

Researchers Study Link Between Pollutants, Health Issues in Detroit Neighborhoods

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Clarkson University is using its Mobile Air Pollution Laboratory to measure the distribution of air pollution near Detroit's highways.

(PhysOrg.com) -- Clarkson University researchers are helping the University of Michigan's School of Public Health to study the link between air pollutants and health problems in children in Detroit.

"The overall project is designed to examine the relationship between asthma in children and exposures within 150 yards of major highways," said Philip K. Hopke, director of Clarkson's Center for the Environment and professor of chemical and biomolecular engineering.

To conduct the study, Clarkson is using its Mobile [Air Pollution](#) Laboratory (MAPL) to measure the distribution of air pollution near Detroit's highways. The MAPL can monitor a number of pollutants,

including [black carbon](#), ultrafine particles, [nitrogen oxides](#), carbon monoxide and [sulfur dioxide](#).

Suresh Raja, research assistant professor, said measurements were taken close to several highways, with additional measurements taken at several intervals moving away from the highways. "We did this in about eight areas and each area had about 12 stops," he said.

The first set of data was collected in October 2009 with a second set scheduled for April 2010, Raja said. Between the two collections, "we can estimate what kind of exposures would be there year-round."

"What we see is most of the black carbon in very high concentrations in areas closer to the highway as you would expect," he said, but, "it doesn't mean you wouldn't get those kind of exposures if you live far away from the highway, because we have meteorology playing a role in picking up these pollutants and transporting it to other places."

The two-year study also includes monitoring the indoor and outdoor environments of 210 asthmatic Detroit children living near highways. Researchers expect to find that pollution from cars and trucks will be a larger factor in the children's asthma than any other source of pollution. Allergies and the presence of cigarette smokers in the household are expected to make the effects of pollution from the highways even worse.

Hopke said Clarkson has conducted similar tests in other cities. In Syracuse, he said, officials are discussing moving Interstate 81 instead replacing it as it nears the end of its useful life. "Our results will help inform the decision by better quantifying the impact of the [highway](#) on local air quality." The MAPL has also been used to measure the distribution of pollutants near I-490 and I-590 in Rochester.

The research, Hopke said, will help strengthen Clarkson's role as a leader

in aerosol and atmospheric science and exposure assessment. "The results of these studies will provide valuable insights into the heterogeneity of exposure in urban areas where there are major highways," he said.

Provided by Clarkson News Releases

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