New research reveals legacy of lead from old inner city roads a major source of airborne contamination

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(PhysOrg.com) -- An international research study published last week in the journal *Atmospheric Environment* has found that re-suspended roadside soil dust is a major source of atmospheric lead in old inner city areas.

The study was conducted by Macquarie University PhD student Mark Laidlaw with Professor Mark Taylor of the University's Department of Environment and Geography, Professor Sammy Zahran of Colorado State University, Professor Howard Mielke of Tulane University and Professor Gabrielle Filippelli of Indiana University.

Roadside soils in older inner-city areas became highly contaminated when lead was used in petrol between about 1923 and 1995 in the US and 1932 and 2002 in Australia, the researchers said.

The study, which looked at four large American cities - Chicago, Detroit, Pittsburgh and Birmingham - suggests that automotive traffic turbulence plays a significant role in re-suspension of contaminated roadside soils and dusts. The research revealed that atmospheric soil and lead aerosols were correlated and that atmospheric solid and lead aerosols are about three times higher during weekdays than weekends and Federal Government holidays.

Previous research published in 2009 by Laidlaw and Taylor confirmed that significant lead residues exist in some of Australia's older inner city areas. So, the US findings have potentially significant public health implications for some of Australia's largest cities as well - particularly on children who reside in old inner-city areas, the researchers said.

"These findings suggest that in addition to remediating urban lead contaminated soil where children play, the remediation of lead contaminated soils near older high traffic roadways in the inner cities may be another fruitful method of reducing atmospheric lead exposure among inner city children," Laidlaw said.

Laidlaw and Taylor are also calling for blood lead screenings to be conducted on children who live in contaminated areas.

"The prevalence of blood lead poisoning in Australian inner city children is unknown because unlike the US, blood lead screenings have not been routinely performed here," Taylor said.

"Most people think that the lead problem has gone away, however we've shown that it does exist in older inner-city areas and now with the latest

research, we show that the contamination isn't stable, that it's re-suspended and as a consequence is re-circulated."

Provided by Macquarie University