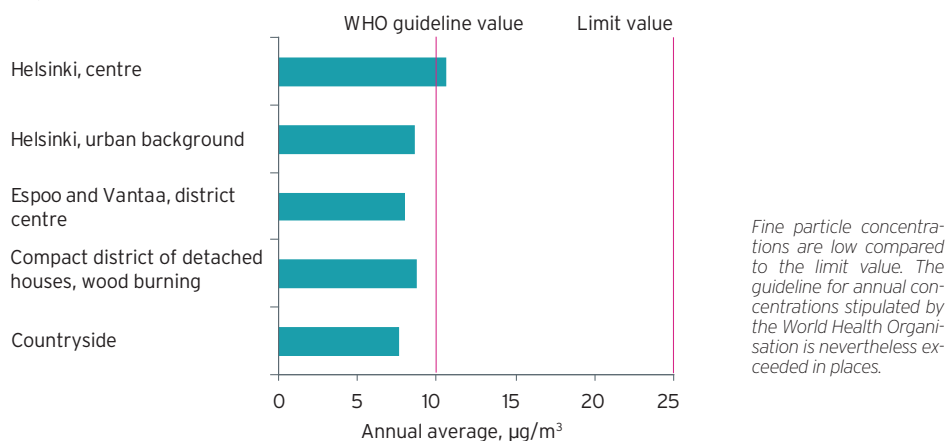


Fine particles are the most harmful air pollutant

Particles of varying size, composition and origin are suspended in ambient air. Fine particles ($PM_{2.5}$) have a diameter of less than 2.5 micrometers, and in the Helsinki metropolitan area they originate mainly from traffic emissions, wood burning, and long-range transport from abroad. Their concentrations have remained almost unchanged over the last decade. Thoracic particles (PM_{10}) are less than ten micrometers in diameter and mainly derive from street dust lifted by road traffic, especially in spring. Their concentrations have been falling in recent years.

Fine particles cause more health effects than any other air pollutant. Fine particle concentrations in the Helsinki metropolitan area are below the limit and target values, and are lower on average than in the cities of Central and Southern Europe. Even so, adverse health effects have also been detected at the concentration levels recorded in area, and so national and international efforts to reduce these concentrations are still justified.



DIESEL-POWERED VEHICLES ARE THE MAIN SOURCE OF TRAFFIC-ORIGINATED FINE PARTICLES

Traffic has various impacts on the concentrations of particulates in outdoor air. The direct particle emissions of motor vehicle traffic in the Helsinki metropolitan area are almost entirely due to diesel-powered automobiles. More than 40 per cent of motor vehicle particle emissions in the Helsinki metropolitan area come from passenger cars, while trucks account for a total of nearly 50 per cent and the remaining 10 per cent comes from buses and coaches. Besides direct exhaust emissions, traffic also stirs up street dust. Most of this dust is coarse particles, but it also includes fine particles. This street dust comes from road surfaces, gritting materials, vehicle brakes, rubber tyres, winter tyre studs and similar sources.

Direct particle emissions from traffic have diminished with technological progress, and are expected to fall still further to a fraction of current levels in the long term. However, advances in motor vehicle technology will not reduce indirect emissions, i.e. street dust, which may even increase as traffic volumes rise.