

It is no longer a question of “is it unhealthy to live near a major highway” but one of “exactly how unhealthy is it ?” Car emissions from highways contain many types of pollutants that can be harmful to a person’s health. People who live close to highways, within 50-100m, are uniquely exposed to a higher level of these pollutants than the rest of the community. Some of these pollutants are particles that, when breathed in, can do harm to the lungs and heart.

Ultrafine particles are the smallest and possibly the most dangerous of these particles. Because they are so small, they can get inside the body more easily where they can cause disease. Researchers suspect the health risk from ultrafine particles is greatest downwind and within 300ft or 100m of a busy highway.

Over the last 30 years, growing numbers of studies have shown that these ultrafine particles emitted by trucks and cars barreling down our highways can promote heart disease and strokes. Because ultrafines are mostly concentrated near the highways, people living near there will disproportionately suffer their effects.

There is growing evidence that people living or otherwise spending substantial time within about 200m of highways are exposed to these ultrafine particle pollutants more so than persons living at a greater distance, even compared to living on busy urban streets. Particulate matter exposure appears to have health consequences similar to the effects of second hand smoke, an exposure that the public no longer tolerates.

Short distances matter. When Tufts mobile testing lab drove within 100m of interstate 93, it tallied more than 120,000 ultrafine particles in every cubic centimeter of air. Moving a few blocks farther away, that number dropped dramatically. These tiny particles stick close to their source, often spiking dramatically within a few hundred meters. And it is so dangerous, they can shorten your life

Increased health risk is measurably correlated to increased particulate matter exposure. Each 10 microgram/cubic meter increase in PM leads to an 8% increased risk of lung cancer deaths, a 6% increased risk of cardio/pulmonary mortality and a 4% increased risk of death from general causes.

Scientists at the California Air Resources Board tripled their estimate of the number of deaths occurring EACH year from particle pollution. They now put the range between 5,600 to 32,000 deaths a year in that state alone. Researchers from Harvard University also recently tripled the estimated risk of premature death from particle pollution.

European studies have shown increased respiratory health problems in children who live or go to school within 100m meters of a busy roadway, with the greatest risk appearing in the first 50m. Studies conducted by the Southern California Particle Center and Supersite investigators in LA show that carbon monoxide and ultrafine particles- the smallest portion of particulate matter emissions and the most toxic - are extremely high on or near the freeway, dropping to half that concentration 50-90m from the highway. After about 300m the concentration of particulate matter reaches the normal level in the air without the influence of any nearby source. California legislation enacted a law that new schools must be built at least 152m from very busy roadways.

A 2000 Denver study showed that children living within 250 yards or 228.6 meters of a highway with 20,000 vehicles per day are 6X more likely to develop all types of cancer and 8X more likely to get leukemia. The study looked at associations between traffic density, power lines and all childhood cancers. It found a weak association from power lines but a strong association with highways. I-95 has almost 150,000 vehicles per day. Traffic density in proximity to a home is a risk factor for leukemia and other childhood cancers.

Two studies in Brisbane, Australia observed that the distance from highways at which number and mass concentrations decreased by 50% varied from 100m to 375m depending on the wind speed and direction.

Short-term exposure to particle pollution can kill.

Placed at 50m and very possibly less from the highway is the pool where residents will be exposed to particle pollution where the concentration levels have not decreased. This is especially dangerous if that person is in the high risk category: women who may be pregnant, infants, children and teens, diabetics, people over the age of 65 and people with cardiovascular disease. A large portion of the complex is situated within 100m of the interstate. The residents in these buildings will suffer serious adverse health effects. Ultrafine particulate concentrations don't substantially decrease until 90m from their source.

How does this research benefit the community? The findings will help federal, local and state governments and organizations make public health decisions about developments near a freeway. It can guide the decisions of siting sensitive land uses like residential homes to protect the health of the occupants. It demonstrates a need to begin to explore policy options that would protect an exposed population.

Unconstrained development of this area will have immense consequences on local health - especially on our children and elderly. This misuse of 40B regulation will actually hurt the population that it is intended to protect. You have to acknowledge that these are huge health impacts. Affordable housing and public health can coincide but we need to end the lack of forward thinking and regulatory exploitation.

