of 360 tonnes was used in 2002. We seek to reduce this by 40 tonnes in 2003, because grit spreads into the environment as harmful dust.

The dispensers in new trams will reduce the amount of grit used once the tram's drive and braking systems are properly adjusted. An anticipatory driving style will also reduce the amount of grit used.

The Metro is the mode of transport with the best energy economy and lowest emissions. Easy accessibility is the basis of metro car and station design.

All staff involved

In addition to driving techniques, all drivers receive training in energy and environmental issues as well as in good customer service. During Energy Saving Week, competitions are arranged to see who can operate services the most economically.

Training courses for tram and metro drivers include instruction in energy-saving driving techniques with the special features of rail-borne traffic.

"We take environmental matters into consideration in staff training and encourage our staff to put environmental work into practice."

HKL's environmental policy



Greasing the rail edges reduces tram noise. New trams are equipped with flange-lubricating devices and the grease is rubbed off the flange and onto the rail edge. This means trams themselves grease the rails.



Every passenger can contribute to HKL's environmental work by paying his or her fare. Some 2.6 per cent of passengers are fare-dodgers, who cause an annual loss in revenue of some € 5 million. The City's fare subsidy, which accounts for less than 50 per cent of HKL costs, is set to drop over the next few years. Consequently, ticket receipts will be even more important to maintain and further develop public transport services in Helsinki.

Helsinki's first lawn-style stretch of tramline was completed in Helsinginkatu in autumn 1999. A total of 10 kilometres of green tramways will be built over the next few years. They abate noise, capture street dust and enhance the urban landscape.



"By keeping a light foot on the accelerator we can reduce fuel consumption by 7-13 per cent. Passengers recognise an economical way of driving by the smooth ride they get. As part of our job induction, we are trained to drive in an environment-friendly way," says Markku Pohjolainen, a bus driver at HKL.

Developing public transport requires planning and cooperation

Traffic planning, the upkeep of traffic arteries and stops as well as monitoring environmental impacts are just some of the areas where HKL works in cooperation with other departments in the City of Helsinki organisation. HKL works in close cooperation with the Environment Centre, the City Planning Department and the Public Works Department.

Public transport accounts for 70 per cent of journeys to and from work and is also increasingly being used for leisure-related journeys. Cooperation with the Helsinki Metropolitan Area Council (YTV), Finnish State Railways, neighbouring municipalities and service operators ensures that passengers will be able to continue to enjoy environmentally sound public transport.

Bus lanes and traffic signal technology help buses to keep to schedule and to carry passengers more smoothly, safely and faster.

Reference data from BEST

In a survey associated with the international BEST project, Helsinki's public transport system headed a table of nine European cities in 2002. The other participating cities in the BEST project are Barcelona, Copenhagen, Geneva, London, Manchester, Oslo, Stockholm and Vienna. (www.besttransport.org)

Car Free Day encourages people to use public transport

Events and publicity taking place in conjunction with the Car Free Day and Energy Saving Week each autumn activate new public transport users. To mark Car Free Day, HKL offers travellers the chance to travel all day for the cost of just a single ticket. In 2002, some five per cent more people than normal used the Metro. The figures for bus and tram passenger numbers were as much as 20 per cent above normal.



Using a mobile phone text message to buy a ticket was introduced on a trial basis in 2001. In the first half of 2003, about 4,000 tickets a day were bought in this way.

"We cooperate with the authorities and various organisations on the national and international level. Audits and self-assessment ensure our operations and services are environmentally efficient and economical."

HKL's environmental policy



Helsinki Public Transport on the Internet

www.hel.fi/HKL/english

www.ytv.fi/english/transport

www.vr.fi/heo/eng/lahi/lahi.htm

CityBikes were launched in the centre of Helsinki in 2000. A total of 380 bikes are currently in use.



"New electronic services and technical solutions are being developed to increase the smoothness of traffic flows. Passengers will soon find it even easier to find the best route and vehicle combination. Park and ride facilities at Metro stations, where feeder lines terminate, will reduce the number of passenger cars in the inner city. Various kinds of tickets will encourage also private motorists to use public transport. Another goal is a traffic signal system to give public transport priority over other traffic," says Helena Kangas, who chairs Helsinki Public Transport Board.

Helsinki public transport and HKL

Helsinki City Transport, HKL, is responsible for planning, developing, producing and monitoring public transport services within the city of Helsinki.

HKL's turnover in 2002 was € 201.3 million.

Ticket receipts accounted for about 45 per cent of turnover. The City's fare subsidy is about 49 per cent and other revenue (rental and advertising income) is about 6 per cent.

The cost per passenger-kilometre was € 0.197 in 2002.

Numbers of journeys made on one weekday

By bus	340,000
By tram	199,800
By Metro	189,100
On the Suomenlinna ferry	5,000
Total	733,900

A total of some 210 million trips are made by public transport in Helsinki each year.

The Travel Card system was introduced in 2002.

About 600,000 Travel Cards were in use in the Helsinki region in June 2003.

Employees in 2003

Bus drivers	960
Tram drivers	300
Metro train drivers	100
Maintenance	390
Ticket inspectors	55
Administration and support	310
Total	2,115

Track network at the end of 2002 (km)

Tramways	83.5
Metro track	21.1



Rolling stock in use at the end of 2002

Buses	454
- Natural gas driven	61
- Low-floor	283
Trams	115
- Low-floor	19
Metro twin-car sets	54

Stops at the end of 2002

Tram	242
Bus	1,750
Metro stations	16



HELSINKI CITY TRANSPORT

P.O.Box 1400, FIN-00099 City of Helsinki
 Tel. +358 9 4721
 Traffic information tel. 0100-111
 Feedback Phone 0800 111811
www.hel.fi/HKL/english