



City of Helsinki

# Equity-based transport – from an environmental point of view

Master Class seminar: People First

21.3.2012

Outi Väkevä

City of Helsinki Environment Centre



**City of Helsinki**

## Environmental effects of traffic

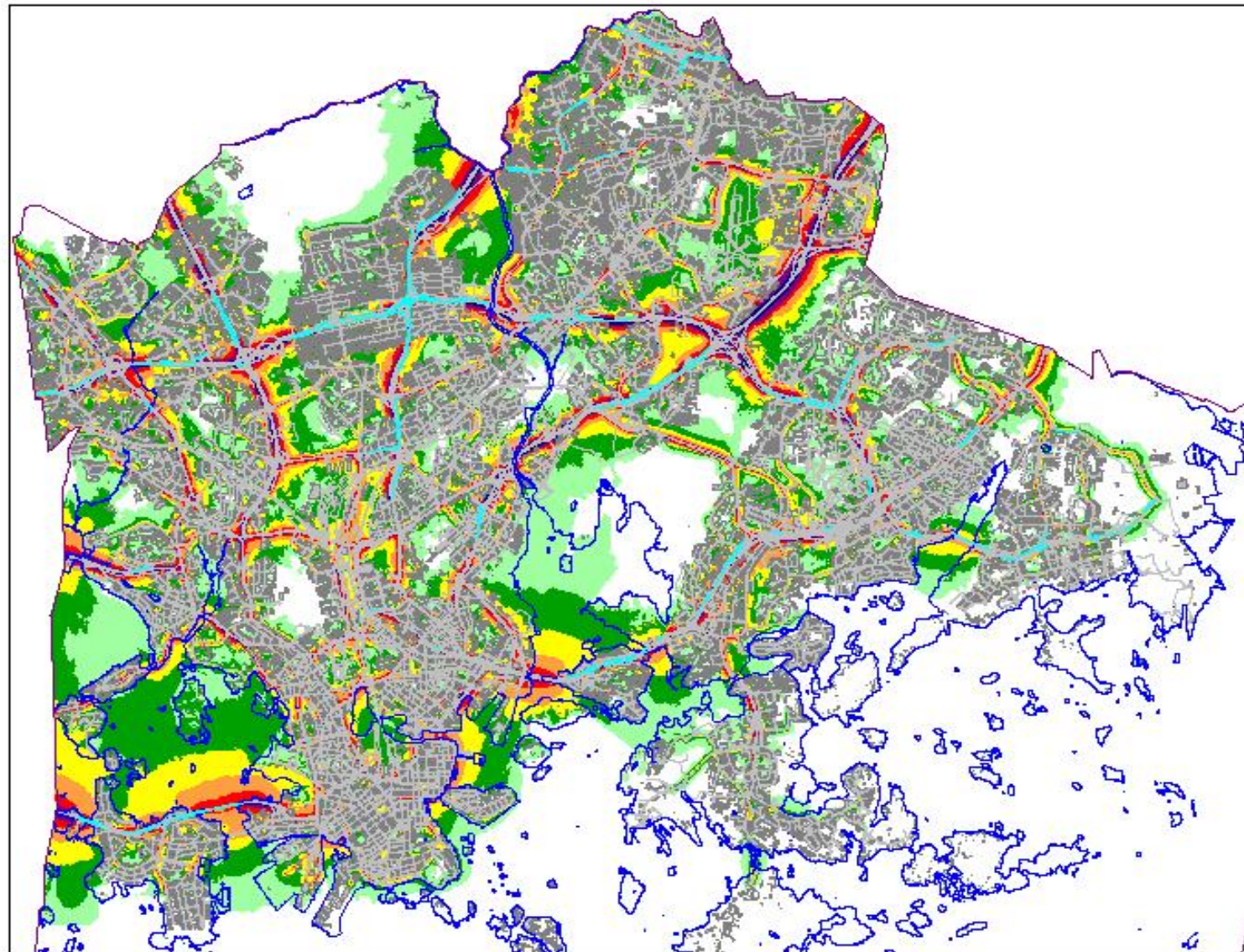
- o causes emissions of greenhouse gases
- o causes emissions of air pollutants that are harmful to health
- o generates noise that is harmful to health
- o takes up valuable space
- o disturbs habitats and ecological routes
- o reduces the safety and attractiveness of the urban environment



City of Helsinki

# Exposure to environmental noise in Helsinki

- o Traffic is the most significant cause of environmental noise over the guidelines (55 dB<sub>Lden</sub>) in Helsinki (Source: Noise survey in Helsinki 2006):
  - 237 500 people are exposed to road noise
  - 69 800 to rail noise (trains, trams, subway)
  - 500 to airplane noise
- o These figures are overlapping as many people are exposed to noise of different transport modes at the same time, but road noise dominates.
- o A new survey will be published in 2012: the numbers are higher, as is the number of inhabitants



### Liite C1

Helsingin kaupunki  
Meluselvitys 2007

Tieliikenteen melu:  
maantiet ja kadut

Vuorokausimelutaso  $L_{\text{den}}$   
(laskentakorkeus: 4 m)

- > 45.0 dB
- > 50.0 dB
- > 55.0 dB
- > 60.0 dB
- > 65.0 dB
- > 70.0 dB
- > 75.0 dB

Mittakaava:  
1:85000

**AKKON**  
Insinööritoimisto Akkon Oy

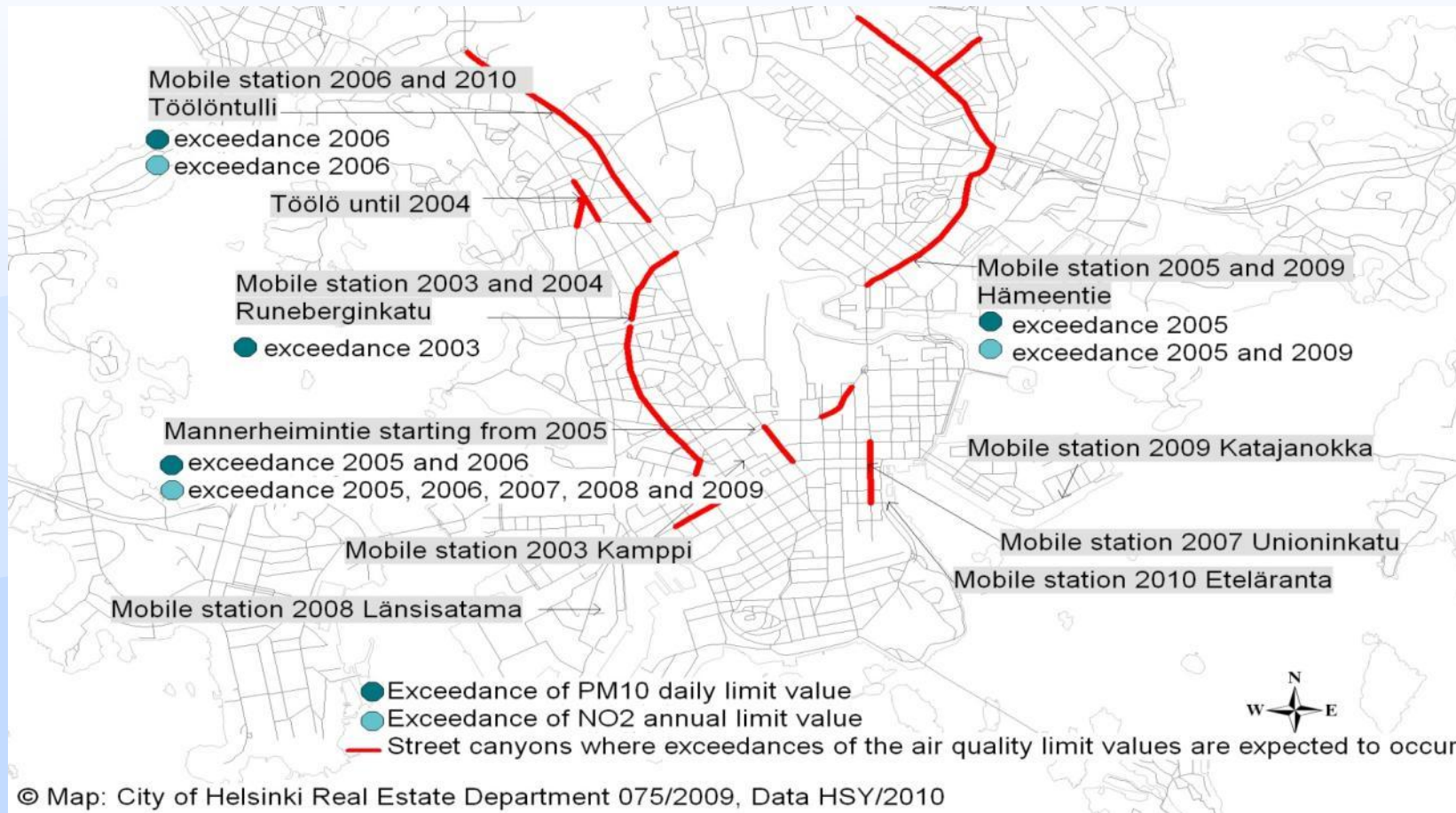


# Exposure to air pollutants

- o Emissions stem mostly from car traffic, which causes harmful emissions such as fine particles and nitrogen dioxide and street dust
- o Exposure to fine particles and street dust has been found to increase the risk of heart and lung diseases and also to raise mortality
- o All exposure to fine particles is harmful to health, not only levels exceeding limit values
- o About 20 000 people live and another 20 000 people have jobs in areas where the limit values for air quality are not met in the city centre of Helsinki (8 km of busy street canyons)



# Areas where exceedances of limit values are expected to occur






## How to reduce exposure by land use planning

- o In order to reduce exposure to noise and air pollution, there are guidelines for how close to a busy street or road dwellings can be built
- o Distance depends on the volume of traffic (average number of cars per weekday)
- o Minimum distance for dwellings, recommended distance for sensitive receptors, such as kindergartens, schools and hospitals

autoja /vrk	metriä tienreunasta	
	minimi-etäisyys	suositus-etäisyys
10 000	7	14
20 000	14	28
30 000	21	42
40 000	28	56
50 000	35	70
60 000	42	84
70 000	49	98
80 000	56	112
90 000	63	126
100 000	70	140



Source: HSY Helsinki Region Environmental Authority

Source: HSY Helsinki Region Environmental Authority



## Further means of reducing exposure

- o Reducing the volume of private car traffic
  - o Improving public transport
  - o Promoting cycling and walking
  - o Economic instruments, such as congestion charging and price of parking
- o Reducing the emissions of traffic (sustainable transport modes, low-emission buses and vehicles, speed limits)
- o Placing office buildings as a buffer zone between the busy road or street and dwellings further away
- o Building apartments so that they also have rooms facing the side away from the road or street, incoming air should be taken from this side of the building
- o Glass-enclosed balconies, noise insulation, air filters etc.





## City of Helsinki

# Is there equity in the distribution of the environmental effects of traffic?

- o A significant number of the inhabitants are exposed to levels of noise and air pollution that are harmful to their health
- o Sometimes dwellings for special purposes (such as housing for the handicapped, students or elderly) are built near busy roads in less attractive plots
- o Children, people suffering from asthma and other lung diseases and elderly people with heart conditions are particularly sensitive to air pollution
- o The environmental effects of traffic are not at the moment distributed in an equitable manner: some people are more exposed and also more sensitive to air pollutants and noise others



# Further information

Outi Väkevä

[outi.vakeva@hel.fi](mailto:outi.vakeva@hel.fi)

p. 310 31516

## City of Helsinki Environment Centre

- o [http://www.hel.fi/hki/ymk/fi/Ymp\\_rist\\_n+tila/Liikenne](http://www.hel.fi/hki/ymk/fi/Ymp_rist_n+tila/Liikenne) (FI)
- o <http://www.hel.fi/hki/ymk/en/The+State+of+the+Environment/Environmental+impacts> (EN)