

An integrated approach to develop the transport system of Metropolitan Helsinki

Suvi Rihniemi 22.5.2013

Welcome to Helsinki Region



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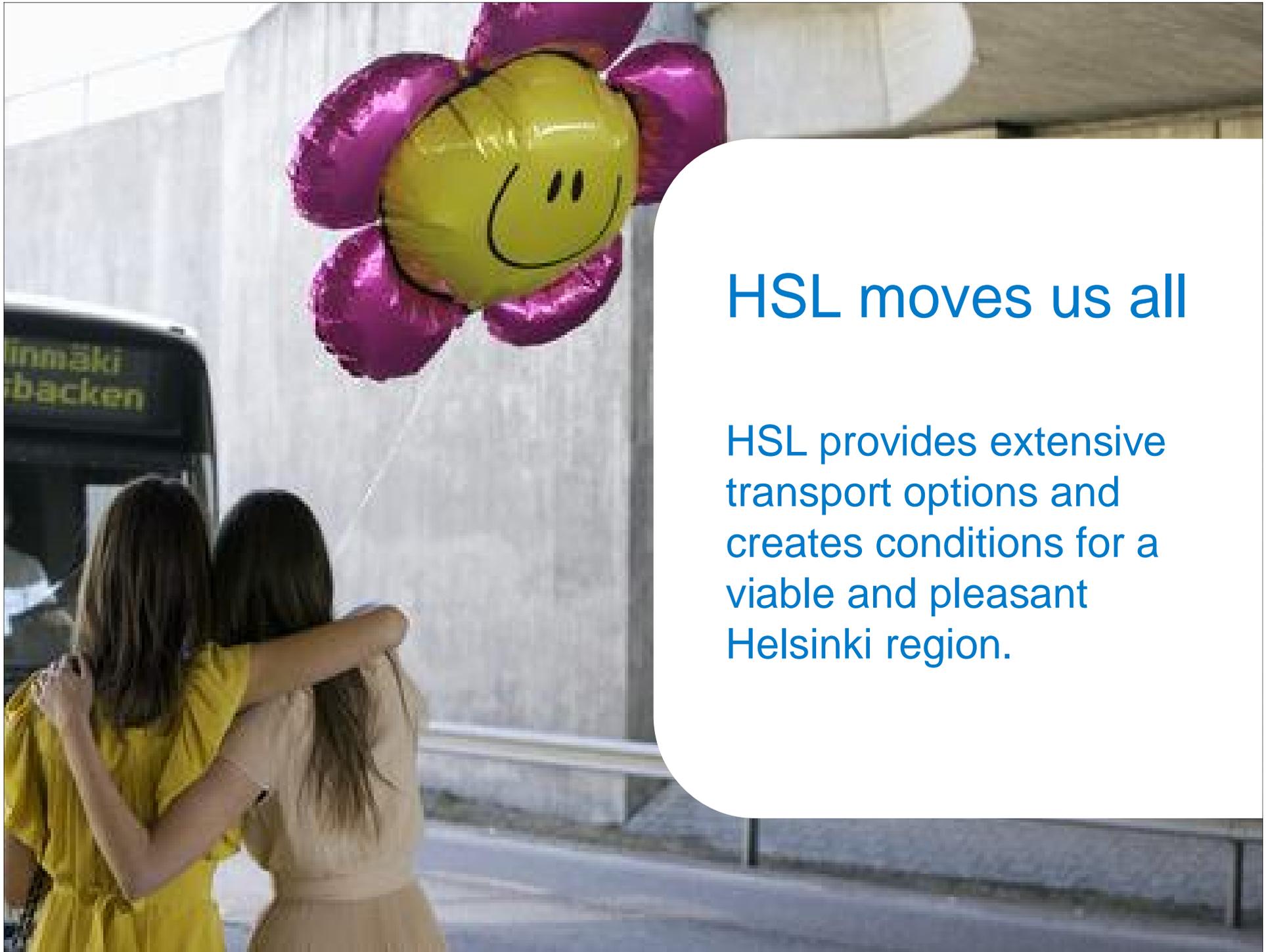


1. On HSL in general



The location of the Helsinki Region in Europe





HSL moves us all

HSL provides extensive transport options and creates conditions for a viable and pleasant Helsinki region.

What does HSL do?

- **Is responsible for the preparation of the Helsinki Region Transport System Plan (HLJ).**
- **Plans and organizes public transport in the region and works to improve its operating conditions.**
- Procures bus, tram, Metro, ferry and commuter train services.
- Approves the public transport fare and ticketing system as well as public transport fares.
- Is responsible for public transport marketing and passenger information.
- Organizes ticket sales and is responsible for ticket inspection.

Cooperation area and expansion of HSL

6 founding municipalities:
Helsinki, Espoo, Kauniainen,
Vantaa, Kerava and
Kirkkonummi.

Sipoo from the beginning
of 2012.

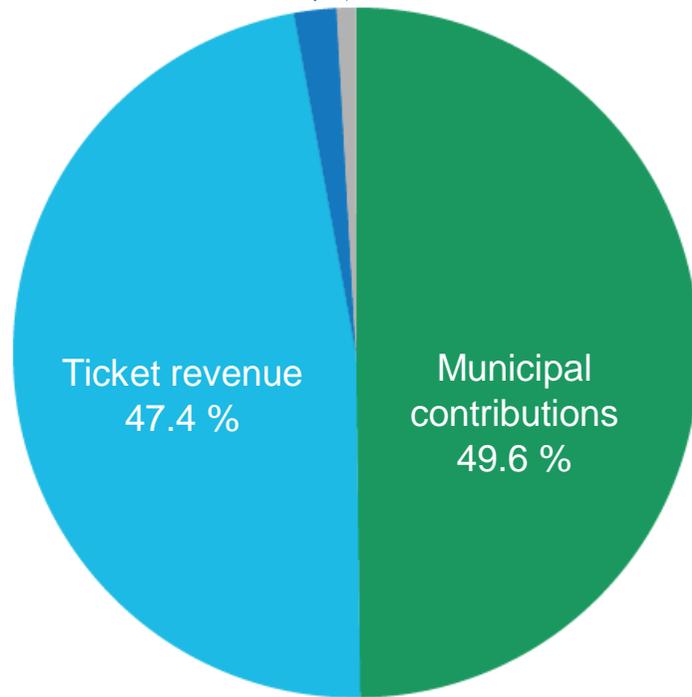
According to its charter, HSL
may expand to cover all 14
municipalities in the Helsinki
region.



HSL's operating income 2013

Total EUR 588,0 million

Other income 2.0 % Government subsidies for public transport 1.0 %



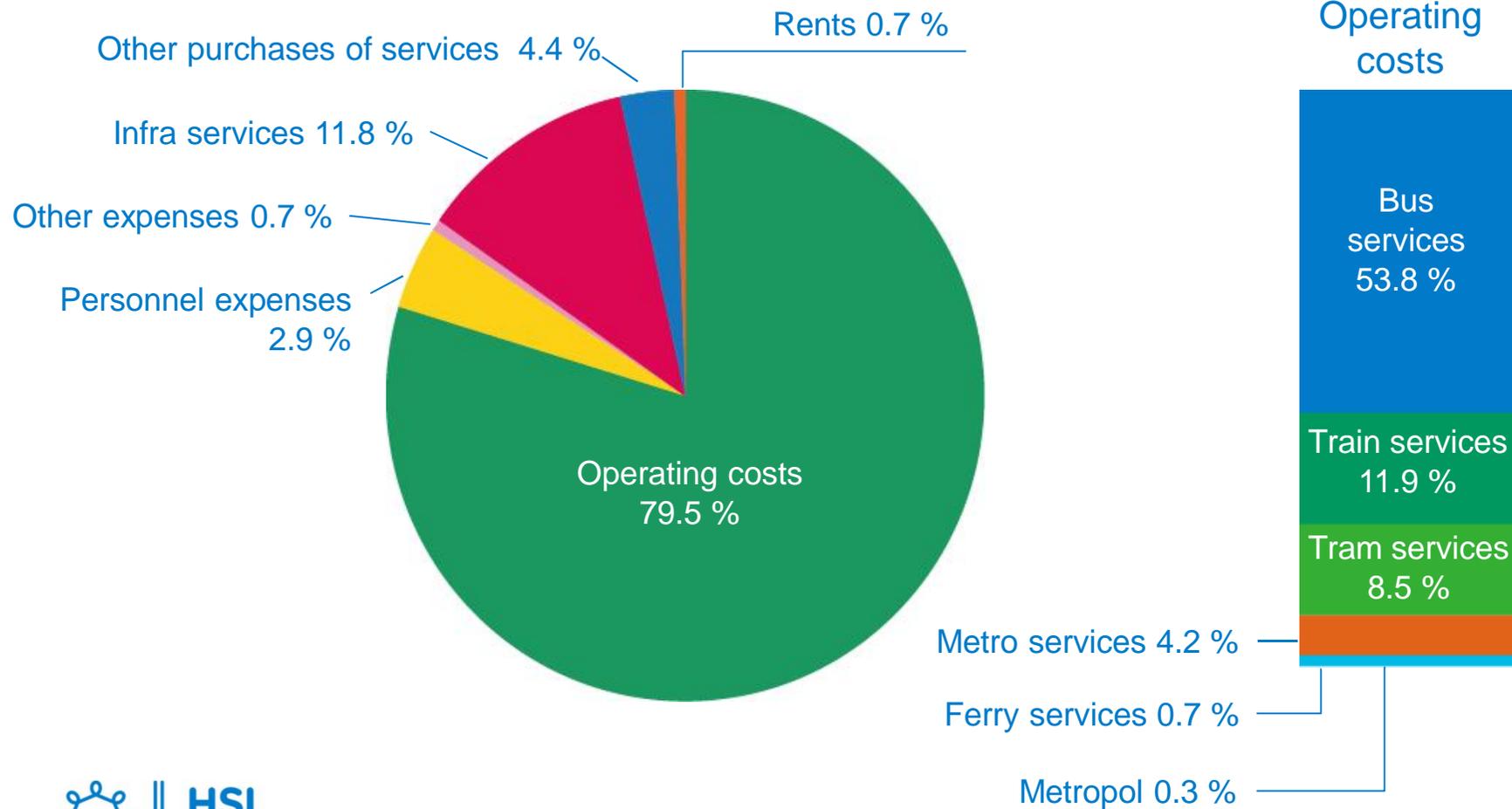
Ticket revenue



Espoo internal 2.5 %
Vantaa internal 1.8 %
Extended regional tickets 1.8 %
Kirkkonummi internal 0.1 %
Kerava-Sipoo internal 0.1 %
Kauniainen internal 0.02 %
Metropol 0.1 %

HSL's operating expenses 2013

Total EUR 586,5 million



2. Transport System Planning in the Helsinki Region



HSL:s strategy

Target 2018

Helsinki region has the most efficient transport system and the most satisfied users of public transport in Europe

Strategic goals

1. Helsinki region has a well-functioning transport system
2. HSL provides its customers with high-quality, cost-efficient and reasonable priced public transport services
3. HSL promotes low-emission transport choices
4. HSL in an player on the field of transport policy
5. HSL's operations support its owner munisipalities' and region's development targets
6. HSL has motivated and competent staff

Basic task

HSL provides extensive transport options and creates conditions for a viable and pleasant Helsinki region.

Stakeholder expectations

Owner municipalities

Customers

Business and industry

Operators

Civic organizations

State administration

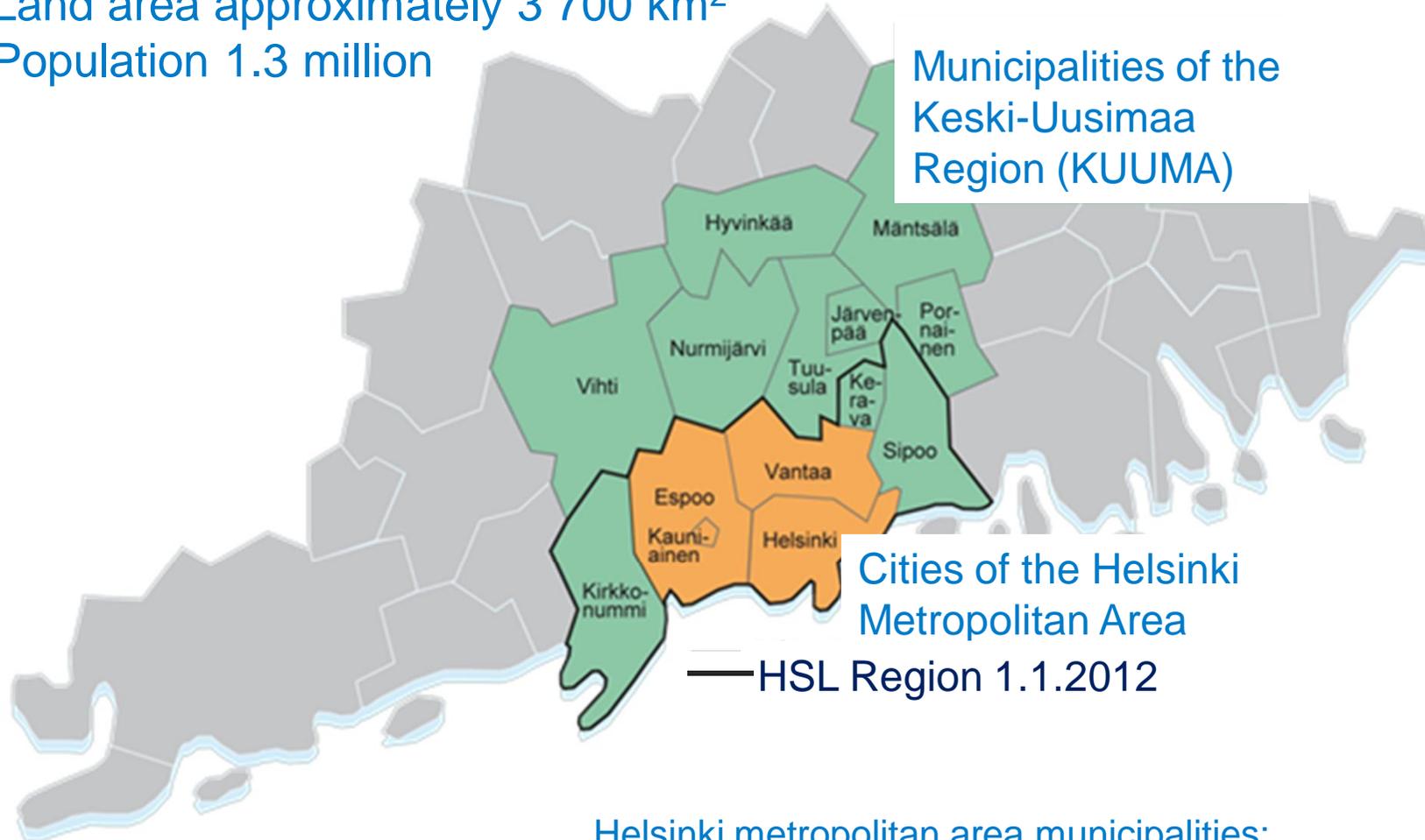
The role of the Helsinki Region Transport System Plan (HLJ)

- A long-term strategic plan that considers the transport system as a whole.
- Aligns regional transport policy and guidelines primary measures for the development of the transport system.
- An important part of the land use, housing and transport (MAL) co-operation of the 14 municipalities of the Helsinki region and an important part of the letter of intent on land use, housing and transport.
- The next transport system plan (HLJ 2015) is prepared in close cooperation with the common regional land use plan.



HSL area and HLJ planning area

Land area approximately 3 700 km²
Population 1.3 million



Helsinki metropolitan area municipalities:
Surface area: 770 km² (21%)
Population: 1,034 milj. (77%)

Points of emphasis in Helsinki Region Transport System Plan (HLJ 2011)

- Performance of the transport system
- Integration of land use and transport
- Combating climate change



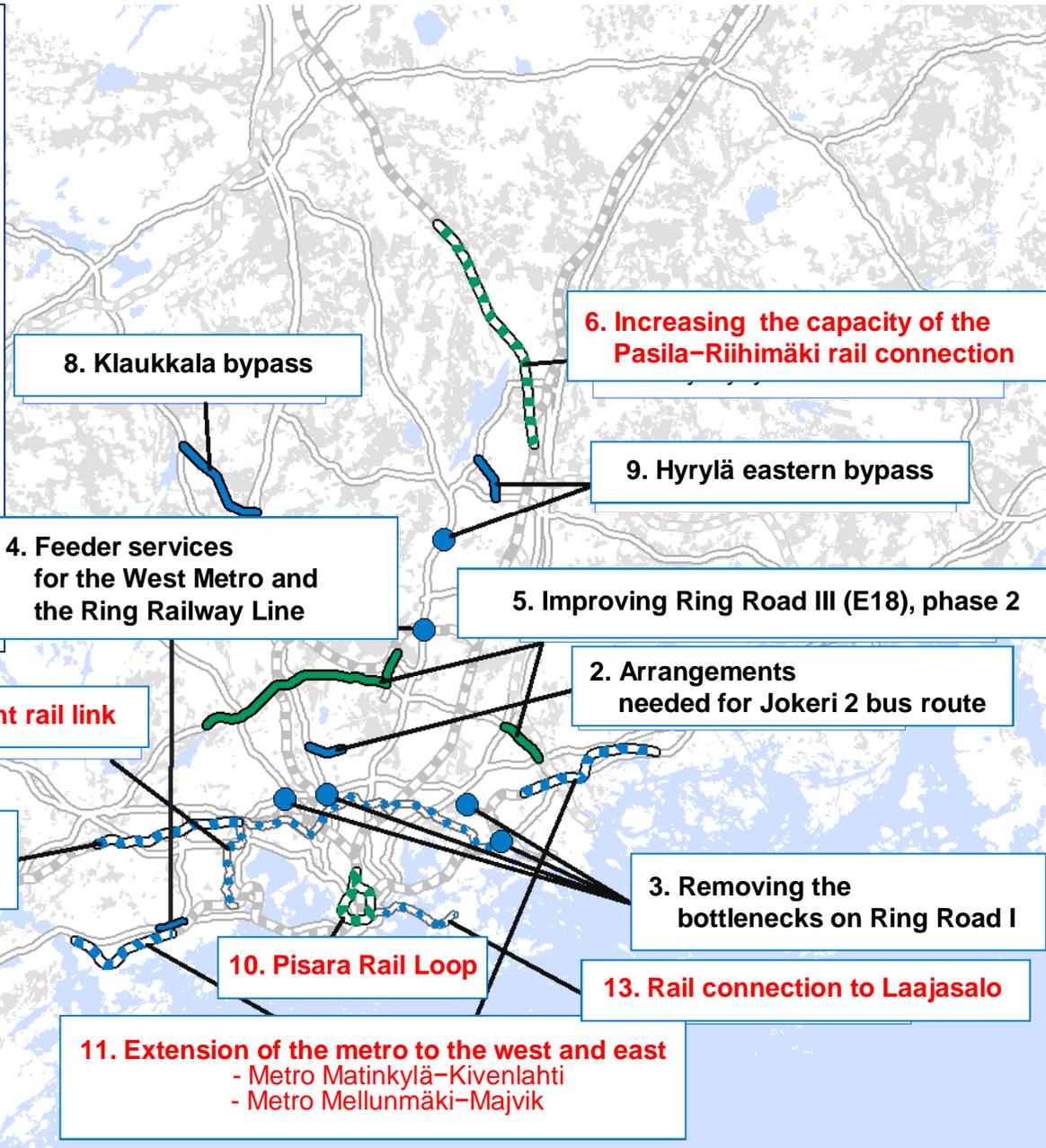
The transport system is developed by implementing a diverse range of measures set out at different development levels through cooperation between the parties.

1. Sustainable urban structure and land use
2. Public transport, walking and cycling connections and services
3. Mobility management, pricing and regulations
4. Operation and maintenance of the transport system
5. Transport infrastructure

Infrastructural development projects to be launched in the first period (2011-2020), in the order of priority (HLJ 2011)

1. **Small and cost efficient infrastructural projects in the metropolitan area (KUHA)**
 - Infrastructure for walking and cycling
 - Infrastructure for intelligent transport systems
 - Park and ride connections
 - Securing the functionality of public transport and freight transport on radial roads
 - Improving traffic safety of the arterial network
 - Noise abatement projects
 - Freight transport service areas
 - Road projects that support the development of land use
 - Improving crosstown connections of the road and street network
 - Small development projects of the rail traffic

The KUHA projects necessitate closer programming and prioritization through regional cooperation



8. Klaukkala bypass

6. Increasing the capacity of the Pasila–Riihimäki rail connection

9. Hyrylä eastern bypass

4. Feeder services for the West Metro and the Ring Railway Line

5. Improving Ring Road III (E18), phase 2

12. Jokeri light rail link

2. Arrangements needed for Jokeri 2 bus route

7. City rail link Leppävaara–Espoo

3. Removing the bottlenecks on Ring Road I

10. Pisara Rail Loop

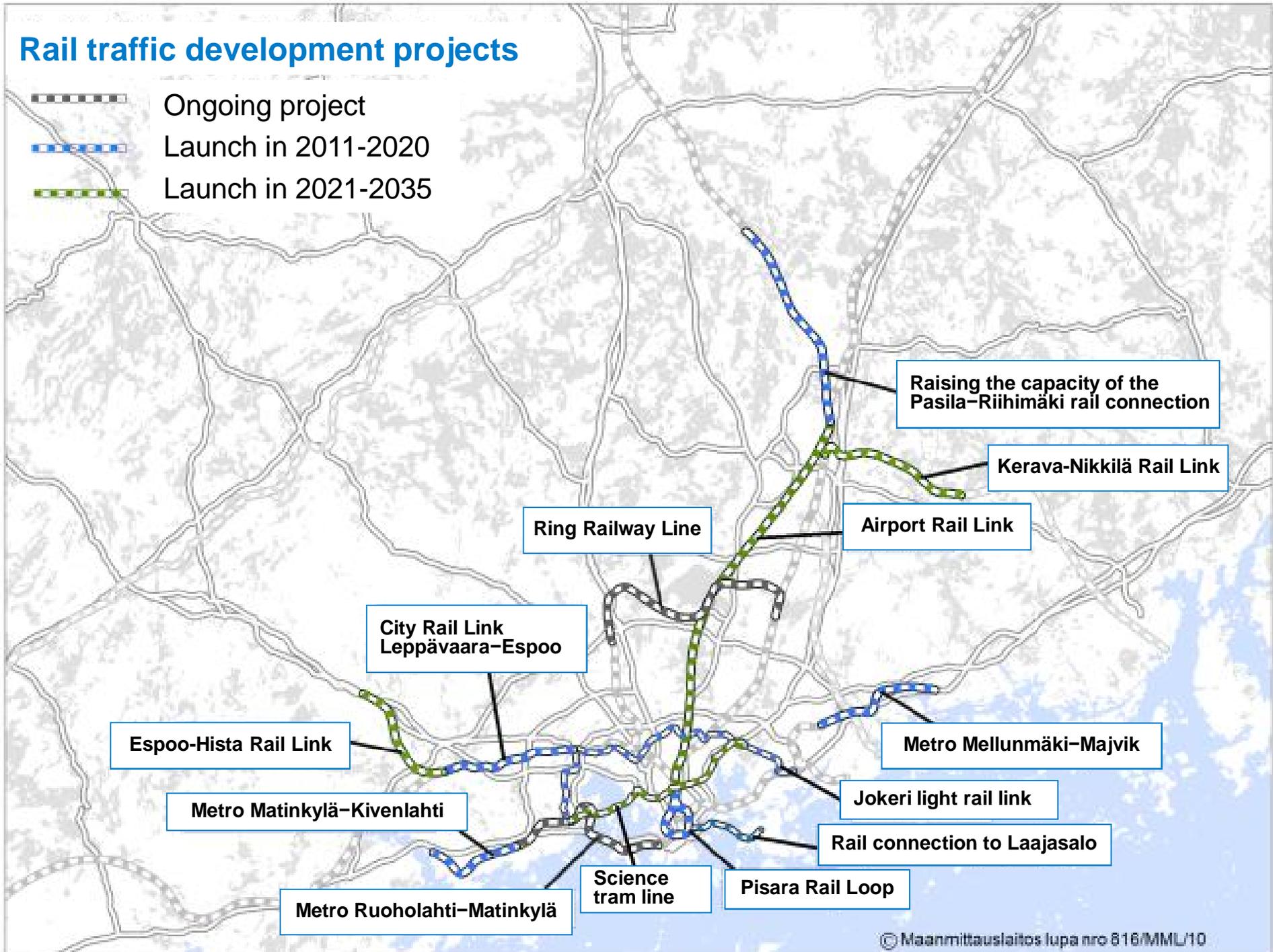
13. Rail connection to Laajasalo

11. Extension of the metro to the west and east
 - Metro Matinkylä–Kivenlahti
 - Metro Mellunmäki–Majvik



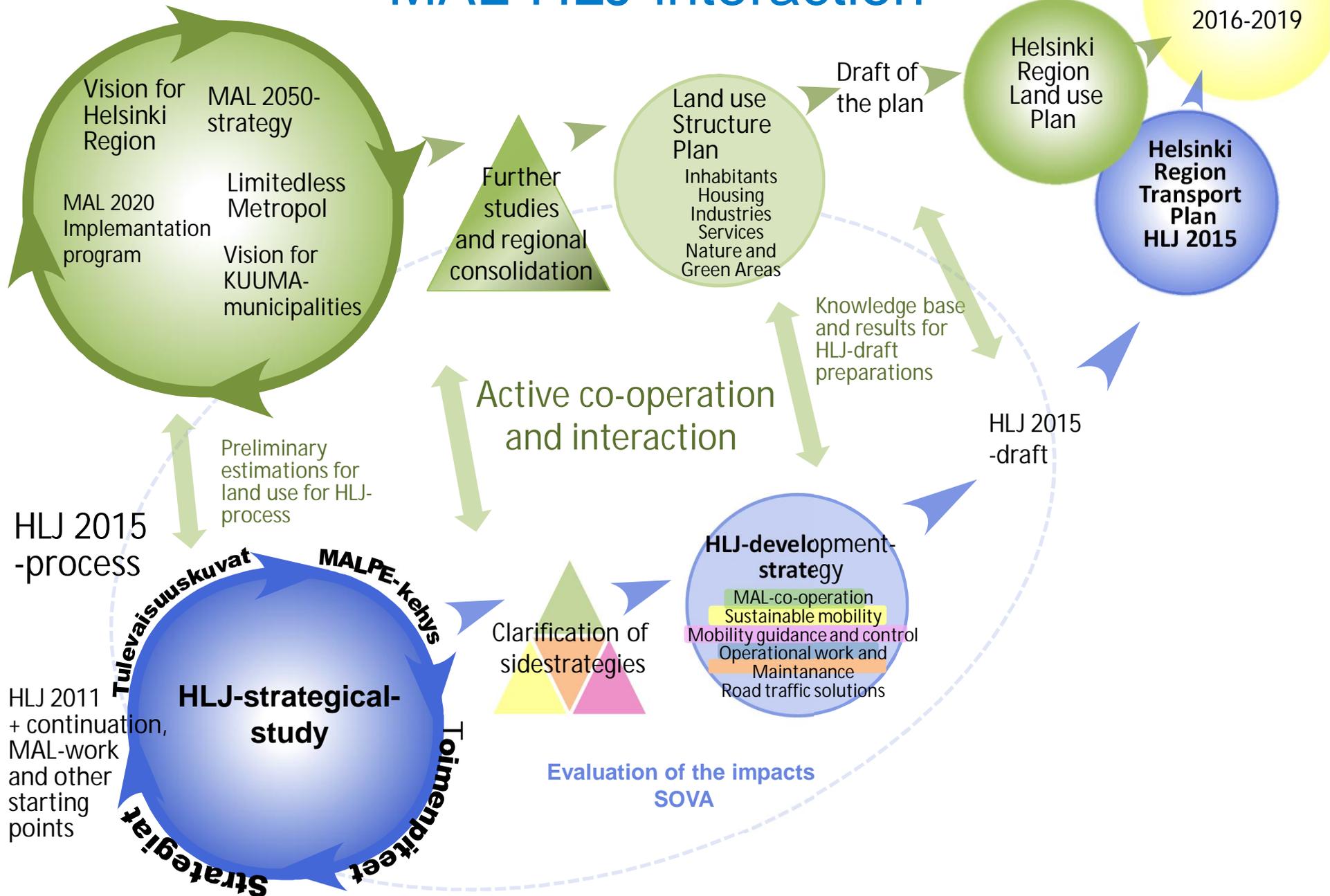
Rail traffic development projects

- █ Ongoing project
- █ Launch in 2011-2020
- █ Launch in 2021-2035



Land use planning - process

MAL-HLJ-interaction





3. PT and HSL's environmental goals

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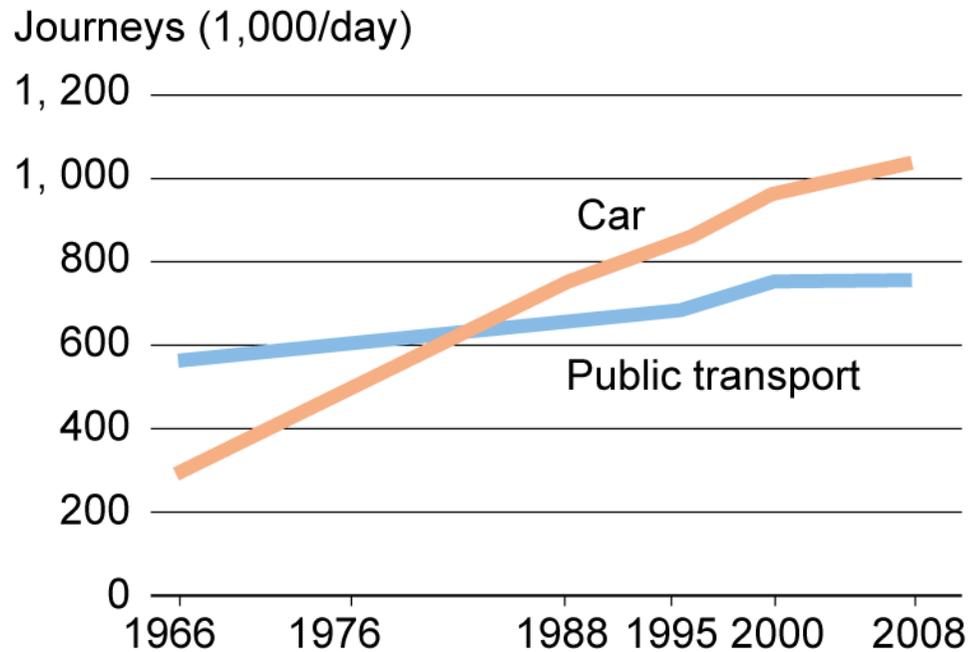
Public transport as part of the transport system

The high market share of public transport is important

- Train service
- Metro
- Tram
 - locally emission-free
- Bus service
 - Works mainly with diesel fuel
 - About 1400 buses, 50 CNG
- Half of public transport trips are made by bus

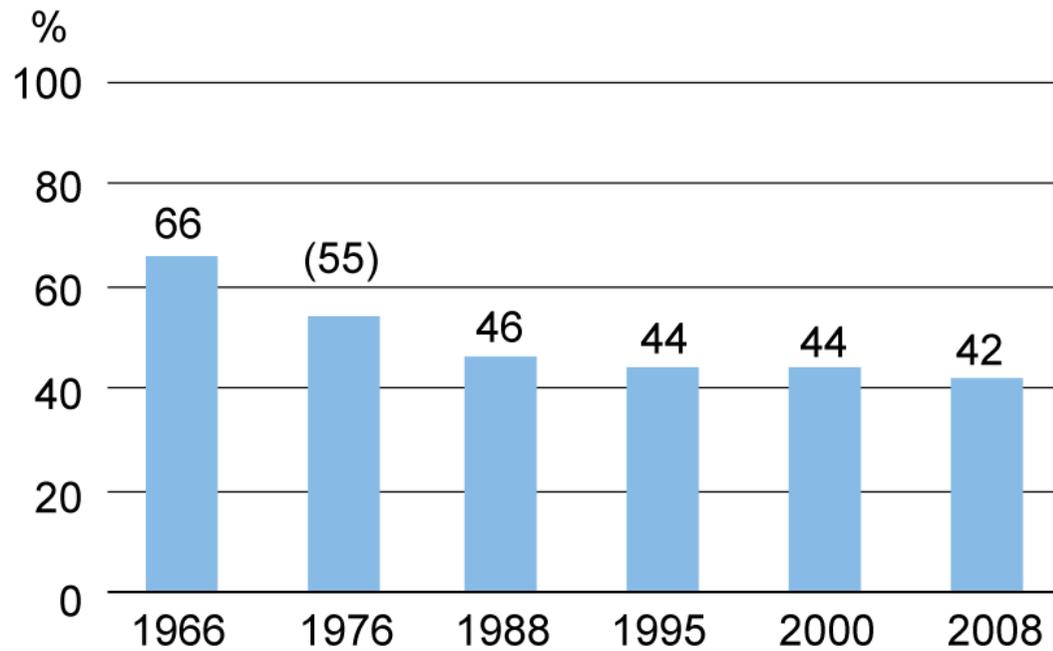
Development of PT

Journeys made by the metropolitan area residents by car and public transport in the metropolitan area.



Development of PT

The share of public transport of the motor vehicle journeys made by the metropolitan area residents within the metropolitan area.

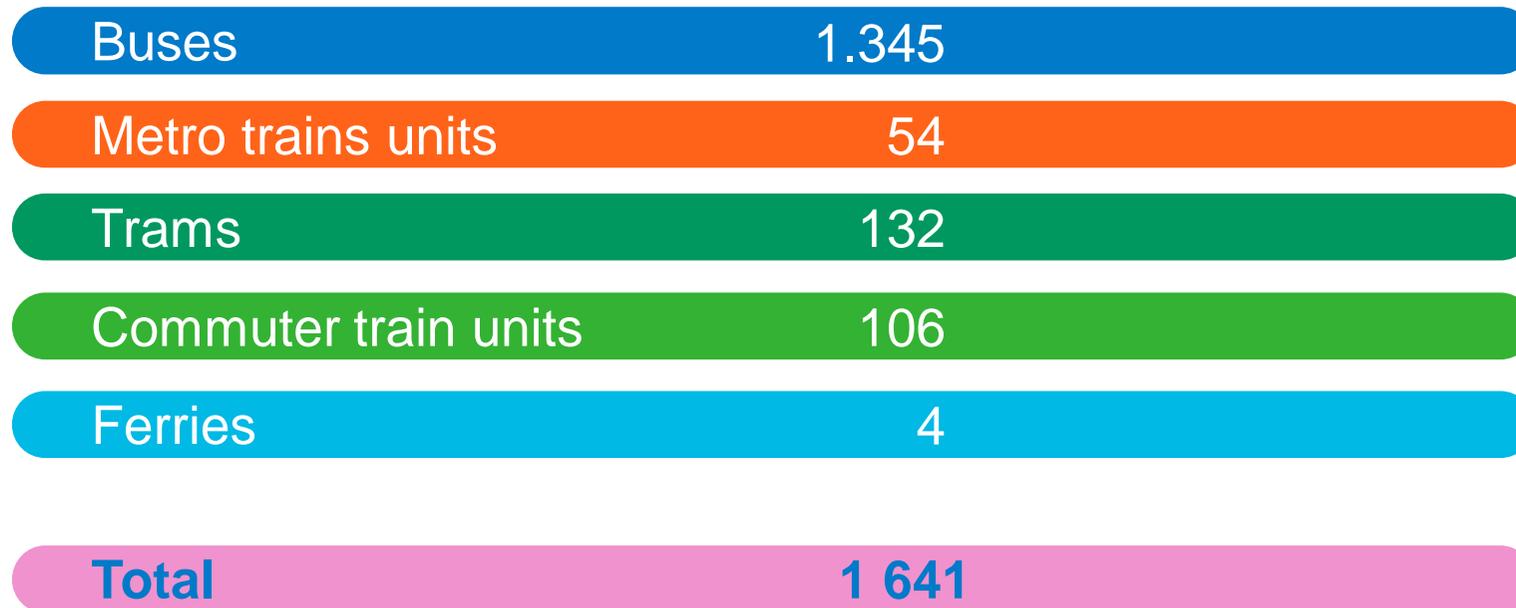


Change in the number of boardings 2011-2012

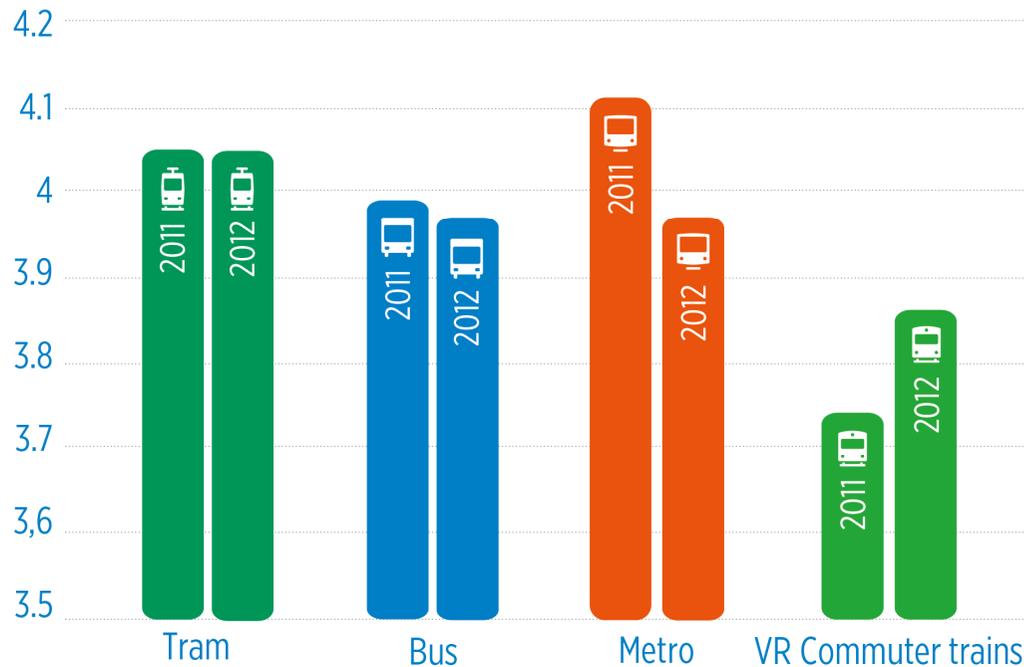
Million boardings

	FS 2012	2011	Change	Change%
Buses	176.7	172.5	4.2	2.4 %
Metro	62.2	61.5	0.7	1.2 %
Trams	57.2	53.7	3.5	6.6 %
Commuter trains	47.2	46.6	0.6	1.3 %
Ferry	1.6	1.7	-0.1	-2.1 %
Total	344.9	335.9	8.9	2.7 %

Number of vehicles 2012



Overall grade to HSL's public transport services by mode of transport 2011-2012



A total of 81.7 % of passengers gave public transport services either a good or a very good overall grade (4 and 5).

Only less than 2.0 % of passengers gave a poor or very poor overall grade (1 and 2).

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HSL's strategy for 2018 - a low-emission transport

- The environmentally-friendly transport system is promoted in accordance with the HLJ (2011)
- Public transport frame is built upon rail
 - West metro (Länsimetro) and Circle line (Kehärata) have been introduced
 - Pisara Rail Loop, Jokeri light rail link
 - Regional lines are changed to feeder
- Public transport emissions have decreased
 - NOx -emissions - 80%
 - particle emissions - 80%
 - CO2 -emissions -50%

Ten years co-operation with VTT

- RAKEBUS
- RASTU
- TRANSECO
→ HDENIQ
- TRANSSMART



HDENIQ – emission database for city buses

- HSL's point of view the project has produced useful information eg. city buses for actual emissions and energy consumption
- Information that is not available elsewhere, according to the same
 - Actual emissions based on scoring models are introduced HSL's competitive tendering from 2010

Braunschweig	CO g/km	HC g/km	CH4* g/km	NOx g/km	PM g/km	CO2 g/km	CO2 eqv g/km	FC kg/100k m	FC MJ/km
Diesel Euro 3	0.85	0.12	0.00	8.48	0.209	1191	1191	38.4	16.3
Diesel EEV	0.90	0.02	0.00	6.03	0.071	1126	1126	36.4	15.5
CNG Euro 3	0.05	2.64	2.51	9.44	0.019	1177	1237	43.7	21.5
CNG EEV	2.00	1.11	1.05	2.99	0.008	1250	1274	46.3	22.7

HSL follows new technology options



The Helsinki experience of advanced renewable diesel fuel
OPTIBIO



BIOSIRE II international Workshop, Zagreb, 17-18.2.2010
Nils-Olof Nylund
VTT Technical Research Centre of Finland

Biogas



Hybrid technology

Suvi Rihtniemi

Paraffinic renewable diesel



Etanol

New projects with VTT

- eBus
 - 4 years project
 - Testing 5-6 full electric buses
 - What winter cause electric buses
- eCharge
 - How and where to charge
 - How often charge
 - What kind of infrastructure

4. Journey Planner, emission calculator



Reittiopas.fi



Journey Planner
Helsinki Region Transport

Mobile | Suomeksi • På svenska • По-русски • Slangi | Feed

My Journey Planner

Log in

Route search

Timetables and stops

Route map

Cycling and walking

HSL

Route search

Advanced search

From Map | A-Ö

To Map | A-Ö

Time :

Date Today

Departure time

Tomorrow

Arrival time

Search



Previous searches

★ Kehräjäntie 18, Espoo - Jätkäsaarenlaituri 3, Helsinki ✕

★ Ulvilantie 13, Helsinki - Eteläranta 1, Helsinki ✕

★ Linnankoskenkatu 15, Helsinki - Ristolantie 18, Helsinki ✕

★ Save all ✕ Remove all

Traffic bulletins

Stoppage continues: bus services operated by Veolia Transport Vantaa not running on Monday 20 May 20.5.2013

The Puotila shopping center bus stop to be relocated on 22 May 17.5.2013

Tram route 4/4T diverted on three nights 19 - 22 May 16.5.2013

Season ticket refunds due to the stoppage by Veolia Transport Vantaa bus

Timetable search

Route or stop number

Search

My stops

Add here your My stops »

★ Rautatienatori (2057) 13:42

Time	Line	Destination
4 min	66A	Länsi-Pakila
13 min	65A	Veräjäläakso
14:02	17	Kruunuhaka
14:03	66A	Länsi-Pakila
14:11	65A	Veräjäläakso
14:18	66A	Länsi-Pakila

Disruption info

✉ Subscribe to Disruption info on routes important to you >

53 62 70 633

Reittiopas På svenska In english

• Reittihaku • Linjahaku • Pysäkkihaku

• Poikkeusinfo • Omar Pysäkit • Kännäkalippu

Mistä

Käytä nykyistä sijaintia

Mihin

Aika Nyt | Muu aika

Hae Reitti Tarkennettu haku Tyhjennä

Luo Oma Reittiopas -tunnus. Voit tallentaa reitit ja pysäkit pysyvästi tilillesi ja käyttää niitä kotona ja matkalla

Kirjaudu sisään

Helsingin Region transport | HSL >
Puh. 09 4765 4444
© Copyright HSL

Journey Planner functions

- Route search
- My stops
- Timetables (by stop and transport mode)
- Line map
- Disruption info
- Cycling and walking guide

Route search

Route search Advanced search

From Map | A-Ö

To Map | A-Ö

Time : Date Today Tomorrow 20.5.

Departure time Arrival time

Timetable search

Route suggestion | Modes of transport

Start	Arrival	Travel time	Total walking distance
1 14:20 0.4 km Jääskeläntie 14:26 ⁵¹⁰ 14:45 14:49 ¹⁰² Alvar Aallon p. 15:00 1 km 15:13		53 min	1,4 km
2 14:38 0.4 km Jääskeläntie 14:44 ⁵¹⁰ 14:54 0.1 km Leppävaara 14:59 ^{Strain} 15:12 0.3 km Rautatieasema 15:22 ⁹ 15:32 0.1 km 15:33		55 min	0,9 km
3 14:41 0.3 km Jääskeläntie 14:46 ⁵¹⁰ 15:00 0.3 km Myyrmäki 15:07 ^{Mtrain} 15:24 0.3 km Rautatieasema 15:32 ⁹ 15:42 0.1 km 15:43		1 h 2 min	1 km

Please note that the results are based on estimated travel times. HSL cannot guarantee that the suggested transport connection will be successful.

Weather in destination: +18 6 ms

Route **1** details | CO2 emissions of the route 1.3 kg **Oops** 2.5 kg

Departure
14:20 Kehrääjantie 18, Espoo

Walking 0,4 km

Map

Emissions

CO2 emissions of the route



I can reduce my emissions this much:

Kehrääjätie 18, Espoo - Jätkäsaarenlaituri 3, Helsinki

Mode of travel	Distance	Emissions	Annual emissions per commuter trip *	Annual emission reduction **	Energy consumption of walking and cycling ***
Route suggestion 1	18,9 km	1,3 kg	576 kg	510 kg	293 kJ / 70 kcal = 1.5 pieces of chocolate
Route suggestion 2	19,9 km	1,3 kg	568 kg	518 kg	147 kJ / 35 kcal = <1 pieces of chocolate
Route suggestion 3	17,3 km	0,3 kg	114 kg	972 kg	188 kJ / 45 kcal = 1 pieces of chocolate
Cycling	14,4 km	0 kg	0 kg	1086 kg	1503 kJ / 359 kcal = 7 pieces of chocolate
Walking	14,4 km	0 kg	0 kg	1086 kg	3006 kJ / 718 kcal = 14 pieces of chocolate
Car	14,4 km	2,5 kg	1086 kg	0 kg	0 kJ / 0 kcal = 0 pieces of chocolate

* Emissions have been calculated for a round trip, 220 working days a year.

** Emission reduction has been calculated by comparing the emissions of suggested routes to emissions from an average car.

*** Walking included in travel by public transport has been taken into account in the personal energy consumption.



Pyöräily- ja kävelyreitit pk.hsl.fi

Export route: [GPX](#) | [KML](#) | [Public transport route](#) | [Email link](#) | [Print route](#) | [Print view](#)

From (e.g. Kaivokatu 2) 📍
 Muottilijankatu 4, Helsinki
[Use the current location](#) 📍

To (e.g. Pasila) 📍
 Kasuunikuja 1, Helsinki
[Use the current location](#) 📍

Mode of transport
 Cycling ⌵

Routing profile
 Prefer cycle paths ⌵

SEARCH

Search result 📄

Length: 9,3 km
 Speed: 17 km/h
 Duration: 33 min
 Route: Muottilijankatu 4, Helsinki
 Toukola
 Kumpula
 Vallila
 Itä-Pasila
 Keski-Pasila
 Länsi-Pasila
 Länsi-Pasila
 Taka-Töölö
 Etu-Töölö
 Kluuvi
 Kamppi
 Ruoholahti
 Kasuunikuja 1, Helsinki

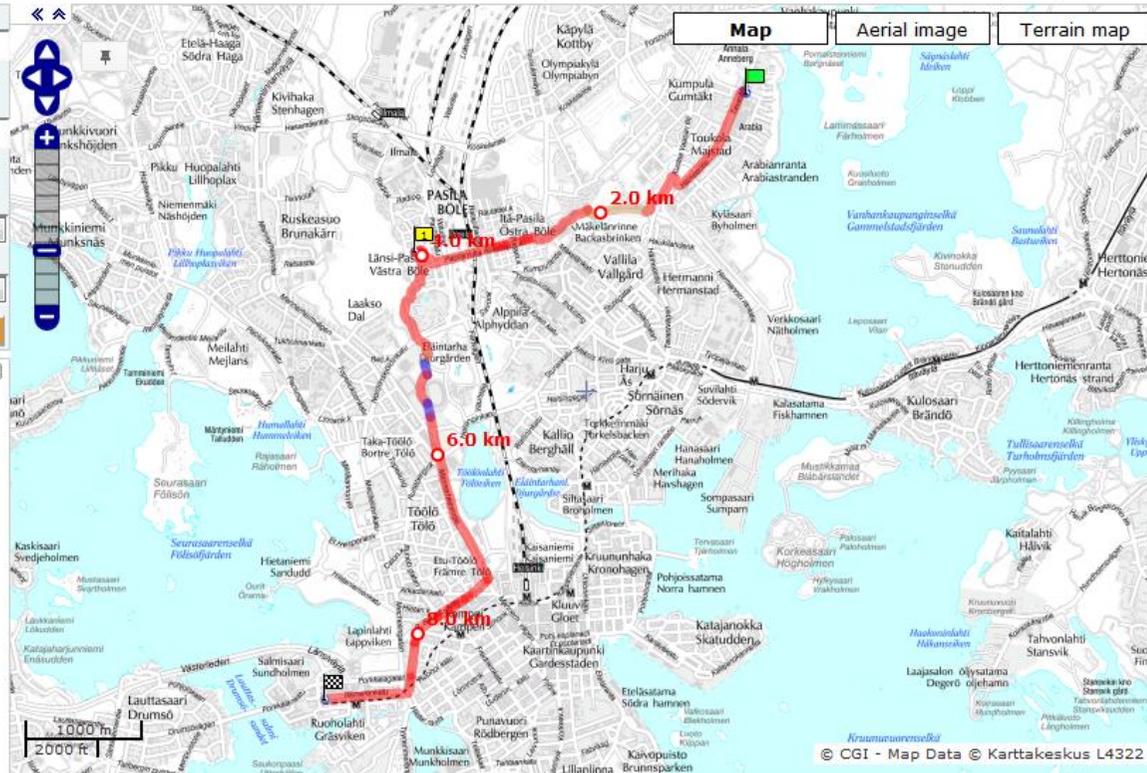
Energy consumption: 📍

🚲 972 kJ / 232 kcal
 = 4 pieces of chocolate

🚶 1943 kJ / 464 kcal
 = 9 pieces of chocolate

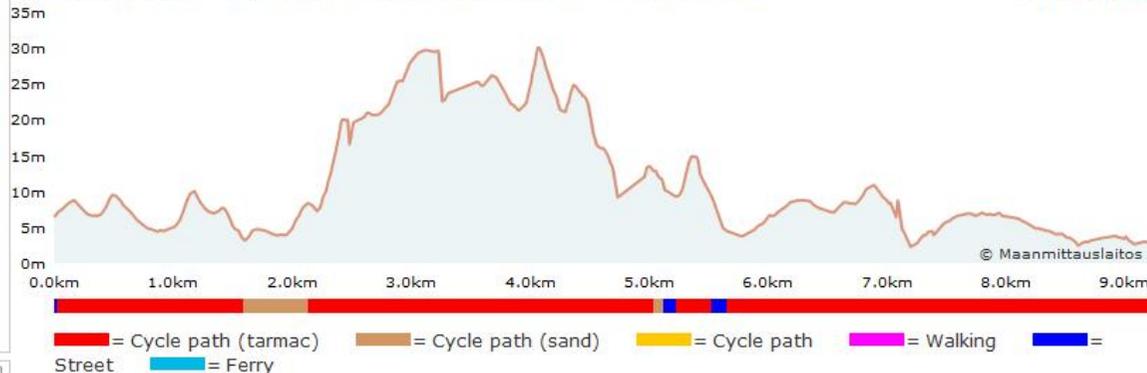
Walking and cycling do not produce direct greenhouse gas emissions.
 Emissions for other modes of transport are available in the Journey Planner.

Points of Interest 📍



Total ascent: 92 m Maximum difference in altitude: 28 m Length: 9.3 km

[Key to Symbols](#)



**Thank you
for your
attention!**

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