

Life next to the fast lane full of health hazards  
Living close to major roadways risky for residents

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Michael Brauer of UBC says the next step is to look at health effects in pollution 'hot spots.'

People living next to major highways are inhaling up to 12 times more pollutants -- but three times on average -- from motor vehicle exhaust in the Lower Mainland, a ground-breaking study by the University of B.C. shows.

The health impact on those residents is still being studied, but based on European research showing that people who live next to busy highways die sooner and experience more health problems, it's logical to assume an increased risk in Greater Vancouver, too.

"That's the implication, there is an increased risk," professor Michael Brauer confirmed in an interview.

"A number of studies, mainly from Europe [which has higher pollution levels], are showing that if you live closer to a major road you're at higher risk of dying, of asthma being worse, of respiratory disease, all kinds of things."

Brauer said studies showing the worst pollution effects are within 300 metres of busy highways should help encourage communities to use setbacks and green-space buffers between residences and major highways, and the need for governments to work to reduce motor vehicle traffic and pollution.

Some of the busiest transportation corridors in the region include Kingsway, Knight, Oak, Granville, and the Highway 99 and Highway One freeways. Areas where roads come together such as the entrances to the Port Mann Bridge also had elevated pollution levels, Brauer said, as were congested areas with many roads such as downtown Vancouver.

The pollution impact on residential high-rises varies according to location, he said, noting some receive relatively little pollution because of prevailing winds that flow down the street and sweep fumes away.

The ongoing study by UBC's School of Occupational and Environmental Hygiene shows that air pollution is not just a problem for residents in the Fraser Valley, where winds tend to blow urban smog in summer.

The study involved the monitoring of air pollution levels at 120 sites around the Lower Mainland for two-week periods in spring and summer. Levels of nitric oxide emitted from auto tailpipes ranged between 10 and 120 parts per billion at the 120 sites compared with levels of 10 to 30 parts per billion at 16 monitoring sites maintained by the Greater Vancouver Regional District during the same periods.

When all readings are considered, pollution levels at residences right near major roads are about three times higher than those located away, Brauer said.

The GVRD sites are typically located at schools, parks, and airports 150 to 500 metres from major roads. The UBC sites ranged from utility poles on major highways and residential streets to others set back 500 metres or more.

There is no national acceptable standard for nitric oxide, which is an indicator of exhaust fumes directly from the tailpipe. The gas is highly reactive and participates in other chemical reactions that contributed to smog.

UBC found that truck routes were linked to higher pollution levels. The B.C. government has no enforcement tools in place to crack down on high levels of diesel fumes in commercial trucks. "Having a truck route nearby makes it that much worse," Brauer said.

Roger Emsley lives on four hectares on 64 Street in South Delta, wedged between railway tracks, four-lane Highway 17, and Houweling Nurseries' controversial wood-fired boilers, used for heating greenhouses.

He sees the UBC study as further ammunition in the fight to stop Deltaport's planned third-berth expansion at Roberts Bank -- and all the ensuing rail, truck, and ship pollution that would entail.

"Nobody puts the figure to the real cost," said the asthma sufferer. "How do you value human health, how do you value the ability to breath clean air versus pollution?"

Brauer said higher noise levels associated with busy traffic corridors only compound the health risks, which can include cardiovascular disease. "Noise is not good for health or quality of life," he said.

Brauer said past studies have tended to look at regional air quality, whereas the UBC study is the first to address localized or hotspots for pollution. The next step is to determine health effects such as low births weight in babies in these hotspots.

A draft policy for the B.C. Environment Ministry recommends a 150-metre setback from busy roads for buildings such as schools, hospitals, long-term care facilities, and residences. Special concern is expressed for buildings where people dwell for seven to eight hours per day, including especially vulnerable populations such as children, infants, the elderly, those who are ill, and pregnant women.

The policy urges extra consideration for buildings located on major truck routes, noting elevated air pollution can be detected as far as 750 metres away. Heavy-duty trucks generally emit larger quantities of air pollutants, including diesel exhaust particulate, a probable human carcinogen, and likely the most harmful vehicle-related pollutant, it says.

To avoid "street canyons" that trap air, municipal planners should stagger buildings perpendicular to predominant wind directions or have high-rise buildings only on one side of the street, the policy adds.

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